香港植物誌
FLORA OF HONG KONG

Volume 3

Edited by

Hong Kong Herbarium
Agriculture, Fisheries and Conservation Department

&

South China Botanical Garden
Chinese Academy of Sciences

Published by
ST
38888 18803485 8

Agriculture, Fisheries and Conservation Department
Government of the Hong Kong Special Administrative Region

Hong Kong 2009

FLORA OF HONG KONG

Volume 3

Edited by
Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department (AFCD)
South China Botanical Garden (SCBG), Chinese Academy of Sciences

Editors-in-chief	: HU Qi-ming, WU De-lin (SCBG)
Associate editor-in-chief	: XIA Nian-he (SCBG)
Volume editors	: XIA Nian-he (SCBG), YIP Kwok-leung, Patrick C. C. LAI (AFCD)
Production	: LEUNG Chi-wing, WONG Kin, YIP Kwok-leung (AFCD)
Line drawings	: YU Han-ping, LIU Yun-xiao (SCBG); ZENG Xiao-lian, MA Ping (Family 323)
Photography	: TAM Kai-yip, AU Wai-chun, LAM Ying-wai (AFCD)
Design & Pagesetting	: The Design Associates Ltd.
Published by	: Agriculture, Fisheries and Conservation Department, Government of the Hong Kong Special Administrative Region
Printed by	: Government Logistics Department, Government of the Hong Kong Special Administrative Region
First Printing	: May 2009
ISBN	: 978-988-98253-8-6 (volume 3)

Further copies of the *Flora of Hong Kong* are available from the Government Bookstore at:

ONLINE
http://www.bookstore.gov.hk

MAIL ORDER OR IN PERSON:
Publications Sales Unit
Information Services Department
Room 402, Murray Building, Garden Road, Central
Hong Kong, China
Telephone: (852)2537 1910
E-mail: puborder@isd.gov.hk

© 2009 Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department.
All rights reserved. All articles, drawings and photographs in this publication belongs to the Agriculture, Fisheries and Conservation Department, and may not be reproduced without the written permission of the Department.

The maps reproduced with permission of the Director of Lands.
© The Government of Hong Kong SAR. Licence No. G04/2006.

The information provided in this publication is for reference only. Whilst the compiler endeavours to ensure the accuracy of the information, no expressed or implied warranty is given as to the accuracy of the information or its appropriateness for use in any particular circumstances. The Hong Kong Herbarium and the Agriculture, Fisheries and Conservation Department shall not accept any responsibilities for any loss or damage arising from the information, or reproduction or re-dissemination of the information, of this publication.

CONTENTS

Map of the Hong Kong Special Administrative Region	(inside front cover)
Contents	iii
Foreword	iv
Preface	v
Acknowledgements	vi
Introduction	vii
Classification Systems adopted for the *Flora of Hong Kong*	xii
Flora Conservation in Hong Kong: efforts to preserve plant diversity	xvi
Taxonomic Treatments	1
List of Contributors	329
Index to Chinese Family and Plant Names	330
Index to Families and Scientific Names	338
Index to Families in the *Flora of Hong Kong*	351
Colour Photos	
Illustrations of Morphological Terms	
Map of Hong Kong in its Regional Setting	(inside back cover)

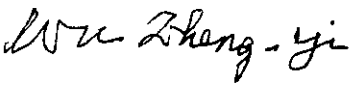
FOREWORD

Located at the border of tropical and subtropical region and with a very diverse topography within its territory, Hong Kong has a very rich flora of some 2 100 species of native species. The flora of Hong Kong is considered one of the most diverse in China, given its small area of just over 1 000 km^2. In addition, there are also a significant number of non-native plants in Hong Kong owing to its long history of human influence. These include the species purposely introduced for afforestation, landscaping, cultivation, etc., along with those exotic species being brought to the place unintentionally.

The study of the flora of Hong Kong is one of the earliest in China, which began just before 1840s, with comparatively comprehensive records, in terms of both herbarium specimens and literature. Many species native to China were indeed first described from Hong Kong. Western botanists who first explored the flora of Hong Kong were fascinated by the diversity and beauty of the endemic plants of Hong Kong. Such early efforts of botanical studies were continued by the establishment of the Hong Kong Herbarium in 1878, which is the first public herbarium in China and is still in operation to serve the community. The pioneer Chinese botanists, such as W. Y. Chun, R. C. Ching etc., used to study in the Herbarium and considered the Herbarium as a window for previewing those earlier specimens deposited in herbaria of western countries.

In 1912, the Hong Kong Herbarium made a significant contribution in the study of local flora by publishing the *Flora of Kwangtung and Hongkong* covering the whole territory of Hong Kong as well as Guangdong. Almost a century passed and now we witness the publication of a modern Flora by the Hong Kong Herbarium and South China Botanical Garden, in collaboration with local botanists as well as others. This *Flora* is the only modern regional Flora in South China written in English and it can supplement the *Flora of China*, especially for plant workers who are interested in South China flora. Besides the botanical keys and morphological descriptions, this *Flora* also gives a detailed citation of literature, synonyms and other information which makes it an updated and useful tool. The colour photographs and line drawings also facilitate the users in species identification.

The publication of the *Flora of Hong Kong* is another major milestone in the plant taxonomic study in South China and I wish to congratulate the authors and the editorial committee in producing this important work.



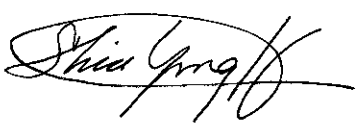
Prof. WU Zheng-yi
Academician, Chinese Academy of Sciences
Co-chair of the editorial committee, Flora of China

PREFACE

In any developed country such as England, the United States of America, or Japan, the students of elementary taxonomy courses must have copies of the Flora of the area. The Flora is a teaching tool by which the students can learn the botanical terminologies as well as the technique of using keys to identify plant specimens. It is also an essential tool for knowing the plants of the respective areas. Unfortunately, students in Hong Kong have been deprived of such a local flora for a very long period as the two previous Floras, *Flora Hongkongensis* by Bentham (1861) and *Flora of Kwangtung and Hongkong* by Dunn and Tutcher (1912), have been out of date and out of print. For improving the standard of plant taxonomy, Hong Kong needs a modern Flora which is made available to its university students and the community at large and such a need is urgent and obvious. This desire has been expressed by a large number of students who took my classes.

I initiated taxonomic studies of Hong Kong plants in March 1968 when I first came from Harvard University to Chung Chi College. Since then, various publications aimed at helping interested students were prepared, such as *Wild Flowers of Hong Kong* (1977), *The Genera of Orchidaceae in Hong Kong* (1977) *and Hong Kong Bamboos* (1985). However, a modern Flora is still wanting. In 2001, the Hong Kong Herbarium approached me for preparing major family treatments for the newly initiated *Flora of Hong Kong* project: the Malvaceae, Aquifoliaceae, Asteraceae and Orchidaceae. I immediately accepted their invitation and began preparation of the chapters.

I am very glad to participate in this meaningful project. This *Flora* represents the unprecedented efforts of both local plant workers as well as the Chinese counterparts in a collaborative fashion. It also provides an opportunity for plant workers to contribute their taxonomic expertise to serve Hong Kong students. Of course, practising plant workers, horticulturists, conservationists, landscape architects, biology teachers and amateurs would also find the *Flora of Hong Kong* an indispensable reference for their work. I am so delighted that my dream for a modern Flora specially prepared for Hong Kong has come true.



Prof. Hu Shiu-ying
Honorary Editor, Flora of Hong Kong
Honorary Fellow, The Chinese University of Hong Kong
Emeritus Senior Research Fellow, Arnold Arboretum, Harvard University

ACKNOWLEDGEMENTS

The editors would like to acknowledge the following individuals for their assistance provided during the compilation of *Flora of Hong Kong* (Volume 3):

Family 312:
Dr. A. R. Bean (Queensland Herbarium, Brisbane Botanic Gardens, Australia)
Dr. John F. Pruski (Missouri Botanical Garden, U.S.A.)

Family 316:
Dr. Tao CHEN (Shenzhen Fairy Lake Botanical Garden, Shenzhen, China)
Mr. Ping MA (Shenzhen Fairy Lake Botanical Garden, Shenzhen, China)

Material for Figure 191 first appeared in an article titled "Notes on the identity of *Hedyotis yangchunensis* (Rubiaceae) in Hong Kong" by T. Chen, in *Harvard Papers in Botany* 13(2): 284, figure 1 (2008) and is reprinted here with permission of the editors of *Harvard Papers in Botany*.

Family 323, *Mikania*:
Dr. Walter C. Holmes (Baylor University Herbarium, Waco, Texas, U.S.A.)

AN INTRODUCTION TO THE *FLORA OF HONG KONG*

The *Flora of Hong Kong*, to be published in four volumes, covers the seed plants (Gymnosperms and Angiosperms) found in Hong Kong. The *Flora* have been prepared based on historical as well as recent herbarium specimens from Hong Kong and is meant to be an entirely new work rather than merely a revision of the two previous Floras, *Flora Hongkongensis* (1861) and *Flora of Kwangtung and Hongkong* (1912). The taxa treated in the *Flora* include all native and naturalized flora as well as the introduced species that are common and established in Hong Kong, such as some ornamental plants, landscape trees or species used in afforestation or cultivation. The family sequence of the *Flora* follows the system developed by Kubitzki (1990) for Gymnosperms and that of Cronquist (1988) for Angiosperms. Genera and species descriptions are arranged according to the order of appearance respectively in the keys to genera and keys to species. Volume 1 treated 10 families in Gymnosperms and 75 families of Magnoliidae (Dicotyledons) in Angiosperms, Volume 2 the next 56 families and Volume 3 the remaining 29 families. It will be followed by Volume 4 which deals with Liliopsida (Monocotyledons). The families covered in various volumes are given in the Index to Families in the *Flora of Hong Kong*.

Taxonomic treatments are presented from the level of family to species and infraspecific ranks. Although intermediate ranks (e.g., subfamily, tribe, subgenus, section, series) are useful in the taxonomy of certain large families (e.g., Asteraceae) and genera (e.g., *Carex),* they are used only sparingly. Family names are given without authors or bibliographic citations while generic names are given without bibliographic citations but with author citations. As for other recognized taxa, authors, bibliographic citations, and synonyms are given. The major floras are cited in abbreviated forms as listed in the Abbreviation section. Each recognized taxon has a description, number of taxa, and distribution worldwide. For infraspecific taxa, either subspecies or varieties are recognized. All keys are dichotomous, indented, and in general artificial. As new taxa, new combinations, or new names have been published elsewhere in botanical journals, no taxonomic novelty is published in this *Flora*.

The synonymy is given for specific level and below, and is based on close examination of accepted names and synonyms listed in major regional floras and latest taxonomic literature, besides the taxonomic judgement of the author. At the specific and infraspecific levels, only the main synonyms, especially those listed in the floras of neighboring regions, are included. Synonyms of taxa occurring outside of Hong Kong and taxa whose status is uncertain are not included. However, misapplied names (e.g. owing to misidentification) included in local taxonomic literature including earlier local floras, checklists and other botany books of taxonomic nature and of frequent uses are noted in this *Flora*. Discussions relating to the misapplication of names and other significant misusage are dealt with as notes. To indicate a misapplied name after mentioning its correct name, the abbreviation "auct. non" is inserted between the specific name and the authority. For example, for the plant species *Crateva unilocularis* Buch.-Ham., the misapplied name "*Crateva religiosa* Forst. f." is cited in a separate paragraph as "*Crateva religiosa* auct. non Forst. f." after the main entry of *Crateva unilocularis* Buch.-Ham. At the specific and infraspecific levels the complete bibliographic citation of synonyms is given only for basionyms of recognized taxa and for important synonyms which appeared in earlier local floras and botanical references. For frequently cited regional floras, an acronym is used for the sake of brevity (please refer to the abbreviation section for details). The basionym of a recognized taxon is listed before other synonyms. The bibliographical citations of all recognized taxa and their basionyms have been verified as far as possible. *Nomina nude* are included if necessary to clarify former usage. Differences of opinion among authors in the circumscription of taxa are mentioned as brief notes.

In general, the description of a given taxon is around 200 to 300 words. Descriptions of families are

AN INTRODUCTION TO THE *FLORA OF HONG KONG*

The *Flora of Hong Kong*, to be published in four volumes, covers the seed plants (Gymnosperms and Angiosperms) found in Hong Kong. The *Flora* have been prepared based on historical as well as recent herbarium specimens from Hong Kong and is meant to be an entirely new work rather than merely a revision of the two previous Floras, *Flora Hongkongensis* (1861) and *Flora of Kwangtung and Hongkong* (1912). The taxa treated in the *Flora* include all native and naturalized flora as well as the introduced species that are common and established in Hong Kong, such as some ornamental plants, landscape trees or species used in afforestation or cultivation. The family sequence of the *Flora* follows the system developed by Kubitzki (1990) for Gymnosperms and that of Cronquist (1988) for Angiosperms. Genera and species descriptions are arranged according to the order of appearance respectively in the keys to genera and keys to species. Volume 1 treated 10 families in Gymnosperms and 75 families of Magnoliidae (Dicotyledons) in Angiosperms, Volume 2 the next 56 families and Volume 3 the remaining 29 families. It will be followed by Volume 4 which deals with Liliopsida (Monocotyledons). The families covered in various volumes are given in the Index to Families in the *Flora of Hong Kong*.

Taxonomic treatments are presented from the level of family to species and infraspecific ranks. Although intermediate ranks (e.g., subfamily, tribe, subgenus, section, series) are useful in the taxonomy of certain large families (e.g., Asteraceae) and genera (e.g., *Carex),* they are used only sparingly. Family names are given without authors or bibliographic citations while generic names are given without bibliographic citations but with author citations. As for other recognized taxa, authors, bibliographic citations, and synonyms are given. The major floras are cited in abbreviated forms as listed in the Abbreviation section. Each recognized taxon has a description, number of taxa, and distribution worldwide. For infraspecific taxa, either subspecies or varieties are recognized. All keys are dichotomous, indented, and in general artificial. As new taxa, new combinations, or new names have been published elsewhere in botanical journals, no taxonomic novelty is published in this *Flora*.

The synonymy is given for specific level and below, and is based on close examination of accepted names and synonyms listed in major regional floras and latest taxonomic literature, besides the taxonomic judgement of the author. At the specific and infraspecific levels, only the main synonyms, especially those listed in the floras of neighboring regions, are included. Synonyms of taxa occurring outside of Hong Kong and taxa whose status is uncertain are not included. However, misapplied names (e.g. owing to misidentification) included in local taxonomic literature including earlier local floras, checklists and other botany books of taxonomic nature and of frequent uses are noted in this *Flora*. Discussions relating to the misapplication of names and other significant misusage are dealt with as notes. To indicate a misapplied name after mentioning its correct name, the abbreviation "auct. non" is inserted between the specific name and the authority. For example, for the plant species *Crateva unilocularis* Buch.-Ham., the misapplied name "*Crateva religiosa* Forst. f." is cited in a separate paragraph as "*Crateva religiosa* auct. non Forst. f." after the main entry of *Crateva unilocularis* Buch.-Ham. At the specific and infraspecific levels the complete bibliographic citation of synonyms is given only for basionyms of recognized taxa and for important synonyms which appeared in earlier local floras and botanical references. For frequently cited regional floras, an acronym is used for the sake of brevity (please refer to the abbreviation section for details). The basionym of a recognized taxon is listed before other synonyms. The bibliographical citations of all recognized taxa and their basionyms have been verified as far as possible. *Nomina nude* are included if necessary to clarify former usage. Differences of opinion among authors in the circumscription of taxa are mentioned as brief notes.

In general, the description of a given taxon is around 200 to 300 words. Descriptions of families are

followed by the number of genera and species, distribution, and usually other comments, including reference to local and Chinese literature. Descriptions of species and infraspecific taxon include external morphology of various parts and reproductive organs. Information on the ecology, distribution, uses or other special interest is included if available. If a species is represented in Hong Kong by more than one infraspecific taxon, a full description is provided for the species, and only diagnostic features are listed under the infraspecific taxa. If only one infraspecific taxon of a species occurs in Hong Kong, a full description is given under the infraspecific taxon. The terminology basically follows Jackson's *A Glossary of Botanic Terms* (New York: Hafner, 1960) and Stearn's *Botanical Latin* (Newton Abbot: David & Charles, 4th edition, 1993), and Harris and Harris's *Plant Identification Terminology: An Illustrated Glossary* (Spring Lake: Spring Lake Publishing, 4th edition, 2000). The diagrammatic illustrations of the terms for morphological descriptions which are used in this *Flora* are given at the end of this volume. Flowering and fruiting times are often given by months using the first three letters of the month. If a single measurement is used, it indicates length. When both length and width are used, the measurements are given as length times width. A range of measurements is separated by a dash (–). Discontinuous states within a taxon are separated by the word "or". Exceptional measurements or character states are in parentheses, for example, stamens 5–8(–10).

Localities are given to the district level, major mountains, and islands. A general sequence of places names is in this order: Hong Kong Island (indicate major district or mountain), Kowloon Peninsula (indicate district), the New Territories (indicate firstly district, major mountain or country park and if necessary a locality in parentheses) and outlying islands beginning with Lantau Island (indicate major mountain or locality). *Hong Kong Guide* (published yearly by the Survey and Mapping Office, Lands Department, Hong Kong SAR Government) is a helpful reference. Localities given are based on specimens examined, but readers should keep in mind the dates of collection and the recent development of Hong Kong. A taxon exotic to Hong Kong is indicated under "Locality" after the current records of localities. The origin of the taxon, if known, is annotated with appropriate descriptions such as "introduced", "cultivated" or "naturalized". Early collections of taxa of particular interests (especially the type specimens) and of sufficient knowledge of their occurrence are discussed in Notes. A taxon listed in *Rare and Precious Plants of Hong Kong* (Hong Kong: Agriculture, Fisheries and Conservation Department, 2003) would also be indicated in Notes.

Specimens are cited after the localities. The family name and initials of the collector are preceding the collector's number (if lacking, it is indicated by "*s.n.*"). The majority of the specimens cited are deposited in the Hong Kong Herbarium (HK). Otherwise, the places where the cited specimens are deposited are indicated by the herbarium acronyms as assigned by the *Index Herbarorium* (8th edition) and its online edition (http://sciweb.nybg.org/science2/IndexHerbariorum.asp): for example, CUHK for the herbarium of the Biology Department, The Chinese University of Hong Kong; HKU for the herbarium, Division of Ecology and Biodiversity, The University of Hong Kong; IBSC for the herbarium, South China Botanical Garden, China; K for the Kew Herbarium, Royal Botanic Gardens, United Kingdom; and BM for the herbarium of the Botany Department, Natural History Museum, United Kingdom. The acronym (KFBG) is adopted for the Kadoorie Farm and Botanical Garden when applicable. When collector's details are lacking, the herbarium (accession) number is cited, for example, "*HK sheet 1235*".

In general, the distribution of a taxon in China is given at the provincial (or autonomous region or special administrative region) level. Provincial distributions are listed phytogeographically, and their standard spellings are as follows: Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang. The distributions within provinces, autonomous regions and special administrative regions may be modified by using the

directions C(entral), E(ast), N(orth), S(outh), W(est), or intermediate directions. Following the distribution in China, the distribution by country, continent, or area is also given for taxa extending beyond China. Only the regions and countries adjacent to China, including all countries of tropical Asia, are explicitly listed. These include Afghanistan, Bangladesh, Bhutan, Cambodia, India, Indonesia, Japan, Kazakhstan, Korea, Kyrgyzstan, Laos, Malaysia, Mongolia, Myanmar (Burma), Nepal, New Guinea, Pakistan, the Philippines, Russia, Singapore, Sri Lanka, Tajikistan, Thailand, Turkmenistan, Uzbekistan, and Vietnam. When the distribution extends beyond these countries, a generalized range (including Africa, SW Asia, Australia, Europe, North America, the Pacific Islands, and South America) is given.

Each recognized taxon in the *Flora of Hong Kong* has one Chinese name, which is usually the same name as used in *the Check List of Hong Kong Plants*, especially those used in Hong Kong and in Chinese literature. As a general rule, there is at least one figure for each native genera and is inserted in the section as close to the corresponding species description as possible. Figure legends are given below the line drawings. Photos of the species as referred in the species description are given in form of photo plates at the end of the volume. The figure and photo numbers are in sequential orders as referred in the species descriptions. The figure and photo numbers will not be accumulated to the next volume but a new set of numbers will be used in each subsequent volume.

Authors of botanical names are generally abbreviated according to Brummitt and Powell's *Authors of Plant Names* (Royal Botanic Gardens, Kew, 1992). Initials are used to differentiate authors with the same last name. The letter "f" is for the Latin *filius* (e.g., for Linnaeus and his son, L. and L. f.; for Hooker and his son, Hook. and Hook. f., respectively). The names of Chinese authors of botanical names are spelled exactly as they appear after the scientific name in the original publication of the taxon. When no author's name follows the scientific name, the form of the name of the author of the article is adopted. If the author's name is not romanized, the Pinyin transliteration is used. Chinese personal names in literature citations are abbreviated using a capital letter followed by a period to replace each Chinese syllable, and no hyphens are used (e.g. X. W. Li, not X.-W. Li).

Except those checklists and major floras listed in the Abbreviation at the end of this introduction, abbreviations of periodicals are according to Bridson's *Botanico-Periodicum-Huntianum/Supplementum* (Pittsburgh: Hunt Institute, 1991); abbreviations for books follow Stafleu and Cowan's *Taxonomic Literature*, ed. 2 (TL-2) (Utrecht: Bohn, Scheltrema & Holkema, 1976) and its supplements. Books and periodicals not included in those two works are abbreviated according to the recommendations in Appendix A of *Botanico-Periodicum-Huntianum/Supplementum.*

Three indexes are included at the end of each volume: 1) Index to Chinese Family and Plant Names arranged according to the number of strokes of the first character of the Chinese families names and plant names with the corresponding page numbers, and photo numbers for Chinese plant names, of the respective volume, 2) Index to Families and Scientific Names arranged alphabetically by the family names and generic names followed by specific epithet with the corresponding page numbers, and photo numbers for scientific names, of the respective volume, and 3) Index of Plant Families arranged alphabetically by all families covered in the *Flora of Hong Kong* with the corresponding volume number in which the families are treated.

Editors of the *Flora of Hong Kong*

ABBREVIATIONS

Literature Citations

Check List HK Plants, 2002	*Check List of Hong Kong Plants* (English Version) (Wu Te-lin, ed. September 2002. Hong Kong: Agriculture, Fisheries and Conservation Department). [Note: Despite the Chinese version published in January 2002, page citations in this *Flora* refer to the English version.]
Check List HK Plants, 2004	*Check List of Hong Kong Plants* (Hong Kong Herbarium, ed. 2004. Hong Kong: Agriculture, Fisheries and Conservation Department).
FFJ	*Flora Fujianica*, tomus 1–6. (The Editorial Committee, 1980–1991. Fuzhou: Fujian Science and Technology Press)
FGD	*Flora of Guangdong*, vol. 1–7. (Chen Feng-hwai & Wu Te-lin, eds. 1987–2006. Guangzhou: Guangdong Science and Technology Press)
FGX	*Flora of Guangxi*, vol. 1–2. (Guangxi Institute of Botany, ed. 1991–2005. Nanning: Guangxi Science and Technology Press)
FGZ	*Flora of Guangzhou.* (How Foon-chew, ed. 1956. Beijing: Science Press)
FHN	*Flora Hainanica*, tomus 1–4. (Chun Woon-yong, ed. 1964–1977. Beijing: Science Press)
FHK	*Flora Hongkongensis*. (Bentham, G. 1861. London: L. Reeves)
FKH	*Flora of Kwangtung and Hongkong (China)*. (Dunn, S. T. & W. J. Tutcher, 1912. Kew Bulletin of Miscellaneous Information, Additional Series, 10: 1–370. London: HMSO)
FOC	*Flora of China*, various volumes. (Wu Zheng-yi & P. H. Raven, eds. 1994–present. Beijing: Science Press; Saint Louis: Missouri Botanical Garden Press)
FRPS	*Flora Reipublicae Popularis Sinicae*, vols. 1–80. (The Editorial Committee, 1959–2004. Beijing: Science Press)
FTW, ed. 2	*Flora of Taiwan, second edition*, vols. 1–6. (Huang Tseng-chieng, ed. 1994–2003. Taipei: Editorial Committee of the Flora of Taiwan)
FYN	*Flora Yunnanica*, vol. 1–21. (Kunming Institute of Botany, ed. 1977–2005. Beijing: Science Press)
rev. ed.	*Revised edition*
ed. 2	*Second edition*
pl.	*Plate*
fig.	*figure*

Nomenclature

nom. cons.	*nomen conservandum*; conserved name
nom. nud.	*nomen nudum*; naked name
subsp.	subspecies
var.	variety
cv.	cultivar
f.	forma; form
auct. non	Author(s) not; refers to the quoted name being a misapplied one.

Geographical

N	North / northern
E	East / eastern
EC	East Central
NC	North Central
NW	Northwest
S	South / southern
W	West / western
SE	Southeast / southeastern
C	Central
SC	South Central
SW	Southwest
W	West
WC	West Central

Others

±	more or less, nearly so
µm	micrometer(s)
×	times, between length and width measurements
ca.	circa, about, approximately
cm	centimeter(s)
d.b.h.	diameter at breast height
diam.	diameter
ed.	edition
e.g.	for example
et al.	and others
fig.	figure
figs.	figures
fl.	flowering
fr.	fruiting
i.e.	that is
m	metre(s)
mm	millimetre(s)
p.	page
pp.	pages
p.p.	*pro parte*; in part
pl.	plate
s.n.	without a collection number
s.l.	*sensu lato*; used in board sense
s.s.	*sensu stricto*; used in strict sense
sp.	species
spp.	several species
subfam.	subfamily
subsp.	subspecies
subspp.	several subspecies
t.	table
var.	variety
vol.	volume
Rd.	Road
1st	First
2nd	Second
3rd	Third
4th	Forth

CLASSIFICATION SYSTEMS ADOPTED FOR THE *FLORA OF HONG KONG*

Gymnosperms

(Kubitzki 1990)

CONIFEROPHYTINA

Ginkgoatae

1. Ginkgoaceae

PINATAE

Pinales

2. Araucariaceae
3. Pinaceae
4. Sciadopityaceae
5. Taxodiaceae
6. Cupressaceae
7. Phyllocladaceae
8. Podocarpaceae

Taxales

9. Cephalotaxaceae
10. Taxaceae

CYCADOPHYTINA

Cycadatae

Cycadales

11. Boweniaceae
12. Cycadaceae
13. Stangeriaceae
14. Zamiaceae

GNETATAE

Gnetales

15. Ephedraceae
16. Welwitschiaceae
17. Gnetaceae

Angiosperms

(Cronquist 1988)

MAGNOLIOPSIDA (DICOTYLEDONS)

SUBCLASS MAGNOLIIDAE

Magnoliales

1. Winteraceae
2. Degeneriaceae
3. Himantandraceae
4. Eupomatiaceae
5. Austrobaileyaceae
6. Magnoliaceae
7. Lactoridaceae
8. Annonaceae
9. Myristicaceae
10. Canellaceae

Laurales

11. Amborellaceae
12. Trimeniaceae
13. Monimiaceae
14. Gomortegaceae
15. Calycanthaceae
16. Idiospermaceae
17. Lauraceae
18. Hernandiaceae

Piperales

19. Chloranthaceae
20. Saururaceae
21. Piperaceae

Aristolochiales

22. Aristolochiaceae

Illiciales

23. Illiciaceae
24. Schisandraceae

Nymphaeales

25. Nelumbonaceae
26. Nymphaeaceae
27. Barclayaceae
28. Cabombaceae
29. Ceratophyllaceae

Ranunculales

30. Ranunculaceae
31. Circaeasteraceae
32. Berberidaceae
33. Sargentodoxaceae
34. Lardizabalaceae
35. Menispermaceae
36. Coriariaceae
37. Sabiaceae

Papaverales

38. Papaveraceae
39. Fumariaceae

SUBCLASS HAMAMELIDAE

Trochodendrales

40. Tetracentraceae
41. Trochodendraceae

Hamamelidales

42. Cercidiphyllaceae
43. Eupteleaceae
44. Platanaceae
45. Hamamelidaceae
46. Myrothamnaceae

Daphniphyllales

47. Daphniphyllaceae

Didymelales

48. Didymelaceae

Eucommiales

49. Eucommiaceae

Urticales

50. Barbeyaceae
51. Ulmaceae
52. Cannabaceae
53. Moraceae
54. Cecropiaceae
55. Urticaceae
56. Physenaceae

Leitneriales

57. Leitneriaceae

Juglandales

58. Rhoipteleaceae
59. Juglandaceae

Myricales

60. Myricaceae

Fagales
61. Balanopaceae
62. Ticodendraceae
63. Fagaceae
64. Nothofagaceae
65. Betulaceae

Casuarinales
66. Casuarinaceae

SUBCLASS CARYOPHYLLIDAE

Caryophyllales
67. Phytolaccaceae
68. Achatocarpaceae
69. Nyctaginaceae
70. Aizoaceae
71. Didiereaceae
72. Cactaceae
73. Chenopodiaceae
74. Amaranthaceae
75. Portulacaceae
76. Basellaceae
77. Molluginaceae
78. Caryophyllaceae

Polygonales
79. Polygonaceae

Plumbaginales
80. Plumbaginaceae

SUBCLASS DILLENIIDAE

Dilleniales
81. Dilleniaceae
82. Paeoniaceae

Theales
83. Ochnaceae
84. Sphaerosepalaceae
85. Sarcolaenaceae
86. Dipterocarpaceae
87. Caryocaraceae
88. Theaceae
89. Actinidiaceae
90. Scytopetalaceae
91. Pentaphylacaceae
92. Tetrameristaceae
93. Pellicieraceae
94. Oncothecaceae
95. Marcgraviaceae
96. Quiinaceae
97. Elatinaceae
98. Paracryphiaceae
99. Medusagynaceae
100. Clusiaceae (Guttiferae) (incl. Hypericaceae)

Malvales
101. Elaeocarpaceae
102. Tiliaceae
103. Sterculiaceae
104. Bombacaceae
105. Malvaceae

Lecythidales
106. Lecythidaceae

Nepenthales
107. Sarraceniaceae
108. Nepenthaceae
109. Droseraceae

Violales
110. Flacourtiaceae
111. Peridiscaceae
112. Bixaceae
113. Cistaceae
114. Huaceae
115. Lacistemataceae
116. Scyphostegiaceae
117. Stachyuraceae
118. Violaceae
119. Tamaricaceae
120. Frankeniaceae
121. Dioncophyllaceae
122. Ancistrocladaceae
123. Turneraceae
124. Malesherbiaceae
125. Passifloraceae
126. Achariaceae
127. Caricaceae
128. Fouquieriaceae
129. Hoplestigmataceae
130. Cucurbitaceae
131. Datiscaceae
132. Begoniaceae
133. Loasaceae

Salicales
134. Salicaceae

Capparales
135. Tovariaceae
136. Capparaceae
137. Brassicaceae (Cruciferae)
138. Moringaceae
139. Resedaceae

Batales
140. Gyrostemonaceae
141. Bataceae

Ericales
142. Cyrillaceae
143. Clethraceae
144. Grubbiaceae
145. Empetraceae
146. Epacridaceae
147. Ericaceae
148. Pyrolaceae
149. Monotropaceae

Diapensiales
150. Diapensiaceae

Ebenales
151. Sapotaceae
152. Ebenaceae
153. Styracaceae
154. Lissocarpaceae
155. Symplocaceae

Primulales
156. Theophrastaceae
157. Myrsinaceae
158. Primulaceae

SUBCLASS ROSIDAE

Rosales
159. Brunelliaceae
160. Connaraceae
161. Eucryphiaceae
162. Cunoniaceae
163. Davidsoniaceae
164. Dialypetalanthaceae
165. Pittosporaceae
166. Byblidaceae
167. Hydrangeaceae (incl. Philadelphaceae)
168. Columelliaceae
169. Grossulariaceae
170. Greyiaceae
171. Bruniaceae
172. Anisophylleaceae
173. Alseuosmiaceae
174. Crassulaceae
175. Cephalotaceae
176. Saxifragaceae
177. Rosaceae
178. Neuradaceae
179. Crossosomataceae
180. Chrysobalanaceae
181. Surianaceae
182. Rhabdodendraceae

Fabales
183. Mimosaceae
184. Caesalpiniaceae
185. Fabaceae (Papilionaceae)

Proteales
186. Elaeagnaceae
187. Proteaceae

Podestemales
188. Podostemaceae

Haloragales
189. Haloragaceae
190. Gunneraceae

Myrtales
191. Sonneratiaceae
192. Lythraceae
193. Rhynchocalycaceae
194. Alzateaceae
195. Penaeaceae
196. Crypteroniaceae
197. Thymelaeaceae
198. Trapaceae
199. Myrtaceae
200. Punicaceae
201. Onagraceae
202. Oliniaceae
203. Melastomataceae
204. Combretaceae

Rhizophorales
205. Rhizophoraceae

Cornales
206. Alangiaceae
207. Cornaceae
(incl. Nyssaceae)
208. Garryaceae

Santalales
209. Medusandraceae
210. Dipentodontaceae
211. Olacaceae
212. Opiliaceae
213. Santalaceae
214. Misodendraceae
215. Loranthaceae
216. Viscaceae
217. Eremolepidaceae
218. Balanophoraceae

Rafflesiales
219. Hydnoraceae
220. Mitrastemonaceae
221. Rafflesiaceae

Celastrales
222. Geissolomataceae
223. Celastraceae
224. Hippocrateaceae
225. Stackhousiaceae
226. Salvadoraceae
227. Tepuianthaceae
228. Aquifoliaceae
229. Icacinaceae
230. Aextoxicaceae
231. Cardiopteridaceae
232. Corynocarpaceae
233. Dichapetalaceae

Euphorbiales
234. Buxaceae
235. Simmondsiaceae
236. Pandaceae
237. Euphorbiaceae

Rhamnales
238. Rhamnaceae
239. Leeaceae
240. Vitaceae

Linales
241. Erythroxylaceae
242. Humiriaceae
243. Ixonanthaceae
244. Hugoniaceae
245. Linaceae

Polygalales
246. Malpighiaceae
247. Vochysiaceae
248. Trigoniaceae
249. Tremandraceae
250. Polygalaceae
251. Xanthophyllaceae
252. Krameriaceae

Sapindales
253. Staphyleaceae
254. Melianthaceae
255. Bretschneideraceae
256. Akaniaceae
257. Sapindaceae
258. Hippocastanaceae
259. Aceraceae
260. Burseraceae
261. Anacardiaceae
262. Julianiaceae
263. Simaroubaceae
264. Cneoraceae
265. Meliaceae
266. Rutaceae
267. Zygophyllaceae

Geraniales
268. Oxalidaceae
269. Geraniaceae
270. Limnanthaceae
271. Tropaeolaceae
272. Balsaminaceae

Apiales
273. Araliaceae
274. Apiaceae (Umbelliferae)

SUBCLASS ASTERIDAE

Gentianales
275. Loganiaceae
[incl. Strychnaceae (Spigeliaceae)]
276. Gentianaceae
277. Saccifoliaceae
278. Apocynaceae
279. Asclepiadaceae

Solanales
280. Duckeodendraceae
281. Nolanaceae
282. Solanaceae
283. Convolvulaceae
284. Cuscutaceae
285. Retziaceae
286. Menyanthaceae
287. Polemoniaceae
288. Hydrophyllaceae

Lamiales
289. Lennoaceae
290. Boraginaceae
291. Verbenaceae
292. Lamiaceae (Labiatae)

Callitrichales
293. Hippuridaceae
294. Callitrichaceae
295. Hydrostachyaceae

Plantaginales
296. Plantaginaceae

Scrophulariales
297. Buddlejaceae
298. Oleaceae
299. Scrophulariaceae
300. Globulariaceae
301. Myoporaceae
302. Orobanchaceae
303. Gesneriaceae
304. Acanthaceae
305. Pedaliaceae
306. Bignoniaceae
307. Mendonciaceae
308. Lentibulariaceae

Campanulales
309. Pentaphragmataceae
310. Sphenocleaceae
311. Campanulaceae
312. Stylidiaceae
313. Donatiaceae
314. Brunoniaceae
315. Goodeniaceae

Rubiales
316. Rubiaceae
317. Theligonaceae

Dipsacales
318. Caprifoliaceae
319. Adoxaceae
320. Valerianaceae
321. Dipsacaceae

Calycerales
322. Calyceraceae

Asterales
323. Asteraceae (Compositae)

LILIOPSIDA (MONOCOTYLEDONS)

SUBCLASS ALISMATIDAE

Alismatales
324. Butomaceae
325. Limnocharitaceae
326. Alismataceae

Hydrocharitales
327. Hydrocharitaceae

Najadales
328. Aponogetonaceae
329. Scheuchzeriaceae
330. Juncaginaceae
331. Potamogetonaceae
332. Ruppiaceae
333. Najadaceae
334. Zannichelliaceae
335. Posidoniaceae
336. Cymodoceaceae
337. Zosteraceae

Triuridales
338. Petrosaviaceae
339. Triuridaceae

SUBCLASS ARECIDAE

Arecales
340. Arecaceae (Palmae)

Cyclanthales
341. Cyclanthaceae

Pandanales
342. Pandanaceae

Arales
343. Acoraceae
344. Araceae
345. Lemnaceae

SUBCLASS COMMELINIDAE

Commelinidales
346. Rapateaceae
347. Xyridaceae
348. Mayacaceae
349. Commelinaceae

Eriocaulales
350. Eriocaulaceae

Restionales
351. Flagellariaceae
352. Joinvilleaceae
353. Restionaceae
354. Centrolepidaceae

Juncales
355. Juncaceae
356. Thurniaceae

Cyperales
357. Cyperaceae
358. Poaceae (Gramineae)

Hydatellales
359. Hydatellaceae

Typhales
360. Sparganiaceae
361. Typhaceae

SUBCLASS ZINGIBERIDAE

Bromeliales
362. Bromeliaceae

Zingiberales
363. Strelitziaceae
364. Heliconiaceae
365. Musaceae
366. Lowiaceae
367. Zingiberaceae
368. Costaceae
369. Cannaceae
370. Marantaceae

SUBCLASS LILIIDAE

Liliales
371. Philydraceae
372. Pontederiaceae
373. Haemodoraceae
374. Cyanastraceae
375. Liliaceae
(incl. Amaryllidaceae)
376. Iridaceae
377. Velloziaceae
378. Aloeaceae
379. Agavaceae
380. Xanthorrhoeaceae
381. Hanguanaceae
382. Taccaceae
383. Stemonaceae
384. Smilacaceae
385. Dioscoreaceae

Orchidales
386. Geosiridaceae
387. Burmanniaceae
388. Corsiaceae
389. Orchidaceae

References

Kubitzki, K., 1990–2007. *The Families and Genera of Vascular Plants, Vol. I–IX.* Springer, New York.

Cronquist, A., 1981. *An Integrated System of Classification of Flowering Plants.* Columbia University Press, New York.

Cronquist, A., 1988. *The Evolution and Classification of Flowering Plants (second edition).* New York Botanical Garden, Bronx.

275. LOGANIACEAE 馬錢科

LI Ping-tao 李秉滔

Trees, shrubs, woody climbers, or herbs, sometimes with axillary spines or tendrils. Stipules usually present, often reduced to lines connecting petiole bases, sometimes reduced to petiolar ocrea or a connate leaf-sheath. Leaves opposite, occasionally alternate, rarely fasciculate or whorled; margin usually entire; pinnately veined or 3–7-veined from base. Flowers in cymes, which often grouped into thyrses or sometimes umbel-like, scorpioid or reduced to single flowers; bracts usually small. Flowers usually bisexual. Calyx 4- or 5-lobed; lobes free or connate, mostly persistent, imbricate or valvate. Corolla sympetalous; lobes 4 or 5(–16), valvate, imbricate or contorted in bud. Stamens inserted on corolla, included to exserted, equal in number to corolla lobes and alternating with them or sometimes fewer; filaments free, much shorter to much longer than anthers; anthers basifixed, 2–4-locular, dehiscing introrsely or extrorsely by longitudinal slits, base slightly to deeply parted. Disk ring-shaped or not. Ovary superior or rarely semi-inferior, (1–)2(–4)-locular, placentation axile or parietal; ovules 1–many per locule. Style simple, terminal, persistent or deciduous; stigma usually capitate, entire or shortly 2–4-cleft. Fruit a capsule, berry, or drupe, 1–many-seeded. Seeds sometimes winged; endosperm fleshy or horny; embryo minute, straight; cotyledons small.

About 29 genera and about 500 species, mainly in tropical and subtropical regions, absent from Europe; eight genera and 45 species in China; four genera and seven species in Hong Kong.

1a. Erect herbs; leaves rosette-whorl at base of stem ..... 1. *Mitrasacme*
1b. Woody climbers; leaves without rosette-whorl at base of stem.
2a. Plant with axillary, simple or double curled tendrils, sometimes with axillary thorns; leaves with 3–7 basal veins..... 2. *Strychnos*
2b. Plant without tentrils and thorns; leaves with pinnately veins.
3a. Winter bud scaly; corolla funnelform; aestivation imbricate; fruit capsular ..... 3. *Gelsemium*
3b. Winter bud absent; corolla rotate; aestivation valvate; fruit baccate ..... 4. *Gardneria*

1. Mitrasacme Labill. 尖帽草屬

Annual or perennial delicate herbs. Leaves opposite along stem and/or in a whorl at base, subsessile; stipules absent. Flowers axillary and/or terminal, solitary or in pedunculate umbel-like cymes, which sometimes branched to form irregular compound umbels, 4-merous, white or yellow, rarely pale blue. Calyx campanulate, 2–4-lobed, lobes valvate. Corolla campanulate (salverform or urceolate), often bearded at mouth, tube short to long, lobes exduplicate-valvate in bud. Stamens inserted on lower half of corolla tube; filaments much longer than anthers; anthers introrse, extrorse, or rarely latrorse, included to slightly exerted, 2-celled. Pistil glabrous. Ovary superior to slightly inferior, with many ovules per locule. Style one, base usually parted, rarely 2 separate styles; stigma capitate or 2-cleft. Capsules globose to subglobose, opening by apical loculicidal slits, 2-horned, each terminated by a style which may be split or remain partly connate, many-seeded. Seeds minute, cylindric-ellipsoidal to angular; seed coat thin reticulate to verrucose or almost very minutely papillate; endosperm fleshy.

About 40 species, mainly Australia, but extending to E, S and SE Asia and Pacific islands; two species in China and Hong Kong.

1a. Stems glabrous or very sparsely hairy, 4-ribbed to narrowly 4-winged; flowers always axillary, solitary, rarely 2 together in a sessile cluster ..... 1. *M. indica*
1b. Stems hairy, at least near base, terete; flowers mostly terminal, usually in long pedunculate umbel-like cymes ..... 2. *M. pygmaea*

1. Mitrasacme indica Wight 姬苗

Icon. Pl. Ind. Orient. 4: 15. 1850; FRPS 61: 257. 1992; FOC 15: 322. 1996.

Mitrasacme alsinoides R. Br. var. *indica* (Wight) H. Hara, J. Japan Bot. 30(1): 24. 1955.

Mitrasacme alsinoides auct. non R. Br.: FKH 173. 1912.

Plants annual, erect, to 15 cm tall. Stems usually branched, slender, distinctly 4-ribbed to narrowly 4-winged, glabrous or nearly so; internodes 2–4 times as long as leaves. Leaves ovate to very narrowly ovate, 3–7 × 1.5–2.5 mm, herbaceous, apex acute, glabrous or glabrescent, midvein abaxially prominent, lateral veins inconspicuous on both surfaces. Flowers solitary in upper leaf axils. Pedicel filamentous, 3–8 mm, glabrous or scabrous. Calyx to 2 mm, glabrous, basally connate to ± half its length, lobes narrowly oblong. Corolla white, campanulate, 3–4 mm, shortly and sparsely beared at mouth; lobes nearly rounded, ca. 1.5 mm. Stamens included; filaments ca. 1 mm; anthers introrse, ovate to rarely sagittate, ca. 0.7 mm, with an apical appendix. Pistil ca. 1.5 mm. Ovary ovoid, ca. 0.5 mm in diam. Style ca. 1 mm, base strongly parted, connate along apical half; stigma broadly truncate to 2-cleft. Fruiting pedicel 0.6–2.5 cm. Capsules subglobose, to 2 mm in diam. Style connate only at apex. Seeds angular-ovoid, coarsely reticulate.

Locality: Fanling, Tai Po, Tai Mo Shan. *W. J. Tutcher 9960; HK sheet 40390.*

Distribution: Hainan, Jiangsu, Shandong, Fujian, Taiwan; E Asia, SE Asia to Australia.

Ecology: Grassy open places. Flowering: Sep.–Oct.

2. Mitrasacme pygmaea R. Br.
水田白(裸莖姬苗) **(Fig. 1; Photos 1–2)**

Prodr. 453. 1810; FRPS 61: 257, pl. 68: 1–5. 1992; FGD 3: 312, fig. 202. 1995; FOC 15: 322. 1996.

Mitrasacme capillaris Wall. in Roxb., Fl. Ind. 1: 420. 1820; FHK 230. 1861.

Mitrasacme chinensis Griseb., Nov. Acta Acad. Caes. Leop.–Car. Nat. Cur. Suppl. 1: 51. 1843.

Mitrasacme nudicaulis auct. non Blume: FHK 230. 1861; FKH 173. 1912.

Mitrasacme polymorpha auct. non R. Br.: FKH 173. 1912.

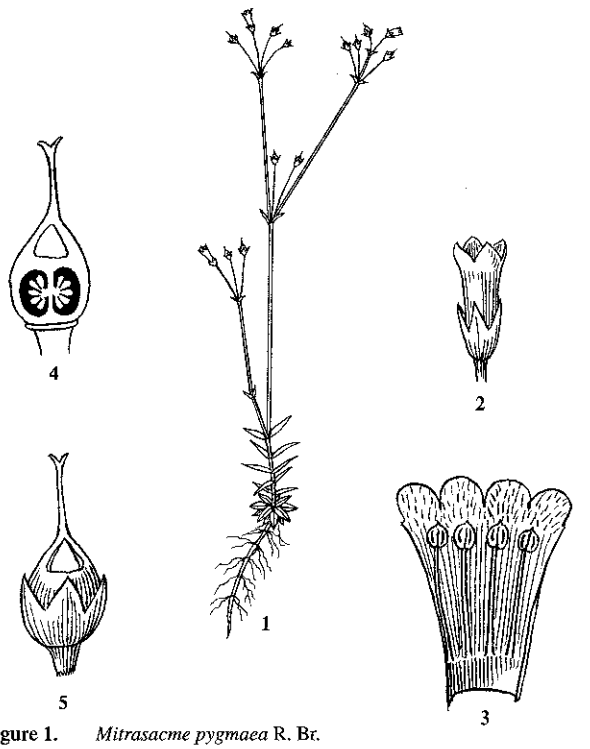


Figure 1. *Mitrasacme pygmaea* R. Br.
1. whole plant; *2.* flower; *3.* corolla and stamens; *4.* vertical section of ovary; *5.* capsule and persistent calyx. (drawn by H. P. Yu)

Annual or perennial, ephemeral plants, to 20(–30) cm tall. Stems terete, erect, simple or few-branched from base. Leaves in a basal rosette or separated by internodes longer than leaves except for uppermost 2 pairs which from a whorl of 4 leaves; leaf blade ovate, oblong, or linear-lanceolate, 2–13 × 1–5 mm, herbaceous, base broadly cuneate to attenuate, apex obtuse to acuminate, abaxially hirsute on midvein, adaxially hirsute but glabrescent, rarely both surfaces ± glabrous, margin hirsute, lateral veins 3 inconspicuous pairs. Inflorescences terminal, sometimes subterminal, long-pedunculate, umbel-like, often irregularly compound, rarely reduced to a single long pedicellate flower; bracts ovate to ovate-lanceolate, ca. 3 mm, ciliate. Pedicel 5–9 mm. Calyx campanulate, 1.5–2.8 mm; lobes narrowly triangular, as long as tube. Corolla white, pale yellow, or rarely bluish white, campanulate, 3–6 mm, inside often sparsely bearded; lobes suborbicular, to 1.5 mm. Stamens included; filaments 1.5–3 mm; anthers narrowly ovate to sagittate, apex acute. Pistil to 4.5 mm. Ovary ca. 1 mm. Styles free for lower 1/4 to 1/3; stigma 2, 2-cleft. Fruiting pedicel ca. 1.5 cm. Capsules subglobose, ca. 3 mm in diam., base enclosed by calyx, apex opening by loculicidal slits, many-seeded; style persistent, free or connate toward apex. Seeds ellipsoidal to angular, minutely reticulate to papillate.

Locality: Mount Gough, Cape D'Aguilar, Tai Po Kau, Lo Wu, Ma On Shan, Kwai Tau Leng, Lantau Island. *S. P. Lau 57; L. T. Lo 255; Y. W. Lam 2315.*

Distribution: E, S & SW China; E, SE to S Asia.

Ecology: Grassy open places. Flowering: Jun.–Nov.

2. Strychnos L. 馬錢屬

Shrubs, trees, or woody lianas, armed or unarmed; lianas with axillary simple or double curled tendrils, sometimes with axillary thorns. Stipules often reduced to a straight ciliate ridge connecting petiole bases. Leaves petiolate to sometimes subsessile; leaf blade margin entire, basal veins 3–7, secondary veins 1–3 distinct pairs from or near base curved along margin in species represented. Inflorescences terminal and/or axillary, thyrsoid; bracts scale-like to sepal-like. Flowers pedicellate or sessile, 4- or 5-merous. Corolla rotate to salverform; lobes valvate in bud, spreading to reflexed when open. Stamens inserted at corolla throat to middle of corolla tube, exserted to included; filaments long to short, mostly filiform; anthers orbicular to narrowly oblong, base mostly slightly 2-cleft, introrse, 2-celled and separate. Ovary (1–)2-locular, with few to many ovules per locule. Style cylindric; stigma capitate of faintly 2-cleft. Berries orange or red when ripe in species represented, usually globose to ellipsoidal, thin to thick walled, outside smooth to minutely warty, glabrous; pulp fleshy, usually orange; 1–15-seeded. Seeds ± flattened to saucer-shaped, circular to elliptic in outline; seed coat sericeous, felty, or scabrous and glabrous; embryo spatulate; endosperm horny; cotyledon leaflike.

About 190 species in tropics and subtropics; 11 species in China; three species in Hong Kong.

1a. Inflorescences 6–12 cm; corolla lobes 2–3 times longer than tube ..... 1. *S. umbellata*
1b. Inflorescences 2–4 cm; corolla lobes ± as long as tube or shorter.
2a. Corolla lobes ± as long as tube; filaments longer than anthers ..... 2. *S. angustiflora*
2b. Corolla lobes shorter than tube; filaments shorter than anthers ..... 3. *S. cathayensis*

1. Strychnos umbellata (Lour.) Merr. 傘花馬錢 **(Photos 3–4)**

Philipp. J. Sci. 15: 252. 1919; FRPS 61: 233, pl. 60: 7–13. 1992; FGD 3: 306. 1995; FOC 15: 326. 1996.

Cissus umbellata Lour., Fl. Cochinch. 1: 84. 1790.

Strychnos paniculata Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 5: 56. 1853; FHK 232. 1861; FKH 174. 1912.

Lianas to 10 m or longer. Branchlets glabrous. Petioles 4–6 mm; leaf blade 4–9 × 2–3.5 cm, ovate to narrowly elliptic, leathery, glabrous, base obtuse, apex obtuse to acute, basal veins 3–7. Thyrses terminal or axillary, 6–12 cm; peduncle pubescent. Flowers 4- or

5-merous. Pedicels 1–4 mm, pubescent. Sepals broadly ovate, ca. 1 × 1 mm, outside pubescent. Corolla campanulate, ca. 4 mm, outside glabrous; tube 0.5–1 mm, mouth pubescent; lobes narrowly oblong, 1.5–3 mm. Stamens inserted at mouth of corolla tube, exserted; filaments ca. 1.5 mm; anthers narrowly ovate, ca. 1 mm, cordate, base bearded. Ovary ovoid, ca. 3 mm, glabrous or apically with shaggy hairs. Style 2.5–3 mm; stigma capitate. Berries globose, ca. 1.2 cm in diam., 1–3-seeded. Seeds pale yellowish-grey, orbicular, ca. 7 mm, covered with very fine sericeous hairs.

Locality: Hong Kong Island, Sha Tin, Ma On Shan, Castle Peak, So Kwun Wat, Lantau Island. *Y. S. Lau 388; N. H. Li 153; K. Y. Tam 131.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Taiwan; Vietnam.

Ecology: Forests and thickets. Flowering: Apr.–Jun.; fruiting: Jul.–Sep.

Uses: Medicinal (folklore), poisonous.

Notes: The type specimen was collected by C. Wright from Hong Kong Island between 1853 and 1856. The type specimen of *Strychnos paniculata* was collected by J. G. Champion from Happy Valley between 1847 and 1850.

2. Strychnos angustiflora Benth.

牛眼馬錢 **(Fig. 2; Photos 5–6)**

J. Linn. Soc. Bot. 1: 102. 1857; FHK 232. 1861; FKH 174. 1912; FRPS 61: 234, pl. 61: 1–7. 1992; FGD 3: 306, fig. 197. 1995; FOC 15: 326. 1996.

Lianas to 10 m, glabrous except for inflorescences and flowers. Branchlets with axillary tendrils; older branches with axillary thorns. Petioles 4–6 mm; leaf blade ovate, elliptic, or suborbicular, 3–8 × 2–4 cm, leathery, base obtuse to rounded or sometimes slightly cordate, apex acute to obtuse, basal veins 3–5, lateral veins more delicate than midvein. Thyrses terminal, 2–4 cm, pubescent. Flowers 5-merous, 8–11 mm. Sepals ovate to triangular, 1–1.5 mm, outside puberulous. Corolla white, salverform; tube 4–5 mm, throat and base of lobes with long woolly hairs; lobes narrowly oblong, ± as long as tube. Stamens inserted at mouth or corolla tube, ca. 2 mm; filaments filiform, longer than anthers; anthers oblong, exserted, base glabrous. Pistil ca. 1 cm, glabrous. Ovary ovoid, ca. 0.7 mm; style slender. Berries orange when ripe, globose, 2–4 cm in diam., smooth, 1–6-seeded. Seeds pale yellowish grey, orbicular, flat, 1–1.8 cm in diam., covered with extremely fine sericeous hairs.

Locality: Hong Kong Island, Sha Tin, Ma On Shan, Sam A Tsuen, Tai Wan, Lantau Island, Lamma Island, Beaufort Island, Ching Chau. *S. P. Lau 168; Y. S. Lau 3105; HK sheet 40825.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian; Vietnam, Thailand, Philippines.

Ecology: Open woodlands, scrubs. Flowering: Apr.–Jun.; fruiting: Jun.–Dec.

Uses: Medicinal (folklore), poisonous.

Notes: The type specimens were collected by R. B. Hinds and J. G. Champion from Hong Kong Island between 1847 and 1850.

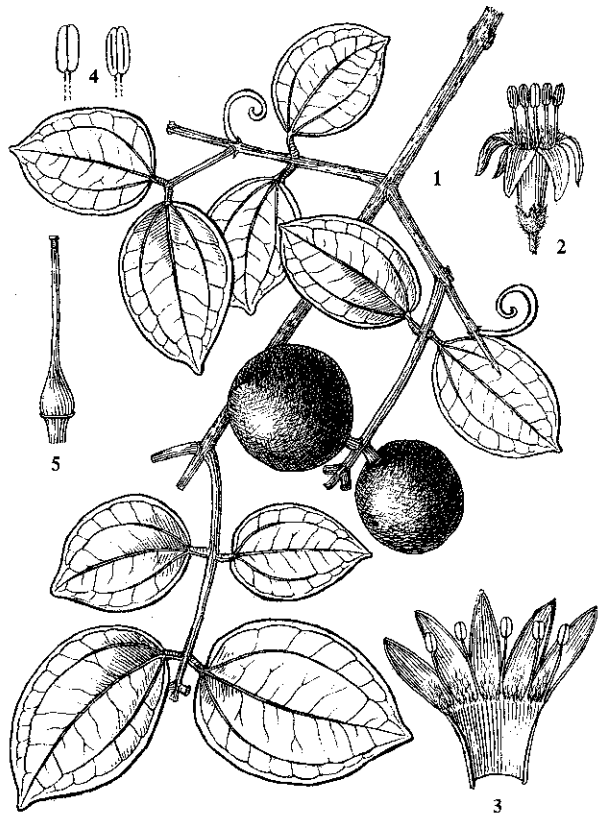


Figure 2. *Strychnos angustiflora* Benth.
1. fruiting branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* dorsal and ventral views of anther; *5.* pistil. (drawn by H. P. Yu)

3. Strychnos cathayensis Merr. 華馬錢 **(Photos 7–8)**

Lingnan Sci. J. 13: 14. 1934; FRPS 61: 237. 1992; FGD 3: 307. 1995; FOC 15: 326. 1996.

Lianas to 8 m. Young branchlets pubescent, glabrescent, with axillary double tendrils. Petioles 2–4 mm; leaf blade elliptic to narrowly oblong, 6–10 × 2–4 cm, abaxially puberulous, adaxially green, glabrous, and shiny, basal veins impressed adaxially. Cymes terminal or axillary, 3–4 cm, many-flowered; peduncle puberulous; bracteoles ovate to triangular, ca. 1 mm. Flowers 5-merous, 0.8–1.2 cm. Pedicels ca. 2 mm, puberulous. Sepals ovate, ca. 1 × 0.5 mm, outside puberulous. Corolla white, salverform, ca. 1.2 cm, glabrous, outside sometimes papillose; tube ca. 9 mm; lobes oblong, to 3.5 mm, slightly thickened. Stamens inserted at mouth of corolla tube, ca. 2 mm; filaments ca. 0.5 mm; anthers oblong, 1.5–2 mm, glabrous. Pistil to 1.1 cm, glabrous. Ovary ovoid, ca. 1 mm; style slender, to 1 cm; stigma capitate. Berries globose, 1.5–3 cm in diam., 2–7-seeded. Seeds saucer-shaped, 2–2.5 cm wide, densely puberulous.

Locality: Ma On Shan, Luk Keng. *Y. S. Lau 1826; Y. W. Lam 224.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Taiwan; Vietnam.

Ecology: Open woodlands, scrubs. Flowering: Mar.–Jun.; fruiting: Jun.–Dec.

Uses: Medicinal (folklore), poisonous.

3. Gelsemium Juss. 鈎吻屬

Shrubs, straggling to twining climbers. Stipules reduced to an interpetiolar line. Leaves opposite, rarely verticillate, margin entire. Thyrses axillary and terminal, many-flowered or fascicles with few flowers to 1-flowered. Flowers 5-merous. Sepals imbricate. Corolla funnelform; lobes imbricate. Stamens inserted at base to middle of corolla tube; filaments strap-shaped to filiform; anthers narrowly ovate to narrowly oblong, included to exserted, base sagittate, 2-celled. Ovary 2-locular, with several ovules per locule. Style filiform; stigma 4-cleft. Capsules ellipsoidal to narrowly ellipsoidal, septicidal, 4-valvate, several-seeded. Seeds winged.

Three species distributed worldwide; two species in N America, one species in E and SE Asia; one species in China; one species in Hong Kong.

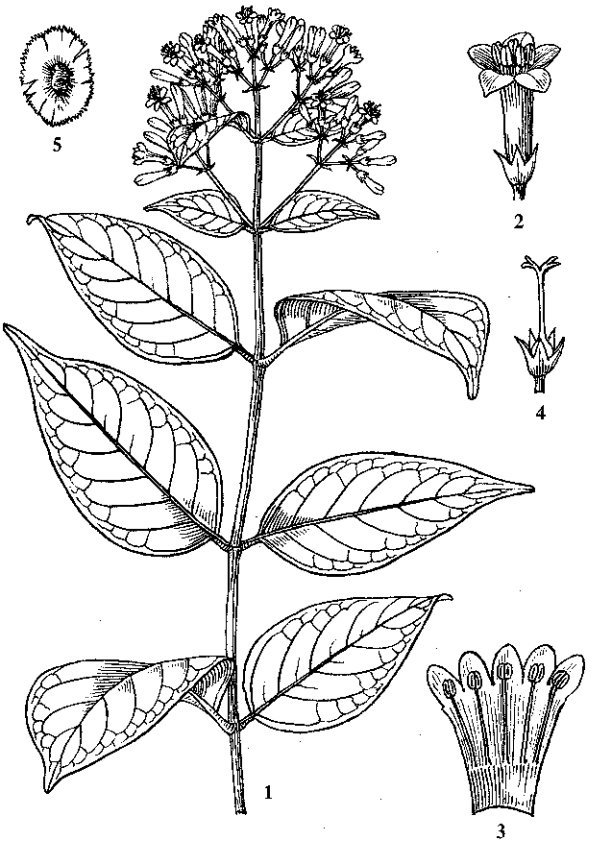


Figure 3. *Gelsemium elegans* (Gardner & Champ.) Benth.
1. flowering branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* pistil and calyx; *5.* seed. (drawn by H. P. Yu)

1. Gelsemium elegans (Gardner & Champ.) Benth.
鈎吻(胡蔓藤，斷腸草) **(Fig. 3; Photos 9–10)**
J. Linn. Soc. Bot. 1: 90. 1856; FHK 229. 1861; FKH 173. 1912; FRPS 61: 251, pl. 66: 1–4. 1992; FGD 3: 310, fig. 200. 1995; FOC 15: 329. 1996.

Medicia elegans Gardner & Champ., Hooker's J. Bot. Kew Gard. Misc. 1: 325. 1849.

Climbers, to 12 m or longer. Petioles 6–12 mm; leaf blade ovate, narrowly ovate, or very narrowly ovate, 5–12 × 2–6 cm, membranous to papery, base broadly cuneate to nearly rounded, apex acuminate, lateral veins 5–7 pairs. Thyrses with main nodes each having 2 lateral cymes and a continuing main axis; bracts acutely triangular to awl-shaped, to 4 mm, ciliate. Pedicels 3–8 mm. Corolla yellow to orange, 1.2–1.9 cm; tube 7–10 mm, outside brownish, mouth with reddish spots; lobes ovate, 5–9 mm, apex blunt to acute. Stamens inserted at middle of corolla tube; filaments 3.5–4 mm; anthers narrowly ovate, 1.5–2 mm, exserted. Ovary narrowly ovoid, 2–2.5 mm; style 0.8–1.2 cm; stigma pubescent. Capsules ellipsoidal to ovoid, 10–14 × 6–8 mm, smooth, glabrous. Seeds elliptic to reniform, ca. 5.5 mm in diam., central part hairy, winged all around.

Locality: Ma On Shan, Tai Po Kau, Lam Tsuen, Ng Tung Chai, Ho Pui, Sai Kung. *Y. S. Lau 1524, 1700; HK sheet 33887.*

Distribution: Fujian, Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Jiangxi, Zhejiang, Taiwan; India, Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam.

Ecology: Scrubby forests, thickets. Flowering: Jun.–Dec.; fruiting: Dec.–Mar. of the following year.

Uses: Medicinal (folklore), very poisonous.

Notes: The type specimen was collected by J. G. Champion from Hong Kong Island between 1847 and 1849.

4. Gardneria Wall. in Roxb. 蓬萊葛屬

Shrubs, scandent, mostly climbing or creeping, glabrous. Branchlets terete, sometimes with 4 faint ridges. Leaves opposite, entire, petiolate, connected by interpetiolar stipular rims. Flowers axillary, solitary, paired, or in cymes, when in cymes usually few-flowered but sometimes grouped into a thyrse; bracts small, narrowly triangular. Flowers 4- or 5-merous. Pedicels long. Calyx small, deeply lobed; lobes imbricate, connate, inside with colleters at base. Corolla rotate to nearly campanulate; tube thin, fleshy; lobes thin to thick, fleshy, valvate in bud. Stamens exserted; filaments very short, flat; anthers 2- or 4-celled, connate or free, base 2-parted, introrse. Ovary small, 2-locular, with 1–4 ovules per locule; style mostly long, slender; stigma capitate or 2-cleft. Berries red, globose, 1-seeded or more. Seeds ellipsoidal to orbicular, concave on hilar side but convex on other side, seed coat thin; embryo tiny, almost cylindric; endosperm thick, horny.

Five species in E and SE Asia; five species in China; one species in Hong Kong.

1. Gardneria multiflora Makino
蓬萊葛 **(Fig. 4; Photos 11–12)**

Bot. Mag. (Tokyo) 15: 103. 1901; FRPS 61: 243, pl. 63(1–8). 1992; FGD 3: 311, fig. 201. 1995; FOC 15: 328. 1996.

Gardneria hongkongensis Hayata, Icon. Pl. Formos. 9: 75. 1920.

Gardneria chinensis Nakai, Bot. Mag. (Tokyo) 38: 45. 1924.

Lianas or scandent shrubs, to 8 m, glabrous. Branchlets terete, with prominent leaf scars. Petioles 1–1.5 cm; leaf blade elliptic to narrowly elliptic, sometimes ovate to very narrowly elliptic, 5–15 × 2–6 cm, papery to thinly leathery, base obtuse to rounded, apex acuminate, lateral veins 6–10 pairs. Cymes 3-branched, 2–4 cm, many-flowered; bracteoles 2 per flower. Flowers 5-merous. Pedicels ca. 5 mm. Sepals nearly orbicular, ca. 1.5 mm in diam., ciliate. Corolla yellow to yellowish white; tube short; lobes narrowly to very narrowly elliptic, ca. 5 mm, thick, fleshy. Stamens inserted near base of corolla tube; filaments short; anthers oblong, ca. 2.5 mm, 4-celled, free. Ovary with 1 ovule per locule. Berries red, globose, ca. 7 mm in diam. Seeds dark, orbicular.

Locality: Mount Parker, Tai Tam, Sai Wan, High Island Reservoir. *P. S. Choi 432; Y. W. Lam 491; HK sheet 40324.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Shaanxi, Hebei, Henan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; Japan.

Ecology: Dense forests, scrub. Flowering: Apr.–Aug.; fruiting: Dec.–Jan. of the following year.

Uses: Medicinal (folklore).

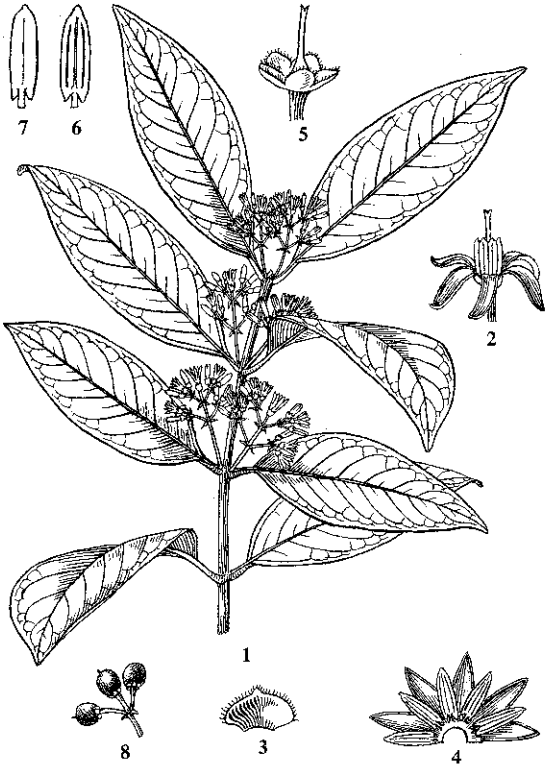


Figure 4. *Gardneria multiflora* Makino
1. flowering branch; *2.* flower; *3.* adaxial surface of calyx-lobe; *4.* corolla opened up showing stamens; *5.* calyx and pistil; *6.* ventral view of stamen; *7.* dorsal view of stamen; *8.* fruit. (drawn by H. P. Yu)

276. GENTIANACEAE 龍膽科

XIA Nian-he 夏念和

Annual, biennial, or perennial herbs, rarely shrubs or small trees. Stems ascending, erect, or twining. Leaves simple, often opposite, rarely alternate or whorled, base connate, exstipulate. Inflorescences terminal or axillary, simple or complex cymes, sometimes reduced to sessile clusters, often in a thyrse or 1-flowered. Flowers bisexual, rarely unisexual, usually 4- or 5-merous. Calyx tubular, obconic, campanulate, or rotate. Corolla tubular, funnelform, or rotate; lobes overlapping to right or rarely valvate in bud. Stamens usually as many as and alternate with corolla lobes, inserted on corolla tube; anthers basifixed or dorsifixed, 2-celled. Disk absent or inconspicuous. Ovary superior, 1(–2)-locular, ovules many; placentation usually parietal, rarely free central or axile; stigma entire or 2-lobed. Fruit a 2-valved capsule, rarely a berry. Seeds many or rarely few, small; endosperm usually abundant.

About 80 genera and 700 species distributed worldwide; 20 genera and 419 species in China; three genera and three species in Hong Kong.

1a. Twining herbs ..... 1. *Tripterospermum*
1b. Erect or ascending herbs.
2a. Corolla shallowly lobed, lobes shorter than tube; ovary 1-locular, with 5–10 glands at base ..... 2. *Gentiana*
2b. Corolla deeply lobed, lobes longer than tube; ovary 2-locular, without glands at base ..... 3. *Exacum*

1. Tripterospermum Blume 雙蝴蝶屬

Perennial twining herbs. Leaves opposite. Inflorescences axillary and terminal, 1-flowered or in cymes. Flowers 5-merous. Calyx tube campanulate, usually with 5-keeled ridges. Corolla tubular or broadly tubular, plicae present. Stamens inserted at basal part of corolla tube, unequal, apically recurved. Disk present, annular. Ovary 1-locular; ovules many. Style slender, slightly recurved; stigma linear, recurved at anthesis. Fruit a 2-valved capsule or berry, many-seeded. Seeds triquetrous to compressed, winged or wingless.

About 25 species distributed in E and S Asia; 19 species in China; one species in Hong Kong.

1. Tripterospermum nienkui (C. Marquand) C. J. Wu 香港雙蝴蝶(蔓龍膽) **(Fig. 5; Photos 13–14)**

Bull. Bot. Res., Harbin 4(3): 132–133. 1984; FRPS 62: 270. 1988; FFJ 4: 405. 1989; FOC 16: 11. 1995; FGD 4: 316, fig. 184. 2000.

Gentiana nienkui C. Marquand, Bull. Misc. Inform. Kew 1931: 76. 1931.

Crawfurdia fasciculata Wall., Tent. Fl. Napal. 63. 1826.

Rhizomes short. Stems subterete, spirally twisted, twining, striate; internodes 5–16 cm. Petiole 1–1.5 cm, slender; leaf blade ovate-lanceolate to ovate, 3–9 × 1.5–4 cm, base broadly cuneate, rounded to subcordate, apex acuminate and sometimes caudate, margin crenulate, veins 3–5. Inflorescences 1-flowered or cymose; bracts 1–4 pairs, lanceolate to ovate, 0.3–1 cm. Pedicel 0.5–1 cm. Calyx campanulate; tube 0.8–1.2 cm, winged; lobes lanceolate, 0.7–1 cm. Corolla dark violet-blue, sometimes with green spots, narrowly campanulate, 4–5 cm; lobes ovate-triangular, 4–7 mm; plicae triangular-ovate, 2–3 mm. Filaments linear, 1.5–2 cm; anthers ellipsoidal, 1.2–2 mm. Ovary ellipsoidal, 0.5–2 mm, style 1.6–2 cm, stigma 2-lobed. Berries included in corolla, ellipsoidal, dark purple, 2.5–4 × 0.6–0.8 cm; gynophore 1–3 mm. Seeds ellipsoidal to ovoid, dark purple, triquetrous, 1.5–2 mm, wingless.

Locality: Tai Mo Shan, Silver Mine Bay, Sunset Peak. *Y. S. Lau 1679; Y. W. Lam 1630; HK sheet 36007.*

Distribution: Guangdong, Guangxi, Hunan, Fujian, Zhejiang; Vietnam.

Ecology: Forests and thickets. Flowering: Oct.–Jan. of the following year.

Notes: The type specimen (*N. K. Chun 4011*, IBSC, K) was collected from Hong Kong in 1930.

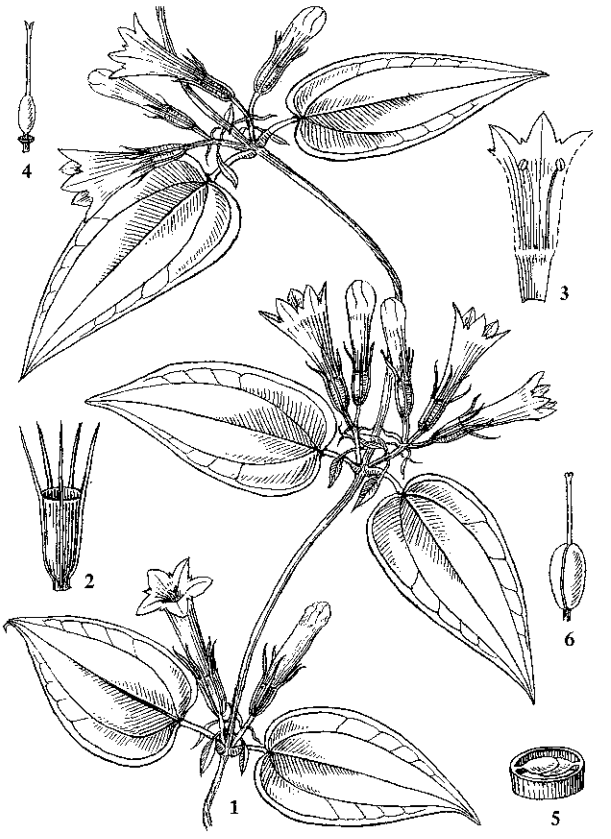


Figure 5. *Tripterospermum nienkui* (C. Marquand) C. J. Wu

1. flowering branch; *2.* calyx; *3.* vertical section of corolla (partial); *4.* pistil; *5.* cross section of ovary; *6.* fruit. (drawn by H. P. Yu)

2. Gentiana L. 龍膽屬

Annual, biennial, or perennial herbs. Stems ascending to erect, striate or angled. Leaves opposite, rarely whorled or rosette, entire. Inflorescences axillary or terminal, cymose or flowers solitary. Flowers (4–)5(–8)-merous. Calyx-tube tubular or campanulate, with 4–5-keeled ridges abaxially; lobes filiform to ovate, with a prominent midvein. Corolla tubular, funnelform, or campanulate; tube usually much longer than lobes; lobe plicae between lobes overlapping to right or rarely valvate in bud. Stamens as many as and alternate with lobes, inserted on corolla tube; filaments basally ± winged; anthers dorsifixed. Ovary 1-locular, with 5–10 glands at base, sessile or with a long gynophore. Style usually short; stigma 2-lobed. Capsule cylindric to ellipsoidal, wingless or winged, many-seeded, dehiscing into 2 valves. Seeds small, wingless or winged; seed coat minutely reticulate.

About 360 species distributed in NW Africa (Morocco), America, Asia, E Australia, Europe; about 248 species in China; one species in Hong Kong.

1. Gentiana loureiroi Griseb. 華南龍膽 **(Fig. 6; Photos 15–16)**
Prodr. 9: 108. 1845; FRPS 62: 254, pl. 38: 4–6. 1988; FFJ 4: 400, fig. 330. 1989; FOC 16: 97. 1995; FGD 4: 320, fig. 188. 2000.

Ericala loureiroi G. Don, Gen. Hist. 4: 192. 1837.

Perennial herb, 3–8 cm tall. Roots cylindric, fleshy, robust. Stems purple, erect, loosely caespitose, densely papillate. Basal leaves rosette; leaf blade narrowly elliptic, 1.5–3 × 0.3–0.5 cm; cauline leaves opposite; petiole 1–8 mm; leaf blade elliptic to elliptic-lanceolate, 5–7 × 1–2.5 mm, apex acute, abaxially glabrous, adaxially densely minute papillate. Flowers solitary and terminal. Pedicel 0.5–1.2 cm. Calyx campanulate, 5–6 mm; lobes linear-lanceolate to lanceolate, 2.5–4 mm. Corolla purple, funnelform, 1.2–1.7 cm; lobes ovate, 2–2.5 mm, margin entire, apex obtuse; plicae ovate-orbicular, 1–1.5 mm, margin entire or denticulate, apex rounded. Stamens inserted at middle of corolla tube, equal; filaments ca. 5 mm; anthers 1.8–2.5 mm. Ovary ellipsoidal, 5–6 mm; style 1.5–2.5 mm; stigma lobes narrowly

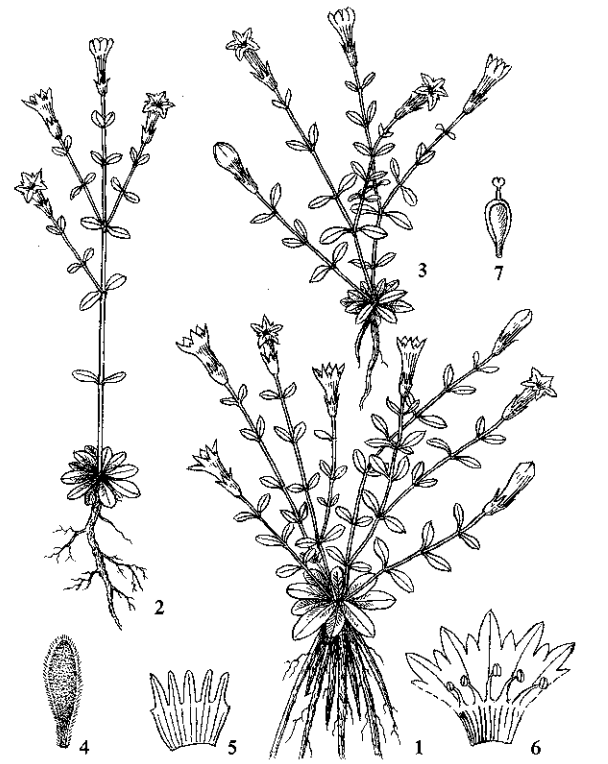


Figure 6. *Gentiana loureroi* Griseb.

1–3. flowering plants; *4.* basal leaf; *5.* calyx opened; *6.*corolla opened up showing stamens; *7.* capsule. (drawn by H. P. Yu)

香港公共圖書館 Hong Kong Public Libraries

oblong. Capsules obovoid, 4.5–5.5 mm, winged; gynophore to 1.8 cm.

Locality: Shek Pai Wan, Wan Chai Gap, Tai Mo Shan, Fanling, Pat Sin Leng. *L. T. Lo 56; P. S. Choi 197; K. L. Yip 4503.*

Distribution: Hainan, Guangdong, Guangxi, Hunan, Jiangxi, Fujian, Taiwan, Zhejiang, Jiangsu; Bhutan, India, Myanmar, Thailand, Vietnam.

Ecology: Forests on hillslopes. Flowering: Mar.–Jun.

3. Exacum L. 藻百年屬

Annual herbs. Stems erect, branched. Leaves opposite. Cymes axillary or terminal, paniculate. Flowers 4–5-merous. Calyx lobed nearly to base, lobes with keeled ridges abaxially or winged. Corolla rotate, deeply lobed. Stamens inserted at throat of corolla tube just below sinus between corolla lobes; filaments very short; anthers ellipsoidal, 2-celled, dehiscing by apical pores. Ovary 2-locular, without glands at base; style linear; stigma small. Capsules 2-valved, many-seeded. Seed coat warty.

About 40 species distributed in tropical Africa, Madagascar, tropical and subtropical Asia; two species in China; one species in Hong Kong.

1. Exacum tetragonum Roxb. 藻百年 **(Fig. 7)**

Fl. Ind. 1: 398. 1832; FRPS 62: 5, pl. 1: 1–5. 1988; FOC 16: 3. 1995; FGD 4: 323, fig. 190. 2000.

Annual herb, 25–60 cm tall, glabrous throughout. Stems erect, 4-angled, branched at upper part. Leaves sessile; leaf blade ovate-lanceolate to ovate, 1–5 × 0.8–2.5 cm, base rounded, nearly clasping, and decurrent into narrow wings on stem, apex acute; veins 3–5, prominent abaxially. Flowers 4-merous. Pedicel 0.3–1 cm. Calyx 5–6 mm; lobes ovate, margin broadly membranous, apex caudate, midvein keeled. Corolla mauve-blue to lilac, 1.5–2.5 cm; tube cylindric, 4–6 mm; lobes elliptic, 1.1–1.7 cm, margin entire. Filaments linear, 1.5–2 mm; anthers 5.5–6.5 mm. Ovary 2.5–3 mm; style linear, 1–1.2 cm; stigma lobes orbicular. Capsules subglobose, 4–5 mm in diam. Seeds ellipsoidal, ca. 1 mm.

Locality: Mount Gough, Lantau Peak, Tap Mun. *Ross 11440; HK sheet 4014, 26217.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Jiangxi; Cambodia, India, Laos, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Sikkim, Vietnam, Australia.

Ecology: Grasslands, roadsides. Flowering: Jul.–Aug.

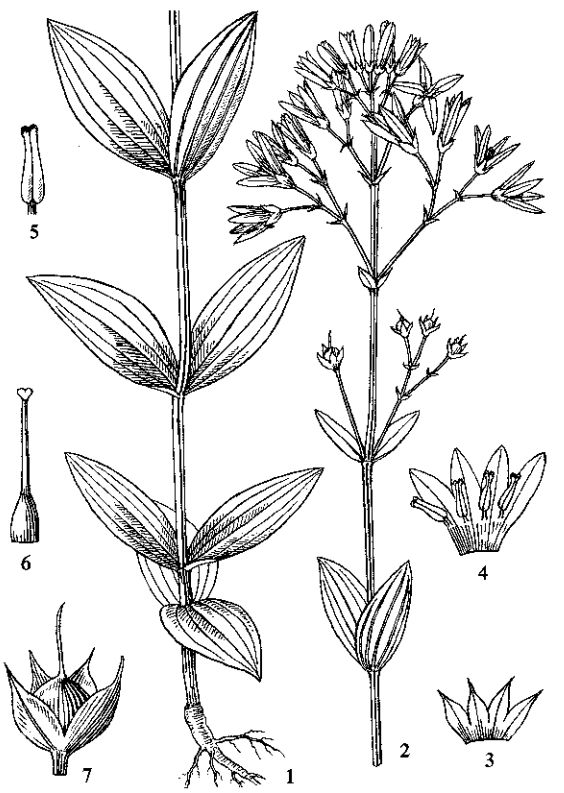


Figure 7. *Exacum tetragonum* Roxb.
1. lower portion of plant; *2.* upper portion of plant; *3.* calyx opened; *4.* corolla opened up showing stamens; *5.* stamen; *6.* pistil; *7.* capsule. (drawn by H. P. Yu)

278. APOCYNACEAE 夾竹桃科

LI Ping-tao 李秉滔

Trees, shrubs, or vines, rarely subshrubs or herbs, with latex or rarely watery juice. Leaves simple, opposite, rarely whorled or alternate, pinnately-veined; stipules absent or rarely present. Inflorescences cymose, terminal or axillary, with bracteoles. Flowers bisexual, (4–)5-merous, actinomorphic. Calyx (4–)5-partite, quincuncial, basal glands usually present. Corolla (4–)5-lobed, salverform, funnelform, urceolate, or rarely rotate, lobes overlapping to right or left, rarely valvate. Stamens (4–)5; filaments short; anthers mostly sagittate, free or connivent into a cone adherent to pistil head, dehiscing longitudinally, base rounded, cordate, sagittate, or prolonged into an empty spur; pollen granular; disk ring-like or cup-shaped, 2–5-lobed, or absent. Ovary superior, rarely half-inferior, connate or distinct, 1- or 2-locular; ovules (1 or) 2-numerous per locule. Style 1; pistil head capitate, conical, or lampshade-shaped, base stigmatic, apex 2-cleft and not stigmatic. Fruit a berry, drupe, capsule, or follicle. Seeds with or without coma; endosperm thick and often horny, scanty, sometimes absent; embryo straight or nearly so, cotyledons often large, radicle terete.

About 155 genera and 2000 species distributed primarily in the tropics and subtropics, poorly represented in the temperate regions; 44 genera and 145 species in China; 19 genera and 23 species in Hong Kong.

A majority of the species in this family is poisonous.

1a. Herbs, sometimes with woody base ..... 1. *Catharanthus*
1b. Trees, shrubs, or woody climbers.
2a. Trees or shrubs.

3a. Leaves alternate.
4a. Branchlets fleshy; leaves elliptic to very narrowly so; lateral veins 30–40 pairs, elevated abaxially; fruit follicular ..... 2. *Plumeria*
4b. Branchlets woody; leaves very narrowly oblong, linear or narrowly ovate; fruit a drupe.
5a. Branchlets slender, pendulous; leaves very narrowly oblong or linear; flowers yellow; calyx with glands inside; fruits depressed globose ..... 3. *Thevetia*
5b. Branchlets stout, not pendulous; leaves narrowly ovate; flowers white; calyx without glands inside; fruits ellipsoidal or globose ..... 4. *Cerbera*
3b. Leaves opposite or whorled.
6a. Leaves whorled, at least towards apices of branches.
7a. Latex watery; leaves lanceolate, with dark reticulate venation abaxially ..... 5. *Nerium*
7b. Latex milky; leaves not lanceolate, variously shaped.
8a. Leaves narowly obovate to very narrowly spathulate; fruit follicular ..... 6. *Alstonia*
8b. Leaves oblong or ovate; fruit a drupe ..... 7. *Rauvolfia*
6b. Leaves opposite.
9a. Calyx without glands inside; disk scaly; fruit a drupe ..... 8. *Kopsia*
9b. Calyx with glands inside; disk absent.
10a. Adaxial surface of petiole with glands; flowers with corona; seeds with coma ..... 9. *Wrightia*
10b. Adaxial surface of petiole with a basal semicircular or semiamplexicaul ocrea; flowers without corona; seeds without coma ..... 10. *Tabernaemontana*
2b. Woody climbers.
11a. Leaves whorled, rarely opposite at base of branchlets.
12a. Flowers large, yellow, funnelform; fruit a capsule ..... 11. *Allamanda*
12b. Flowers small, white, rarely yellow or reddish to white, salverform; fruit moniliform drupes ..... 12. *Alyxia*
11b. Leaves all opposite.
13a. Flowers with corona; disk absent.
14a. Corolla white, lobes apex not caudate; berry; seeds without coma ..... 13. *Melodinus*
14b. Corolla yellow, lobes apex caudate to filiform; follicle; seeds with beaked apical coma ..... 14. *Strophanthus*
13b. Flowers without corona; disk ring-like or cup-shaped, 2–5-lobed.
15a. Corolla nearly urceolate, apex obtuse in bud ..... 15. *Urceola*
15b. Corolla salverform, apex acute.
16a. Stamens exserted; ovary shorter than disk ..... 16. *Pottsia*
16b. Stamens included; ovary longer than disk.
17a. Disk divided into 5 erect segments or 5 free scales.
18a. Corolla-tube as long as lobes, forming in bud a large, rather narrowly ovoid, subacuminate head much wider than tube which is clearly widened around or above middle of stamens ..... 17. *Trachelospermum*
18b. Corolla-tube shorter than lobes, forming in bud a small subglobose or ovoid, rounded or blunt head, not or slightly wider than tube which is ± barrel-shaped ..... 18. *Ichnocarpus*
17b. Disk entire or ring-like, or cup-shaped; lateral veins wrinkled above; seeds with long beak and apical coma ..... 19. *Anodendron*

1. Catharanthus G. Don 長春花屬

Herbs erect, perennial and often woody at base, juice watery. Leaves opposite; petioles short, intrapetiolar and interpetiolar glands present; leaf blade herbaceous to somewhat leathery, entire. Flowers terminal and axillary, solitary or rarely in 2- or 3-flowered cymes. Sepals small, narrowly oblong, awl-shaped, without glands. Corolla purple, red, pink, or white, salverform; tube glabrous or sparsely puberulent, throat constricted, woolly to velvety; lobes spreading, obliquely obovate, overlapping to left, apex apiculate. Stamens inserted at widened portion of corolla-tube; anthers free, oblong, base obtuse; disk of 2 glands. Ovary of 2 separate carpels united into a common style; ovules numerous per carpel. Style filiform, with a collared-style head. Fruit a paired follicles, many-seeded.

Eight species distributed in Madagascar, India and Sri Lanka; one species cultivated in China.

1. Catharanthus roseus (L.) G. Don 長春花 **(Fig. 8; Photo 17)**

Gen. Hist. 4: 95. 1837; FRPS 63: 83, pl. 28. 1977; FGD 1: 447, fig. 500. 1987; FOC 16: 157. 1995; D. J. Middleton, Fl. Thailand 7(1): 48, fig. 16, 1999.

Vinca rosea L., Syst. Nat. (ed. 10), 2: 944. 1759; FHK 220. 1861; FKH 168. 1912.

Catharanthus roseus (L.) G. Don var. *albus* G. Don, Gen. Hist. 4: 95. 1837.

Subshrubs or perennial herbs, erect or decumbent, 30–50(–100) cm tall. Young stems puberulent. Leaves obovate or elliptic, 2.5–9 × 1–3.5 cm, herbaceous, apex minutely apiculate, lateral veins 7–11 on each side of midvein. Corolla pink or white with a purple, pink or less often yellow eye; tube 2.5–3 cm, pilose inside, throat villous; lobes broadly obovate, 1.2–2 cm. Stamens attached to the top of corolla-tube. Ovary 1.9–3 mm, puberulent; style including pistil head 1.9–2.1 cm. Follicles narrowly oblong, longitudinally grooved, apex acute, sparsely puberulent, 15–30 × 3 mm.

Locality: Cultivated. *Y. S. Lau 2709; HK sheet 9065, 18647.*

Distribution: S, SW & C China (cultivated); native to E Africa; widely cultivated in tropical and subtropical regions.

Ecology: Flowering: Apr.–Oct.; fruiting: Oct.–Dec.

Uses: Ornamental, medicinal (folklore).

2. Plumeria L. 雞蛋花屬

Trees with copious latex. Branchlets 2–3 cm thick, nearly fleshy. Leaves alternate, long petiolate. Cymes terminal, 2- or 3-branched, pedunculate; bracts usually large, deciduous before anthesis. Flowers fragrant, waxy. Calyx small, without glands. Corolla white, yellowish, pink-red, or rose-purple, funnelform, tube narrow, hairy inside, faucal scales absent, lobes overlapping to left. Stamens inserted at or near base of corolla-tube; anthers free from pistil head, oblong, rounded at base; disk absent. Ovary of 2 separate carpels; ovules numerous; style short; pistil head obtusely 2-cleft. Fruit of paired follicles; seeds many, flat proximally, with a membranous wing.

Seven species distributed in tropical America; two species cultivated in China; one species commonly cultivated in Hong Kong.

1. Plumeria rubra L. 雞蛋花 **(Fig. 9; Photos 18–19)**

Sp. Pl. 1: 209. 1753; FRPS 63: 78. 1977; FGD 1: 446, fig. 499. 1987; FOC 16: 154. 1995; D. J. Middleton, Fl. Thailand 7(1): 39, fig. 13. 1999.

Plumeria acuminata Aiton, Hort. Kew 2: 70. 1789.

Plumeria acutifolia Poir., Encycl. Suppl. 2: 667. 1811.

Plumeria rubra var. *acutifolia* (Poir.) Bailey, Man. Cult. Pl. 810. 1949; FHN 3: 223, pl. 673. 1974 (as *P. rubra* 'Acutifolia').

Trees to 8 m tall. Bark pale green, smooth. Petioles to 7 cm; leaf blade elliptic to very narrowly so, 14–30 × 6–8 cm, glaucous adaxially, apex acute or acuminate; lateral veins 30–40 on each side of midvein, slightly elevated abaxially. Corolla tinged with pink or purple at least abaxially, 4–6 cm in diam.; lobes pink, yellow, or white, with a yellow base, 3–4.5 × 1.5–2.5 cm, obliquely spreading. Follicles oblong, 11–25 × 2–3 cm.

Locality: Commonly cultivated in Hong Kong. *H. C. Tang 141; Y. S. Lau 875, 1636.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian (cultivated); native to Mexico, C America, widely cultivated in tropical and subtropical regions.

Ecology: Flowering: Mar.–Sep.; fruiting: May–Oct.

Uses: Ornamental.

Notes: The cultivar with yellowish white flowers was recorded as *P. rubra* var. *acutifolia* (Poir.) Bailey previously (Check List HK Plants 56. 1993).

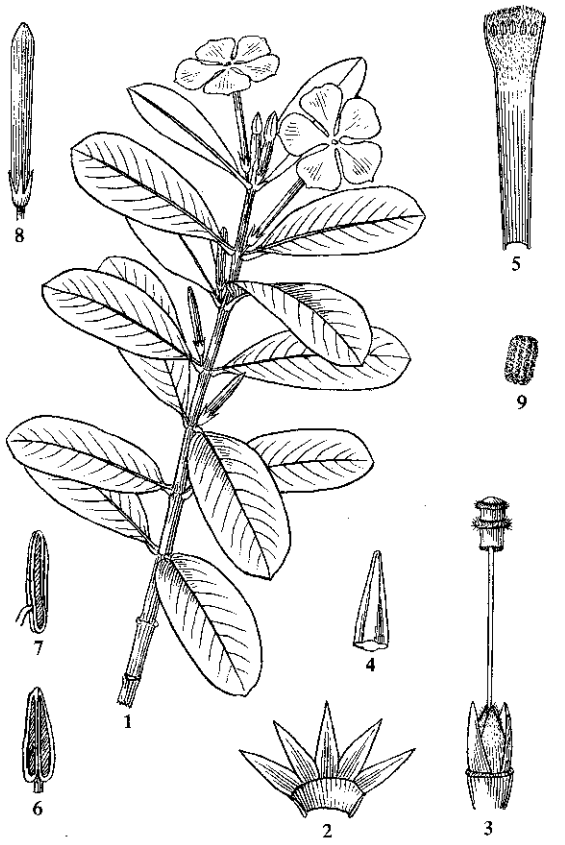


Figure 8. *Catharathus roseus* (L.) G. Don

1. flowering branch; *2.* calyx opened; *3.* disk and pistil; *4.* ligulate disk; *5.* corolla-tube opened up showing stamens; *6–7.* stamens; *8.* follicle; *9.* seed. (drawn by H. P. Yu)

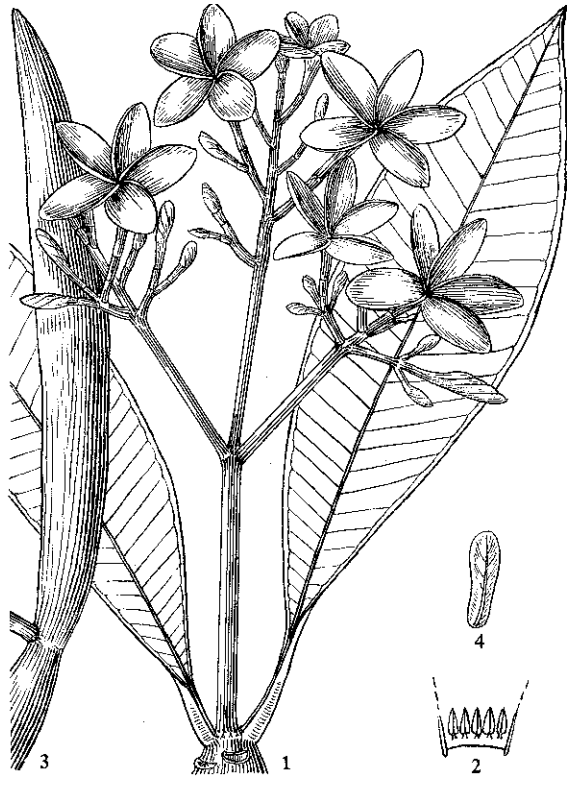


Figure 9. *Plumeria rubra* L.

1. flowering branch; *2.* basal portion of corolla viewing the insertion of stamens; *3.* follicle; *4.* seed. (drawn by H. P. Yu)

3. Thevetia L. 黃花夾竹桃屬

Evergreen trees or many-branched shrubs, with white latex. Leaves alternate, rather densely together on slender branchlets. Cymes terminal and leaf-opposed. Calyx deeply divided, with many basal glands inside. Corolla yellow, funnelform, lobes overlapping to left, with 5 narrow, long-hairy scales on the throat. Stamens inserted on distal narrow part of corolla-tube; filaments very short; anthers narrowly oblong, attached to each other apically across top of pistil head but not adnate to it; disk small than ovary, fleshy. Ovary of 2 carpels connate in lower half, than free and uniting again into a common style, several ovules per carpel; style filiform, head with wide bluntly-lobed frill. Fruit a drupe, triangular-globose, laterally compressed; with fleshy exocarp and stony mesocarp; endocarps free from each other. Seed 1 per locule, wingless, not comose.

Eight species in tropical America; two species cultivated in China; one species cultivated in Hong Kong.

1. Thevetia peruviana (Pers.) K. Schum.
黃花夾竹桃 **(Fig. 10; Photo 20)**

Nat. Pflanzenfam. 4(2): 159. 1895; FRPS 63: 36, pl. 12. 1977; FGD 1: 433, fig. 479. 1987; FOC 16: 164. 1995; D. J. Middleton, Fl. Thailand 7(1): 69. 1999.

Cerbera thevetia L., Sp. Pl. 1: 209. 1753.

Cerbera peruviana Pers., Syn. Pl. 1: 267. 1805.

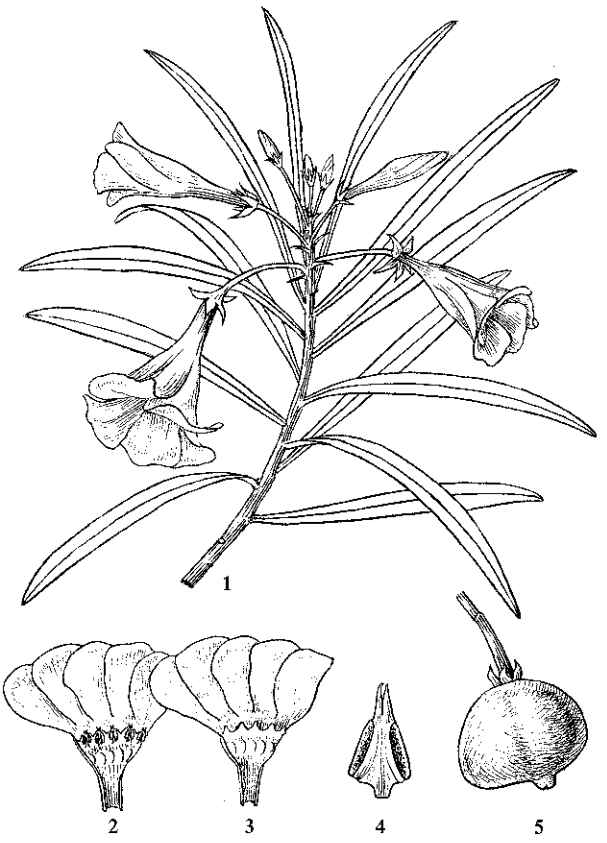


Figure 10. *Thevetia peruviana* (Pers.) K. Schum.
1. flowering branch; *2.* corolla-tube opened up showing stamens; *3.* corolla and corona; *4.* stamen; *5.* fruit. (drawn by H. P. Yu)

Trees to 6 m tall. Bark chocolate-brown, lenticellate; lower branches pendulous, young branches greenish grey. Petioles ca. 3 mm; leaf blades lustrous green adaxially, light green abaxially, very narrowly oblong, 10–15 × 0.5–1.2 cm, somewhat leathery, glabrous, apex acuminate, lateral veins obscure. Pedicels 2.5–5 cm. Flowers fragrant. Sepals green, narrowly triangular, apex acuminate. Corolla 6–7 × 4.5–5.5 cm; tube 4–5 cm, shorter than the lobes; corona scales present, connected by a transverse row of long white hairs; lobes obliquely obovate. Drupes compressed triangular-globose, 2.5–4 cm in diam. Seeds light grey, lenticular, ca. 2 × 3.5 cm.

Locality: Commonly cultivated in Hong Kong. *Y. S. Lau 35, 2385.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan (cultivated); native to S & C America; widely cultivated in tropical and subtropical regions.

Ecology: Flowering: Apr.–Dec.; fruiting: Aug.–Feb. of the following year.

Uses: Ornamental, medicinal (folklore).

Notes: *Thevetia peruviana* 'Aurantiana' (紅酒杯花; Photo 21) is also cultivated in Hong Kong. It differs from *T. peruviana* by red petals.

4. Cerbera L. 海杧果屬

Trees with latex. Branches stout. Leaves alternate. Cymes terminal, long pedunculate. Flowers 5-merous. Calyx deeply divided, without glands inside. Corolla white, funnelform, throat slightly dilated, ribbed, or with 5 pubescent scales; lobes broad, overlapping to left. Stamens inserted at corolla throat; anthers narrowly oblong, apiculate, free from pistil head, lobes rounded at base; disk absent. Ovary of 2 separate carpels united into a common style, glabrous; style filiform, dilated distally; pistil head shortly 2-cleft. Fruit a drupe, often only one carpel developing, ellipsoidal or globose, with fleshy exocarp, thick, fibrous mesocarp and lignified endocarp. Seeds 1 or 2 per locule, flattened, ellipsoidal, wingless.

Seven species distributed from Madagascar to Australia and Pacific islands; one species in China; one species in Hong Kong.

1. Cerbera manghas L. 海杧果 **(Fig. 11; Photos 22–23)**

Sp. Pl. 1: 208. 1753; FRPS 63: 33, pl. 11. 1977; FGD 1: 432, fig. 478. 1987; FOC 16: 165. 1995; D. J. Middleton, Fl. Thailand 7(1): 67. 1999.

Cerbera odollam auct. non Gaertn.: FHK 219. 1861; FKH 168. 1912.

Trees to 8 m tall. Bark grey-brown; branches whorled, marked with leaf scars. Petioles 2.5–6 cm; leaf blade elliptic to obovate, 6–37 × 2.3–7.8 cm, base cuneate, apex acuminate; lateral veins 20–30 on each side of midvein, diverging almost at right angle to midvein. Inflorescence few- to many-flowered, lax, 7–30 cm. Pedicels terete, 1–2 cm. Flowers 4–7 cm in diam. Corolla white, with a pink eye; tube 2.5–4 cm, villous inside; lobes ovate, falcate, 1.5–2.5 cm. Drupes 5.8 × 4–6 cm, smooth. Seeds usually single.

Locality: Common in Hong Kong. *Y. S. Lau 278; L. T. Lo 127, 485.*

Distribution: Hainan, Guangdong, Guangxi, Taiwan; tropical Asia, Australia.

Ecology: Hillslopes near seashore and beaches above the high-tide mark. Flowering: Apr.–Nov.; fruiting: Jul.–Dec.

5. Nerium L. 夾竹桃屬

Evergreen trees or shrubs, juice watery. Leaves in whorls of 3, with glands in the axils, lateral veins numerous, parallel. Inflorescences thyrsoid, terminal or axillary. Sepals with colleters adaxially. Corolla funnelform, cylindric near base, throat open wide, lobes overlapping to right; corona segments 5, petal-like, large, fringed. Stamens inserted at apex of corolla-tube; anthers sagittate, with a bristly, filiform apical appendage, pilose, connivent, adherent to pistil head; disk absent. Ovary syncarpous, 2-locular; ovules numerous in each locule. Fruit a follicle, narrowly oblong, glabrous. Seeds numerous, densely pilose, with apical coma.

A monotypic genus distributed in S Europe, N Africa and SW Asia.

1. Nerium oleander L. 夾竹桃 **(Fig. 12; Photo 24)**

Sp. Pl. 1: 209. 1753; FGD 1: 460, fig. 515. 1987; FRPS 63: 149. 1977; FOC 16: 173. 1995; D. J. Middleton, Fl. Thailand 7(1): 79. 1999.

Nerium indicum Mill., Gard. Dict. ed. 8, n. 2. 1786; FRPS 63: 147, pl. 49. 1977.

Nerium odorum Sol., Hort. Kew 1: 297. 1789.

Evergreen shrubs, to 6 m tall. Leaves very narrowly elliptic, 5–21 × 1–3.5 cm, leathery, base cuneate or decurrent on the petiole, apex acuminate or acute. Flowers showy, fragrant. Sepals narrowly triangular to narrowly ovate, 3–10 mm. Corolla purplish red, pink, white, salmon, or yellow, tube 1.2–2.2 cm; lobes 1.3–3 cm, single or double. Follicles cylindric, 12–23 cm. Seeds oblong, coma 0.9–1.2 cm.

Locality : Cultivated. *Y. S. Lau 1436; L. T. Lo 201; HK sheet 34938.*

Distribution: Native to S Europe, N Africa and SW Asia; widely cultivated in tropical, subtropical, and temperate regions.

Ecology: Flowering: Apr.–Sep.

Uses: Ornamental.

6. Alstonia R. Br. 雞骨常山屬

Trees or shrubs, juice milky. Branches whorled, mostly 4 or 5 together. Leaves whorled, rarely opposite, lateral veins numerous, ending in a marginal vein. Cymes terminal, usually 1–5 in terminal thyrses or compound umbels. Flowers white, yellow, or pink. Calyx without glands inside, lobes connate at base. Corolla salverform, tube cylindric, dilated in distal half, pubescent inside; lobes overlapping to right or left. Stamens included, inserted near or above middle of corolla-tube; anthers ovate, free from pistil head, not caudate; disk absent or of scales. Ovary of 2 separate carpels united into a common style or syncarpous; ovules numerous. Follicles 2, free or connate. Seeds oblong or linear, flattened, long-bearded at both ends.

About 43 species distributed from tropical Africa to C America, and from Himalayas and China to New South Wales, Australia; eight species in China; one species in Hong Kong.

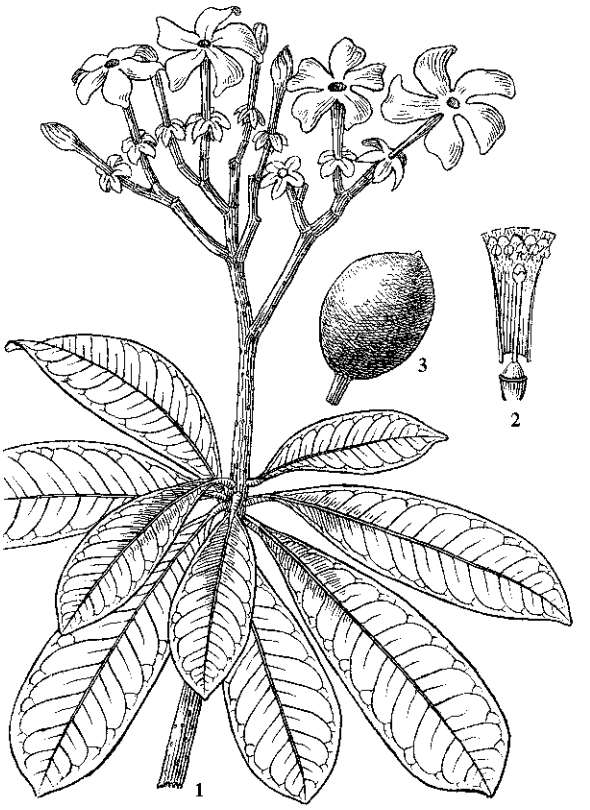


Figure 11. *Cerbera manghas* L.
1. flowering branch; *2.* corolla-tube opened up showing stamens and pistil; *3.* fruit. (drawn by H. P. Yu)

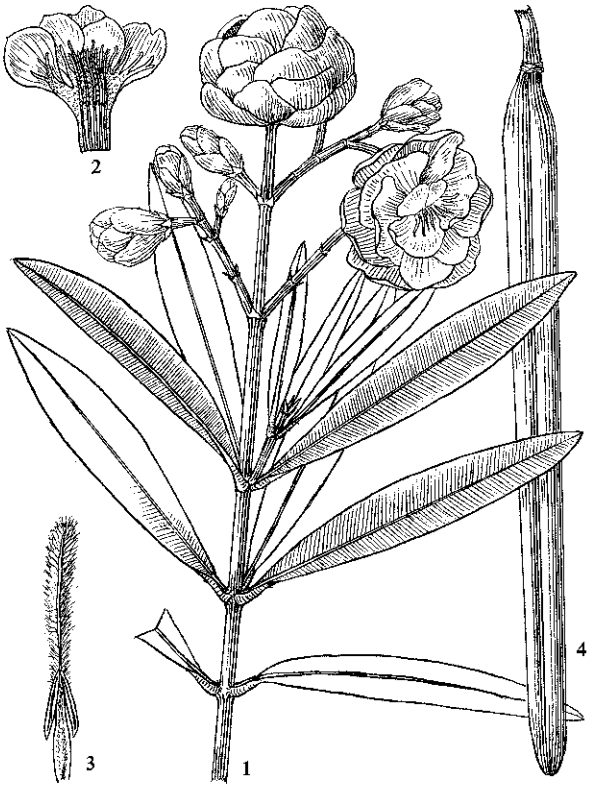


Figure 12. *Nerium oleander* L.
1. flowering branch; *2.* vertical section of corolla, viewing stamens and corona; *3.* stamen; *4.* follicle. (drawn by H. P. Yu)

1. Alstonia scholaris (L.) R. Br.

糖膠樹(黑板樹) **(Fig. 13; Photos 25–26)**

Asclepiadeae 65. 1810; FRPS 63: 90, pl. 30. 1977; FGD 1: 448, fig. 501. 1987; FOC 16: 155. 1995; D. J. Middleton, Fl. Thailand 7(1): 45. 1999.

Echites scholaris L., Mant. Pl. 1: 53. 1767.

Trees to 40 m tall, glabrous with crown pagoda-like initially, later shallow, flattish and dense. Bark grey; branchlets copiously lenticellate. Leaves in whorls of 3–10; petioles 1–3 cm; leaf blade narrowly obovate to very narrowly spatulate, 7–28 × 2–11cm, leathery, base cuneate, apex usually rounded; lateral veins 25–50 on each side of midvein, at an angle 80–90° to midvein. Cymes dense, pubescent; peduncle 4–7 cm. Pedicels ca. 1 cm. Sepals ovate, 1–1.9 × 1.5–2.3 mm, apex acute to rounded, pubescent. Corolla white; tube 6–10 mm; lobes broadly ovate or broadly obovate, 2–4.5 mm, overlapping to left. Ovary of 2 separate carpels, pubescent. Fruit a pair of follicles, linear, 20–57 cm × 2–5 mm. Seeds oblong, margin ciliate, with tufts of hairs on both ends.

Locality: Cultivated. *L. T. Lo 404; Y. W. Lam 114.*

Distribution: SW Guangxi, S Yunnan, cultivated in Fujian, Guangdong, Hainan, Hunan, Taiwan; Cambodia, India, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam, Australia.

Ecology: Flowering: Aug.–Nov.; fruiting: Dec.–Feb. of the following year.

Uses: Ornamental.

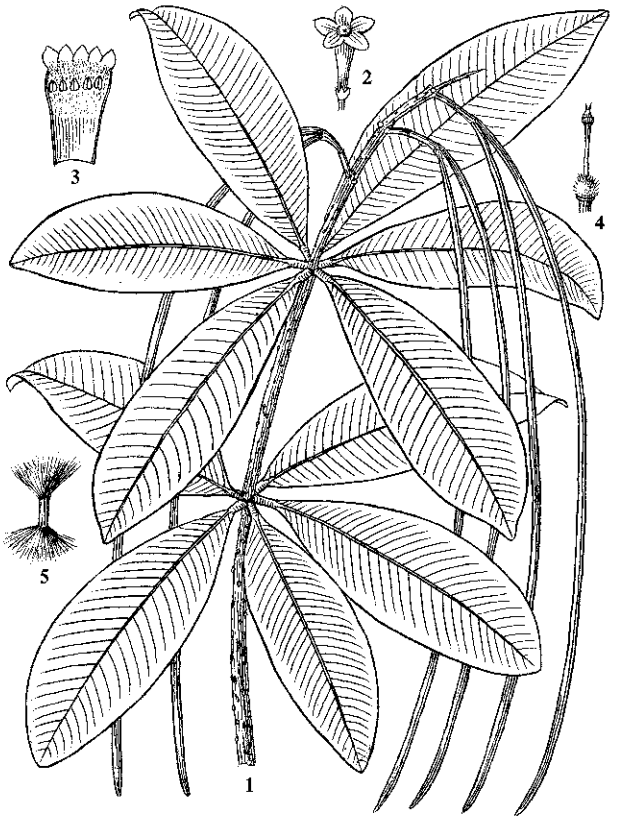


Figure 13. *Alstonia scholaris* (L.) R. Br.

1. fruiting branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* pistil; *5.* seed. (drawn by H. P. Yu)

7. Rauvolfia L. 蘿芙木屬

Trees or shrubs with latex. Leaves whorled, rarely opposite, with glands in axils. Cymes pedunculate, terminal or axillary. Calyx deeply divided, without glands. Corolla salverform or campanulate, white, yellow, green, or pink, rarely with a red tube; tube cylindric, ± inflated at or above middle, usually pubescent inside, lobes overlapping to left. Stamens inserted in the inflated part of corolla-tube; filaments very short; anthers ovate, free from pistil head, base rounded; disk ring-like or cup-shaped, entire or lobed at apex. Ovary of 2 carpels connate at base or of 2 free carpels, in each case united into a common style with a collared style head; pistil head drum -shaped, with a pendulous ring, apex shortly 2-cleft. Drupes 2, distinct or connate. Seed 1, without coma.

About 60 species distributed pantropically; seven species in China; one species in Hong Kong.

1. Rauvolfia verticillata (Lour.) Baill.

蘿芙木 **(Fig. 14; Photos 27–28)**

Hist. Pl. 10: 170. 1889; FRPS 63: 55, pl. 19. 1977; FGD 1: 440, fig. 490. 1987; FOC 16: 159. 1995; D. J. Middleton, Fl. Thailand 7(1): 54. 1999.

Dissolena verticillata Lour., Fl. Cochinch. 1: 137. 1790.

Rauvolfia chinensis (Spreng.) Hemsl., J. Linn. Soc. Bot. 26(173): 95. 1889; FKH 168. 1912.

Rauvolfia perakensis King & Gamble, J. Asiat. Soc. Bengal 74(2): 424. 1908; FRPS 63: 53. 1977.

Shrubs to 3 m tall, erect, glabrous. Branchlets pale grey, lenticellate. Lower leaves opposite, terminal leaves in whorls of 3 or 4; petioles 0.5–1.5cm; leaf blade narrowly to broadly ovate or oblong, 3.5–25 × 5–13 cm, nearly papery to membranous,

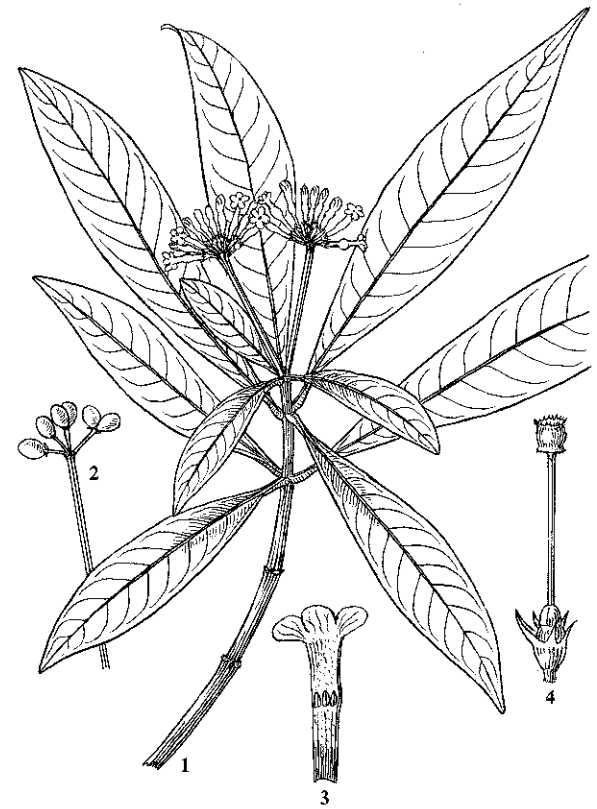


Figure 14. *Rauvolfia verticillata* (Lour.) Baill.

1. flowering branch; *2.* infrutescence; *3.* portion of corolla opened up showing stamens; *4.* calyx, disk and pistil. (drawn by H. P. Yu)

lateral veins 6 or 7 on each side of midvein. Cymes rather lax, 3–9 together; peduncle 2–15 cm. Pedicel 3–6 mm. Corolla white, tube cylindric, 1–1.8 cm, inflated and villous from middle to throat; lobes broadly elliptic or ovate, 1–4.5 mm. Stamens inserted at middle of corolla tube. Ovary of 2 carpels completely free up to the single style. Drupes ellipsoidal or ovoid, free from each other, ca. 10 × 5 mm.

Locality: Aberdeen, Victoria Peak, Mount Gough. *H. C. Tang 2406; Y. S. Lau 223, 2347.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Taiwan; Cambodia, India, Indonesia, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam.

Ecology: Thickets. Flowering: Jan.–Oct.; fruiting: Apr.–Nov.

Uses: Medicinal (folklore).

8. Kopsia Blume 蕊木屬

Trees or shurbs with white latex. Leaves opposite. Cymes terminal, 3–many-flowered, bracteate; peduncle long or short; bracteoles small or large. Flowers white or rose, 5-merous. Calyx small, deeply divided, without glands. Corolla salverform; tube 2.3–5 cm, narrow, dilated at or below apex; throat without scales, pilose inside; lobes overlapping to right. Stamens inserted above middle of corolla-tube; filaments very short; anthers narrowly oblong or ovate, included, free from pistil head, base rounded; disk scales alternate with ovaries. Ovary of 2 separate carpels united into a common style; ovules 2 per locule; style filiform; pistil head thickened, with short basal collar and apiculate apex. Fruit a drupe, solitary or paired, ellipsoidal, often with a large appendage. Seeds oblong or ovoid, flattened, not comose.

About 20 species distributed from China and Myanmar to N Australia; three species in China; one species in Hong Kong.

1. Kopsia arborea Blume 蕊木 **(Fig. 15)**

Catalogus 13. 1823; FOC 16: 162. 1995; D. J. Middleton, Fl. Thailand 7(1): 61, fig. 20. 1999.

Kopsia lancibracteolata Merr., Philip. J. Sci. 23(3): 262. 1923; FGD 1: 434, fig. 481. 1987; FRPS 63: 41, pl. 14. 1977.

Kopsia officinalis Tsiang & P. T. Li, Acta Phytotax. Sin. 11: 356, pl. 40. 1973. FRPS 63: 43, pl. 15. 1977.

Trees to 15 m tall. Branches greenish, terete, slightly compressed, puberulent when young. Petioles 5–15 cm; leaf blade elliptic, narrowly elliptic, or narrowly ovate, 8–24 × 3.5–8.5 cm, glabrous, apex acute or short acuminate, lateral veins 10–20 on each side of midvein. Cymes corymbose, many-flowered; peduncle to 14 cm, puberulent or glabrous; bracteoles narrowly oblong, puberulent or glabrous. Pedicel 3–4 mm. Sepals narrowly oblong, 4–6 mm, puberulent or glabrous. Corolla white; tube ca. 2.5 cm; lobes narrowly oblong, 1.5–2 cm. Disk scales narrowly oblong, longer than ovary, fleshy. Ovary ovoid, puberulent. Drupes black or blue-black, ellipsoidal, 2.5–3.5 × 1.5–2 cm.

Locality: Kadoorie Farm. *HK sheet 32239, 32240.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; Vietnam, Thailand, Malaysia, Indonesia, Philippines, N Australia.

Ecology: Wet places under forest. Flowering: Apr.–Sep.; fruiting: Jul.–Dec.

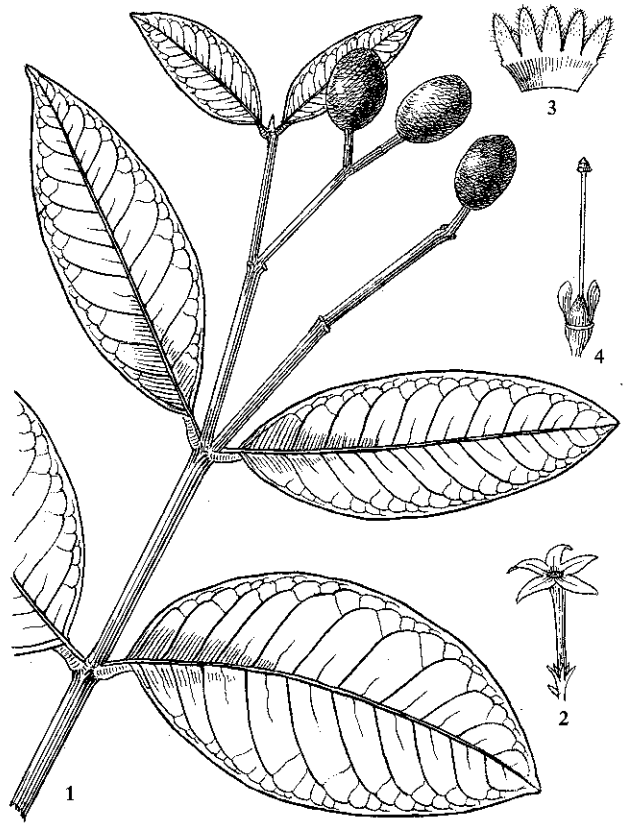


Figure 15. *Kopsia arborea* Blume

1. fruiting branch; *2.* flower; *3.* calyx opened; *4.* pistil and disk. (drawn by H. P. Yu)

9. Wrightia R. Br. 倒吊筆屬

Trees or shrubs with latex. Leaves opposite, petiolate with axillary glands. Cymes terminal or subterminal, dichasial, few- to many-flowered. Sepals quincuncial, with 5–10 basal, scale-like glands inside. Corolla salverform, funnelform, subrotate, or rotate; tube cylindric to campanulate, lobes overlapping to left; corona ligulate, fringed, or cup-shaped, entire or subentire at apex, shallowly or deeply divided, sometimes absent. Stamens inserted at corolla mouth or in corolla-tube; anthers sagittate, connivent and adherent to pistil head, exserted, spurred at base; disk absent. Ovary of 2 separate carpels united into a common style or of two connate carpels; ovules numerous in each carpel. Style filiform; pistil head ovoid, usually dilated at base. Fruit of 2 follicles, connate or divaricate. Seeds narrowly fusiform, with an apical coma directed toward fruit base, beakless.

About 23 species in tropical Africa, Asia, Australia; six species in China; one species in Hong Kong.

1. Wrightia laevis Hook. f. 藍樹 **(Fig. 16; Photo 29)**

Fl. Brit. India 3(9): 654. 1882; FRPS 63: 125, pl. 42. 1977; FGD 1: 455, fig. 509. 1987; FOC 16: 175. 1995; D. J. Middleton, Fl. Thailand 7(1): 85. 1999.

Wrightia hainanensis Merr., Philipp. J. Sci. 21: 352. 1922.

Wrightia hainanensis Merr. var. *variabilis* Tsiang, Sunyatsenia 4: 37, pl. 14. 1939.

Trees to 40 m tall, glabrous except for flowers. Bark dark grey; branchlets brownish, lenticellate. Petioles 5–7 mm; leaf blade oblong or narrowly elliptic, rarely ovate, 7–18 × 2.5–8 cm, apex acuminate to caudate-acuminate, lateral veins 5–11 on each side of midvein. Cymes ca. 6 cm; peduncle ca. 1 cm, puberulent to glabrous; pedicels 1–1.5 cm. Sepals broadly ovate, ca. 1 mm, pubescent abaxially, apex rounded or obtuse. Corolla white or yellowish, funnelform, tube 1.5–3 mm; lobes narrowly elliptic, 5.5–13.5 mm, papillate; corona fringed; scales 25–35, linear, puberulent. Anthers as long as corona, puberulent. Ovary of 2 separate carpels. Fruit of paired follicles cylindric, distinct, 20–35 cm × 5–7 mm, lenticellate. Seeds sublinear, 1.5–2 cm, coma to 4 cm.

Locality: Hong Kong Island, Yuen Tun Ha. *H. C. Tang 100; Y. S. Lau 986; HK sheet 38592.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan; India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam, N Australia.

Ecology: Forests and thickets in ravines. Flowering: Mar.–Jun.; fruiting: Jul.–Dec.

Uses: Ornamental, medicinal (folklore).

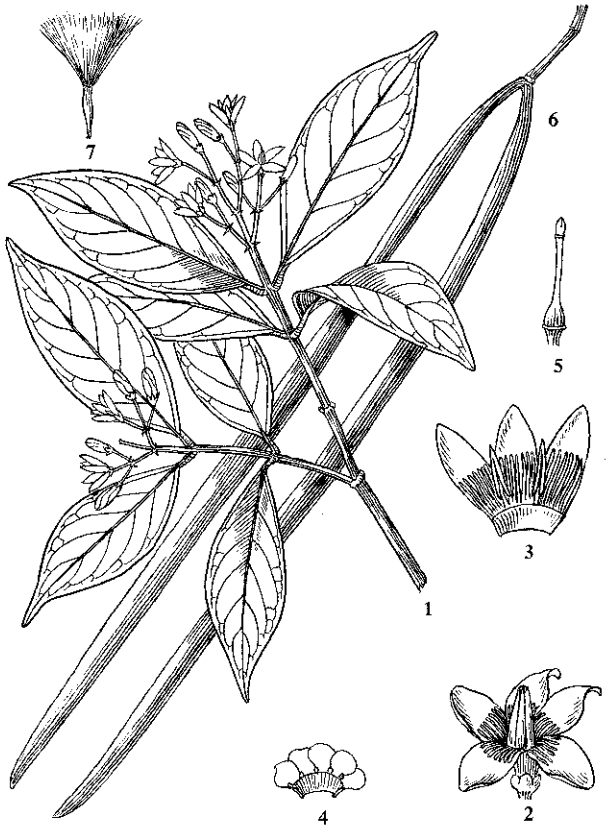


Figure 16. *Wrightia laevis* Hook. f.

1. flowering branch; *2.* flower; *3.* portion of corolla opened up showing stamens and corona; *4.* calyx opened; *5.* pistil; *6.* follicles; *7.* seed. (drawn by H. P. Yu)

10. Tabernaemontana L. 狗牙花屬

Shrubs or small trees, latex white. Stems repeatedly dichotomously branched. Leaves opposite; adaxial surface of petiole often with a basal semicircular or semiamplexicaul ocrea. Cymes corymbose or umbellate, at branch forks, (1- or) many-flowered. Calyx divided to middle or deeper, mostly with few to many basal glands inside. Corolla salverform, widened at or near middle; lobes sharply overlapping to left (or right). Stamens inserted at widened part of corolla-tube; filaments short or almost none; anthers oblong or narrowly triangular, free from pistil head, base sagittate or deeply cordate and not spurred; disk none. Ovary of 2 separate carpels united into a commom style; ovules numerous; style filiform; pistil head of a subglobose or lampshade-shaped basal part and stigmoid, 2-cleft apical part. Fruit of paired, divaricate follicles. Seeds with a red or orange fleshy aril; coma absent.

About 99 species distributed in Africa, Asia, N America, Pacific islands, S America; five species in China; one species in Hong Kong.

1. Tabernaemontana divaricata (L.) R. Br. ex Roem. & Schult. 狗牙花 **(Fig. 17; Photo 30)**

Syst. 4: 427. 1819; FOC 16: 153. 1995; D. J. Middleton, Fl. Thailand 7(1): 31. 1999.

Nerium divaricatum L., Sp. Pl. 1: 209. 1753.

Ervatamia divaricata (L.) Burkill, Rec. Bot. Surv. India 10(2): 320. 1925; FRPS 63: 100. 1977; FGD 1: 450, fig. 504. 1987.

Shrubs or small trees, 0.5–5 m tall, glabrous. Petioles 3–10 mm; leaf blade elliptic or narrowly so, 3–18 × 1–6 cm, apex acuminate; lateral veins 5–17 on each side of midvein. Cymes

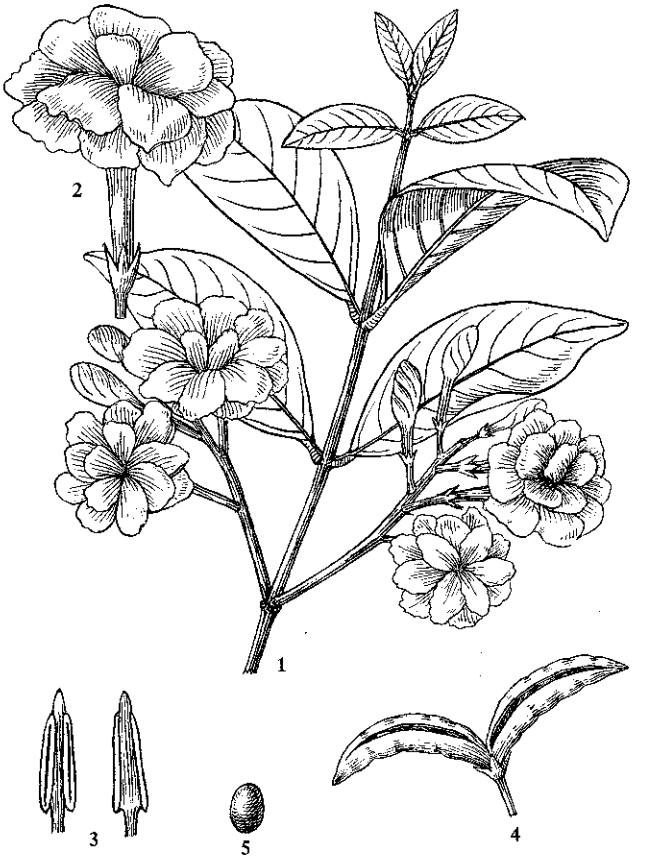


Figure 17. *Tabernaemontana divaricata* (L.) R. Br. ex Roem. & Schult.

1. flowering branch; *2.* flower; *3.* ventral and dorsal views of stamen; *4.* follicles; *5.* seed. (drawn by H. P. Yu)

dichotomous, 1–8-flowered; bracts scalelike. Flower buds with an ovoid head, apex acute or obtuse. Calyx lobes often ciliate. Corolla white; tube 1.5–2.7 cm; lobes simple or double, obovate or broadly so, 1.5–2.7 × 0.8–2 cm. Stamens inserted at basal third of corolla-tube. Folliciles obliquely and narrowly ellipsoidal, 2–7 × 0.6–1.5 cm.

Locality: Commonly cultivated. *C. P. Lau 102; Y. S. Lau 2006; HK sheet 31543.*

Distribution: S Yunnan; cultivated in Hainan, Guangdong, Guangxi, Fujian, Yunnan; Bangladesh, Bhutan, India, Myanmar, Nepal, Thailand, cultivated in tropical and subtropical Asia.

Ecology: Flowering: May–Nov.

Uses: Ornamental.

11. Allamanda L. 黃蟬屬

Shrubs erect or trailing. Leaves whorled, with axillary glands. Flowers large, in terminal or seemingly axillary corymbs. Calyx deeply divided, without basal glands. Corolla yellow, funnelform, narrow part with fringed scales, limb campanulate, lobes overlapping to left. Stamens inserted at narrow part of corolla; filaments very short; anthers narrowly oblong, base rounded, coherent with pistil head; disk cup-shaped, obscurely 5-lobed or entire, fleshy, thick. Ovary 1-locular, with two parietal placentae; ovules numerous; style filiform; pistil head thick, with a membranous, reflexed rim, apex conical, shortly 2-lobed. Fruit a capsule globose, glabrous, sharply spiny, 2-valved. Seeds numerous, imbricate, compressed, winged or with a membranous margin.

About 14 species distributed in tropical America; two species cultivated in China and Hong Kong.

1a. Erect shrubs with clear sap; lateral veins of leaves elevated abaxially; corolla-tube ca. 3 cm, distinctly inflated at base ..... 1. *A. schottii*

1b. Climbing shrubs with white latex; lateral veins of leaves flattened abaxially; corolla-tube 4–8 cm, not inflated at base ..... 2. *A. cathartica*

1. Allamanda schottii Pohl 黃蟬 **(Photos 31–32)**

Pl. Bras. Icon. Descr. 1: 73, pl. 58. 1827; FOC 16: 165. 1995; D. J. Middleton, Fl. Thailand 7(1): 72. 1999.

Allemanda neriifolia Hook., Bot. Mag. 77, pl. 4594. 1851; FRPS 63: 75. 1977; FGD 1: 427, fig. 472. 1987.

Shrubs erect, to 2 m tall, with clear sap. Leaves in whorls of 3–5, subsessile; leaf blade elliptic or narrowly obovate, 5–14 × 2–4 cm, minutely hispid along veins, lateral veins elevated on abaxial surface. Flowers 4–6 cm. Corolla tube rather narrowly funnelform, ca. 3 cm, distinctly inflated at base, limb ca. 4 cm in diam.; lobes pale yellow, ovate or orbicular, ca. 2 cm, obtuse. Capsules globose, ca. 3 cm in diam., long spiny. Seeds ca. 2 × 1.5 cm.

Locality: Commonly cultivated. *Y. S. Lau 486, 1434; HK sheet 18579.*

Distribution: Fujian, Guangdong, Guangxi, Hainan, Taiwan (cultivated).

Ecology: Flowering: Apr.–Oct.; fruiting: Jan.–Mar.

Uses: Ornamental.

2. Allamanda cathartica L. 軟枝黃蟬 **(Fig. 18; Photo 33)**

Mant. Pl. 2: 214. 1771; FHK 217. 1861; FRPS 63: 76, pl. 25. 1977; FGD 1: 428, fig. 473. 1987; FOC 16: 166. 1995; D. J. Middleton, Fl. Thailand 7(1): 70, fig. 23. 1999.

Allemanda cathartia L. var. *hendersonii* (Bull. ex Dombrain) L. H. Bailey & Raffill, Stand. Cycl. Hort. 1: 247. 1914; FRPS 63: 76. 1977.

Shrubs trailing, to 4 m, with white latex. Stems glabrous. Leaves opposite or in whorls of 3–5; petioles ca. 5 mm; leaf blade obovate, narrowly obovate, or oblong, 6–15 × 4–5 cm, glabrous or villous along veins on abaxial surface, lateral veins flattened. Peduncle short. Corolla yellow; tube 4–8 cm, amply funnelform, cylindric in proximal half, campanulate in distal half, limb 9–14 cm in diam.; lobes obovate-truncate to orbicular. Capsules subglobose, 3–7 × 3–5 cm, white spines to 1 cm. Seeds compressed, winged or with a membranous margin.

Locality: Commonly cultivated. *Y. S. Lau 1621; HK sheet 18570, 18574.*

Distribution: Fujian, Guangdong, Guangxi, Hainan, Taiwan (cultivated); native to Guiana.

Ecology: Flowering: Jun.–Dec.

Usese: Ornamental.

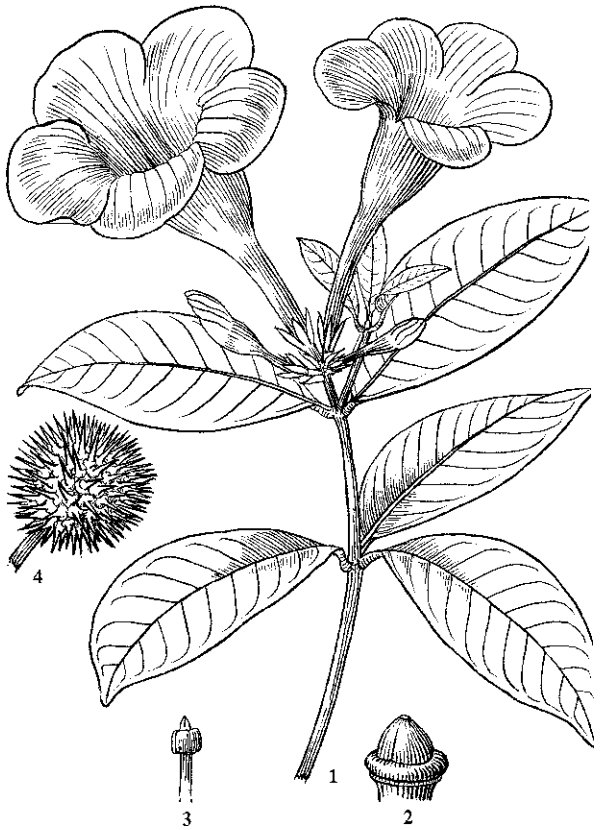


Figure 18. *Allamanda cathartica* L.

1. flowering branch; *2.* ovary and disk; *3.* stigma and a portion of style; *4.* capsule. (drawn by H. P. Yu)

12. Alyxia Banks ex R. Br. 鏈珠藤屬

Woody lianas or erect to trailing shrubs, with latex. Leaves in whorls of 3–4, rarely opposite. Cymes terminal and/or axillary, sometimes in clusters or short thyrses. Flowers small, 5-merous. Calyx deeply divided, without basal glands. Corolla white or rarely yellow, salverform, tube cylindric, widened at stamens insertion, lobes overlapping to left; corona scales absent. Stamens included, inserted at or above middle of corolla-tube; filaments very short; anthers free from pistil head; disk absent. Ovary of 2 separate carpels united into a common style; ovules biseriate, 4–6 in each carpel. Style filiform; pistil head capitate, apex shortly 2-cleft. Fruit a drupe, usually moniliform, with one or more subglobose joints, or not jointed. Seeds ovate or oblong; endosperm horny, ruminate; cotyledons leaflike, erect or curved.

About 70 species distributed in tropical Asia, Australia, Pacific islands; 12 species in China; one species in Hong Kong.

1. Alyxia sinensis Champ. ex Benth. 鏈珠藤 **(Photos 34–35)**

Hooker's J. Bot. Kew Gard. Misc. 4: 334. 1852; FHK 219. 1861; FKH 168. 1912; FRPS 63: 65, pl. 22. 1977; FGD 1: 443, fig. 494. 1987; FOC 16: 161. 1995.

Lianas woody, to 3 m, glabrous except for inflorescences. Leaves opposite or in whorls of 3; petioles ca. 2 mm; leaf blade orbicular, elliptic, ovate, or obovate, 1.5–3.5 × 0.8–2 cm, leathery, margin revolute, apex rounded or retuse, lateral veins inconspicuous. Cymes axillary or subterminal, less than 2 cm. Flowers densely crowded, 5–6 cm. Sepals ovate, ca. 1.5 mm, obtuse, pubescent. Corolla reddish to white, constricted at apex, tube 2–3 mm; lobes ovate, ca. 1.5 mm. Ovary villous. Fruit moniliform, stipitate, with 2 or 3 ellipsoidal joints of ca. 10 × 5 mm.

Locality: Common in Hong Kong. *H. C. Tang 1976, 2131; HK sheet 40801.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Zhejiang, Fujian, Taiwan; Vietnam.

Ecology: Thickets, forest margins; 200–500 m. Flowering: Jul.–Oct.; fruiting: Nearly all year round.

Uses: Medicinal (folklore), ornamental.

Notes: The type specimen was collected by J. G. Champion from Hong Kong Island between 1847 and 1850.

13. Melodinus J. R. & G. Forst. 山橙屬

Woody lianas or sometimes low shrubs, latex present. Leaves opposite. Cymes terminal or axillary. Flowers white. Calyx without glands. Corolla salverform; tube cylindric, dilated at staminal insertion; lobes usually oblique-falcate, overlapping to left; corona scales 5 or 10, erect. Stamens inserted at or below middle of corolla-tube, included; filaments very short; anthers free from pistil head, base rounded; disk absent. Ovary syncarpous, 2-loculed; ovules numerous. Style short; pistil head apex dilated, 2-cleft. Fruit a berry. Seeds numerous; coma absent.

About 50 species in tropical or subtropical Asia and Australia; 12 species in China; two species in Hong Kong.

1a. Plant glabrous except for inflorescences; corolla lobes falcate with a distinct subterminal notch; fruits globose ..... 1. *M. suaveolens*

1b. Plant pubescent on young parts, glabrous when older; corolla lobes obliquely narrow ovate or obovate, entire; fruits fusiform..... 2. *M. fusiformis*

1. Melodinus suaveolens (Hance) Champ. ex Benth. 山橙 **(Fig. 19; Photos 36–37)**

Hooker's J. Bot. Kew Gard. Misc. 4: 333. 1852; FHK 218. 1861; FKH 167. 1912; FRPS 63: 22, pl. 7. 1977; FGD 1: 430, fig. 476. 1987; FOC 16: 148. 1995.

Lycimnia suaveolens Hance, Ann. Bot. Syst. 3(1): 31. 1852.

Melodinus monogynus auct. non Roxb.: FHK 218. 1861; FKH 167. 1912.

Lianas to 10 m, glabrous except for inflorescences. Petioles to 1.2 cm; leaf blade elliptic or ovate, 5–10 × 1.8–5 cm, leathery, base attenuate to rounded, apex short acuminate. Cymes terminal and axillary. Flower buds rounded or obtuse at apex, minutely pubescent outside. Flowers fragrant. Sepals ovate, ca. 3 mm, minutely pubescent abaxially, apex rounded or obtuse. Corolla white; tube 1–1.4 cm; lobes shorter than or as long as tube, suborbicular, falcate, with a distinct notch near apex; corona campanulate or tubular, apex 5-cleft, exserted from throat. Berries globose, 5–8 cm in diam.

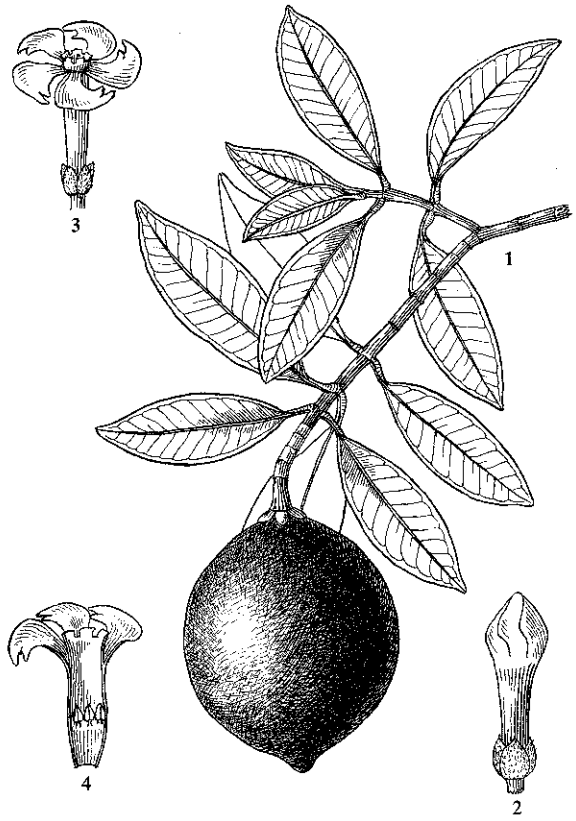


Figure 19. *Melodinus suaveolens* (Hance) Champ. ex Benth.
1. fruiting branch; *2.* alabastrum; *3.* flower; *4.* vertical section of corolla showing stamens. (drawn by H. P. Yu)

Locality: Common in Hong Kong. *Y. S. Lau 454, 3070; HK sheet 39868.*

Distribution: Hainan, Guangdong, Guangxi; Vietnam.

Ecology: Open forests, humid thickets; 100–800 m. Flowering: Feb.–Jun.; fruiting: Apr.–Dec.

Uses: Medicinal (folklore), ornamental.

Notes: The type specimen was collected by J. G. Champion from Happy Valley Woods between 1847 and 1850.

2. Melodinus fusiformis Champ. ex Benth. 尖山橙 **(Photos 38–39)**

Hooker's J. Bot. Kew Gard. Misc. 4: 332. 1852; FHK 218. 1861; FKH 167. 1912; FRPS 63: 29. 1977; FGD 1: 431, fig. 477. 1987; FOC 16: 150. 1995.

Lianas stout, to 10 m, juvenile parts pubescent, glabrous when older. Bark grey-brown. Petioles 4–6 mm; leaf blade elliptic or oblong, rarely narrowly elliptic, 4.5–12 × 1–5.3 cm, somewhat leathery, base cuneate or rounded, apex acuminate; lateral veins ca. 15 on each side of midvein, obliquely spreading and reticulate toward margin. Cymes terminal, 3–5 cm, 6–12-flowered. Pedicels 5–10 mm. Sepals ovate, 4–5 mm, acute. Corolla white; tube 1.2–2 cm; lobes obliquely narrow ovate or obovate, (0.8–)1.1–2 cm × 3.5–9 mm; corona scales 5, indistinct, apices 2- or 3-cleft, exserted, villous. Stamens inserted near base of corolla tube. Berries fusiform, 3.5–5.3 × 2.2–4 cm.

Locality: Mount Parker, Victoria Peak, Wong Chuk Yeung, Ng Tung Chai, Sai Kung, Ma On Shan, Lantau Island. *P. S. Choi 394; HK sheet 38556, 40138.*

Distribution: Guangdong, Guangxi, Guizhou.

Ecology : Thickets, thin forests. Flowering: Feb.–Jun.; fruiting: May–Dec.

Uses: Medicinal (folklore), ornamental.

Notes: The type specimen was collected by J. G. Champion from Victoria Peak between 1847 and 1850.

14. Strophanthus DC. 羊角拗屬

Lianas or erect or stolon-bearing shrubs, rarely trees, with latex. Leaves opposite or in whorls of 3. Cymes mostly dichasial, terminal, pedunculate or sessile. Flowers large. Sepals free or connate at base, imbricate or quincuncial, basal glands 5–many. Corolla funnelform, usually turning darker and dark streaked at anthesis; tube short, throat wide; lobes overlapping and mostly twisted to right, distal portions mostly forming filiform, involute long tails; corona 10-lobed, inserted at base of corolla-lobes. Stamens inserted at apex of corolla-tube; filaments short; anthers sagittate, connivent, adherent to pistil head, spurred at base; disk absent. Ovary of 2 separate carpels, often partly connate at base; ovules numerous in each carpel. Style filiform. Fruit of 2 divaricate follicles, connate at the base. Seeds numerous, with beaked apical coma.

About 38 species distributed in tropical Africa, Asia; six species in China; one species in Hong Kong.

1. Strophanthus divaricatus (Lour.) Hook. & Arn.
羊角拗 **(Fig. 20; Photos 40–41)**

Bot. Beechey Voy. 199. 1837; FRPS 63: 152, pl. 51. 1977; FGD 1: 462, fig. 517. 1987; FOC 16: 178. 1995.

Pergularia divaricatus Lour., Fl. Cochinch. 1: 169. 1790.

Strophanthus divergens Graham, Edinburgh New Philos. J. 179. 1827; FHK 220. 1861.

Strophanthus chinensis (Hunter ex Roxb.) G. Don, Gen. Hist. 4: 85. 1837; FKH 172. 1912.

Lianas or sarmentose shrubs, to 4.5 m tall, stolon-bearing when pruned, glabrous except for corolla; latex clear or yellowish. Branches dark grey, densely lenticellate, branchlets reddish brown. Petioles 5–10 mm; leaf blade elliptic or slightly obovate, 3–10 × 1.5–5 cm; lateral veins 4–9 on each side of midvein. Cymes 3–15-flowered; peduncle to 1.5 cm; bracts linear or narrowly ovate, deciduous. Pedicels to 1 cm. Sepals narrowly triangular, 4–11 mm. Corolla yellow, tube 0.9–1.6 cm, puberulent on both sides or glabrous inside; lobes with a red basal spot adaxially, ovate, to 10 cm, abruptly narrowed into pendulous tails to 1 mm wide; corona-lobes 10, greenish yellow, triangular or awl-shaped, 0.9–3 mm. Anthers included, connective tail to 0.6 mm. Ovary glabrous. Follicles ellipsoidal-oblong, 9–15 × 2–3.5 cm, hard, woody, divergent at an angle 180–250°. Seeds fusiform, 1.3–2 cm, beak 1.2–3.4 cm, coma 3.5–5.5 cm.

Locality: Common in Hong Kong. *L. T. Lo 16; Y. S. Lau 2369; HK sheet 40116.*

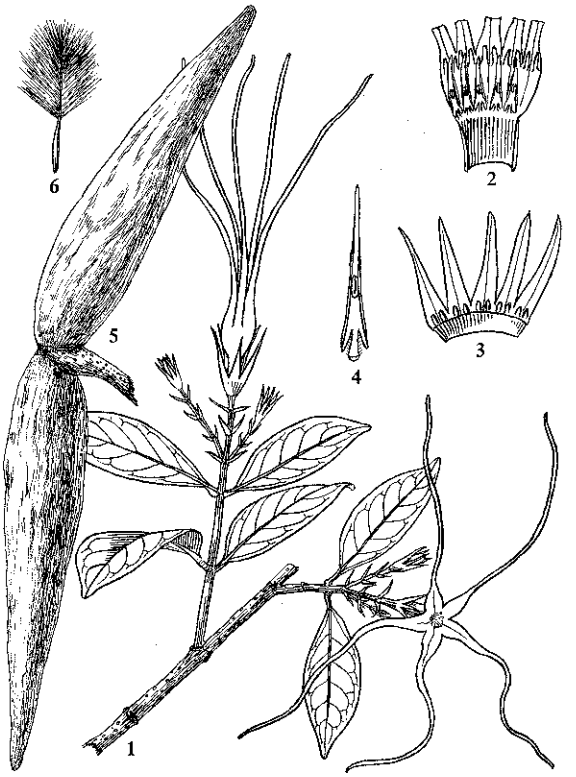


Figure 20. *Strophanthus divaricatus* (Lour.) Hook. & Arn.
1. flowering branch; *2.* corolla-tube opened up showing stamens; *3.* calyx opened up; *4.* stamen; *5.* follicles; *6.* seed. (drawn by H. P. Yu)

Distribution: Hainan, Fujian, Guangdong, Guangxi, Guizhou, Yunnan; Laos, Vietnam.
Ecology: Thickets or thin forests. Flowering: Mar.–May; fruiting: Jun.–Oct.

15. Urceola Roxb. 水壺藤屬

Lianas woody, latex white. Leaves opposite. Cymes paniculate, terminal or axillary, 3-branched. Flowers small. Calyx deeply divided, with basal glands inside. Corolla nearly urceolate, throat without scales; lobes short, overlapping to right. Stamens included, inserted at base of corolla-tube; filaments short; anthers narrowly oblong, sagittate, connivent, adherent to pistil head, cells spurred at base; disk ring-like, entire or 5-lobed. Ovary of 2 separate carpels united into a common style, villous at apex; ovules numerous in each carpel. Style short; pistil head ovoid, conical or oblong, apex 2-cleft. Fruit of paired follicles, stipitate or not, cylindric or narrowly ellipsoidal, spreading. Seeds numerous, oblong or linear, compressed, pubescent, with a terminal white coma.

About 15 species distributed in SE Asia; eight species in China; two species in Hong Kong.

1a. Branches lenticellate; leaves not glaucous abaxially; petioles puberulent; fruits narrowly ovoid, base dilated..... 1. *U. micrantha*
1b. Branches not lenticellate; leaves glaucous abaxially; petioles glabrous; fruits terete, base not dilated ..... 2. *U. rosea*

1. Urceola micrantha (Wall. ex G. Don) D. J. Middleton
杜仲藤 **(Fig. 21; Photo 42)**

Novon 4: 151. 1994; FOC 16: 184. 1995; Fl. Thailand 7(1): 145, fig. 46. 1999.

Echites micrantha Wall. ex G. Don, Gen. Hist. 4: 75. 1837.

Ecdysanthera micrantha (Wall. ex G. Don) A. DC., Prodr. 8: 442. 1844; FHK 222. 1861; FKH 169. 1912.

Parabarium micranthum (Wall. ex G. Don) Pierre ex Spire, Caoutchouc Indo-Chine 38. 1906; FRPS 63: 239, pl. 85. 1977; FGD 1: 479, fig. 541. 1987.

Lianas to 50 m or longer. stem 10–30 cm in diam.; branches often lenticellate. Petioles puberulent, 1.5–3 cm; leaf blade elliptic or narrowly ovate, 5–15 × 1.5–6 cm, base obtuse, apex narrowly acuminate, glabrous, lateral veins 3–7 on each side of midvein. Cymes paniculate, compact, to 9 cm; peduncle pubescent. Sepals ovate, ca. 0.8–1 mm, apex subacute. Corolla pink, lobes oblong, as long as to longer than the tube, to 2 mm, 1-toothed near base. Filaments ca. 0.5 m; disk ring-like. Ovary pilose; pistil head conical. Follicles narrowly ovoid, 9–23 × (0.4–)1–1.2 cm, base dilated. Seeds oblong, 2–4 cm, coma ca. 4 cm.

Locality: Hong Kong Island, Lantau Island. *W. J. Tutcher 10169; HK sheet 3789, 40675.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Sichuan, Xizang, Fujian, Taiwan; India, Indonesia, Ryukyu Islands, Laos, Malaysia, Nepal, Thailand, Vietnam.

Ecology: Mixed forests, thickets. Flowering: Mar.–Jul.

Uses: Medicinal (folklore), ornamental.

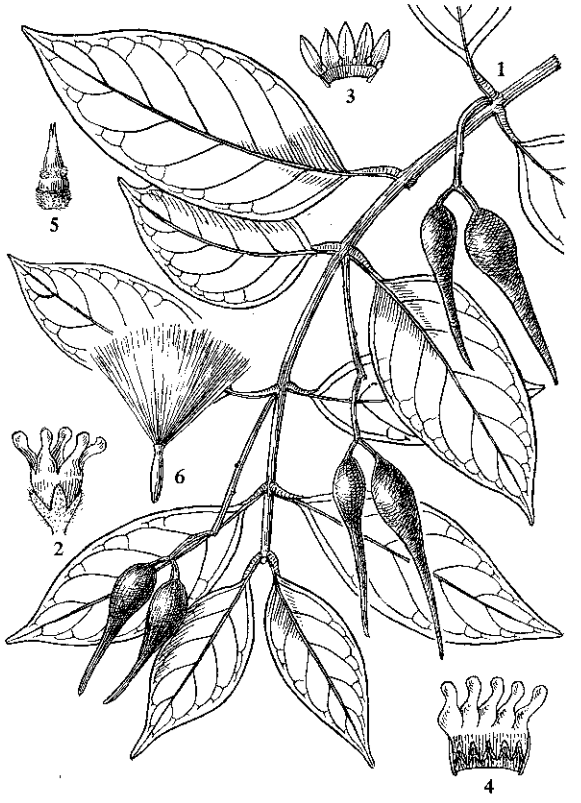


Figure 21. *Urceola micrantha* (Wall. ex. G. Don) D. J. Middleton
1. fruiting branch; *2.* flower; *3.* calyx opened; *4.* corolla opened up showing stamens; *5.* pistil and disk; *6.* seed. (drawn by H. P. Yu)

2. Urceola rosea (Hook. & Arn.) D. J. Middleton 酸葉膠藤 **(Photos 43–44)**

Novon 4: 151. 1994; FOC 16: 184. 1995; Fl. Thailand 7(1): 149. 1999.

Ecdysanthera rosea Hook. & Arn., Bot. Beechey Voy. 198, pl. 42. 1837; FHK 222. 1861; FKH 169. 1912; FRPS 63: 234. 1977; FGD 1: 477, fig. 538. 1987.

Lianas to 20 m. Stems dark brown, lenticels absent; branches tawny grey, young ones brownish. Petioles 0.8–1.2 cm; leaf blade broadly elliptic, rarely subovate, 3–7 × 1–4 cm, apex acute, glabrous, ± lustrous adaxially, glaucous abaxially, lateral veins 4–6 on each side of midvein. Sepals ovate, ca. 3 mm, obtuse. Corolla pink; tube ca. 4 mm; lobes ca. 2 mm, acute.; disk ring-like, entire. Ovary pubescent. Follicles to 15 cm, terete, densely spotted. Seeds oblong, ca. 1 cm, coma ca. 3 cm.

Locality: Hong Kong Island, Tai Mo Shan, Lantau Island. *P. S. Choi 438; N. H. Li 105; Y. W. Lam 921.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Sichuan, Yunnan, Hunan, Fujian, Taiwan; Indonesia, Thailand, Vietnam.

Ecology: Thickets, thin forests. Flowering: May–Jun.; fruiting: Jul.–Jan. of the following year.

Uses: Medicinal (folklore), ornamental.

16. **Pottsia** Hook. & Arn. 簾子藤屬

Lianas woody, latex white. Leaves opposite. Cymes racemose or paniculate, 3–5-branched, terminal or axillary. Flowers usually small, 5-merous. Calyx deeply divided, with many basal glands inside. Corolla salverform; tube cylindric, throat narrowed, without scales; lobes overlapping to right. Stamens inserted at apex of corolla-tube; filaments short; anthers exserted, sagittate, connivent at middle, adherent to pistil head, cells spurred at base; disk 5-parted. Ovary of 2 separate carpels, shorter than disk; ovules numerous in each carpel. Style thickened at middle or near base; pistil head ovoid or fusiform, apex short conical. Fruit of paired linear follicles. Seeds linear, with an apical coma.

About four species in SE Asia; two species in China; one species in Hong Kong.

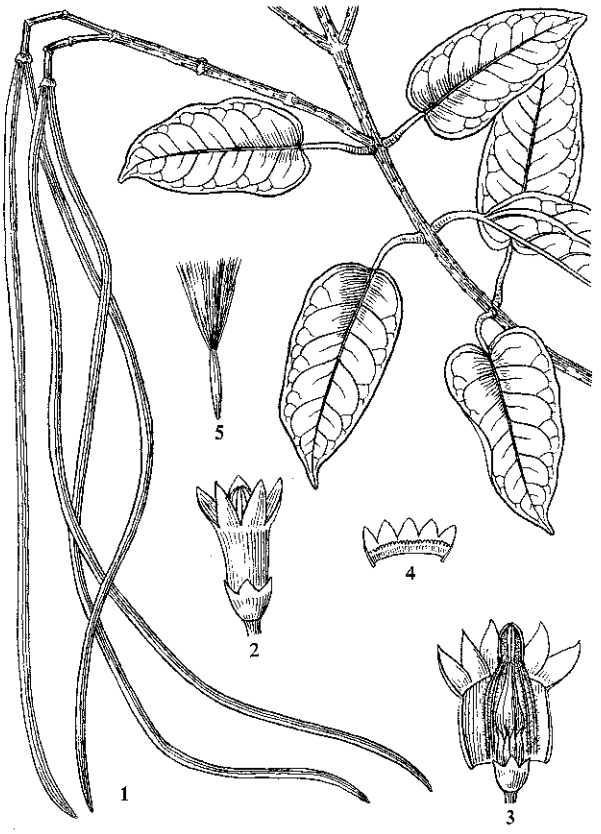


Figure 22. *Pottsia laxiflora* (Blume) Kuntze
1. fruiting branch; *2.* flower; *3.* flower with corolla opened; *4.* calyx opened; *5.* seed. (drawn by H. P. Yu)

1. Pottsia laxiflora (Blume) Kuntze 簾子藤 **(Fig. 22; Photo 45)**

Revis. Gen. Pl. 2: 416. 1891; FRPS 63: 137, pl. 46. 1977; FGD 1: 457, fig. 511. 1987; FOC 16: 173. 1995; D. J. Middleton, Fl. Thailand 7(1): 139, fig. 44. 1999.

Vallaris laxiflora Blume, Bijdr. Fl. Ned. Ind. 16: 1043. 1826.

Pottsia cantonensis Hook. & Arn., Bot. Beechey. Voy. 199, pl. 43. 1837; FHK 222. 1861; FKH 168. 1912.

Lianas to 10 m; branches and branchlets slender, pubescent or glabrous. Petioles 1.5–4 cm; leaf blade ovate, narrowly ovate, or elliptic, 6–12 × 3–7 cm, base obtuse to rounded or subcordate, pubescent or glabrous on both surfaces, lateral veins 4–6 on each side of midvein. Cymes to 25 cm, long-pedunculate, many-flowered. Corolla purple or rose, ca. 7 mm; tube glabrous, longer than lobes; lobes narrowly ovate, ca. 2 mm, spreading. Ovary pilose. Style thickened in middle. Follicles linear, to 26–40 cm × 3–4 mm, pubescent to glabrous. Seeds linear, ca. 2 cm; coma 2.5–3 cm.

Locality: Hong Kong Island, Tai Mo Shan, Sha Tin, Sai Kung, Hok Tau, Lantau Island. *Y. S. Lau 2314; P. S. Choi 264, 501.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Jiangxi, Zhejiang, Fujian; India, Vietnam, Laos, Cambodia, Malaysia, Indonesia.

Ecology: Thickets, thin forests. Flowering: Jun.–Sep.

Uses: Medicinal (folklore), ornamental.

Notes: The species was recorded as *Pottsia grandiflora* Markgr. previously (Check List HK Plants 57. 1993; 74. 2004).

17. **Trachelospermum** Lem. 絡石屬

Lianas woody, latex white. Leaves opposite. Cymes lax, terminal or axillary. Flowers white or purplish, 5-merous. Calyx small, deeply divided, basal glands 5–10, apex usually denticulate. Corolla salverform; tube cylindric, 5-angled, dilated at insertion of stamens, throat constricted; lobes sharply overlapping to right. Stamens inserted at or above middle of corolla-tube; anthers sagittate, connivent, adherent to pistil head, anther included or the acuminate tips exserted, cells spurred at base; disk scales 5, free. Ovary of 2 separate carpels united into a common style, usually longer than disk; ovules numerous in each carpel. Style short; pistil head conical. Fruit of paired follicles, linear or fusiform, divergent or parallel. Seeds linear-oblong, unbeaked, coma silky white.

About 15 species distributed worldwide, one species in N America, 14 species in Asia; six species in China; one species in Hong Kong.

1. Trachelospermum jasminoides (Lindl.) Lem. 絡石 **(Fig. 23; Photo 46)**

Jard. Fleur. 1: t. 61. 1851; FKH 169. 1912; FRPS 63: 216, pl. 75. 1977; FGD 1: 472, fig. 531. 1987; FOC 16: 167. 1995.

Rhynchospermum jasminoides Lindl., J. Hort. Soc. London 1: 74. 1846.

Trachelospermum jasminoides (Lindl.) Lem. cv. *Variegatum*, FRPS 63: 219. 1977.

Trachelospermum jasminoides (Lindl.) Lem. var. *heterophyllum* Tsiang, Sunyatsenia 2: 146, fig. 15. 1934; FRPS 63: 218. 1977.

Lianas woody, to 10 m or longer. Stems brownish, lenticellate; young branchlets pubescent, glabrous when older. Petioles 3–12 mm; leaf blade ovate to obovate or narrowly elliptic, 2–10 × 1–4.5 cm, papery, glabrous or sometimes sparsely pubescent abaxially. Cymes paniculate, terminal and axillary; peduncle 2–6 cm, puberulent to glabrous. Sepals narrowly oblong, 2–5 mm, spreading or reflexed, pubescent abaxially, ciliate, apex obtuse or acute. Corolla white, tube dilated at middle, 5–10 mm, throat glabrous or pilose facing stamens; lobes obovate, as long as tube. Stamens included, inserted at middle of corolla tube. Ovary glabrous. Follicles linear, 10–25 cm × 3–10 mm. Seeds oblong, 1.5–2 cm, coma 1.5–4 cm.

Locality: Happy Valley, Wan Chai Gap, Tai Mo Shan, Tai Po Kau. *Y. S. Lau 970; HK sheet 18790, 33872.*

Distribution: E, C, S & SW China, Shanxi, Shaanxi, Xizang; Japan, Vietnam.

Ecology: Sunny edges of forests, thickets. Flowering: Feb.–Jun.

18. Ichnocarpus R. Br. 腰骨藤屬

Scramblers or woody lianas, with latex. Leaves opposite. Inflorescences cymose, terminal and/or axillary. Flowers small. Calyx with basal glands inside, lobes free. Corolla white, yellowish or red, salverform; tube widened near base, throat hairy; lobes oblong, falcate, overlapping to right in bud, with inflexed distal halves. Stamens included, inserted at or below middle of corolla-tube; filaments very short; anthers sagittate, adherent to pistil head, cells spurred at base; disk entire, 5-crenate or 5-dentate, or deeply divided into 5 erect segments. Ovary of 2 separate carpels united into a common style, adnate basally to disk, pubescent; ovules numerous; pistil head ovoid or cup-shaped. Fruit of paired follicles, spreading or divaricate. Seeds numerous, linear, compressed, unbeaked, with an apical coma.

Eight species distributed in SE Asia, N Australia, Pacific islands; four species in China; two species in Hong Kong.

1a. Branchlets and leaves glabrescent; inflorescence 3–8 cm; flowers white ..... 1. *I. frutescens*

1b. Branchlets and leaves rusty tomentose; inflorescence ca. 2 cm; flowers red ..... 2. *I. jacquetii*

1. Ichnocarpus frutescens (L.) W. T. Aiton
腰骨藤 **(Fig. 24; Photos 47–48)**

Hort. Kew. (ed. 2) 2: 69. 1811; FRPS 63: 225. 1977; FGD 1: 475, fig. 535. 1987; FOC 16: 186. 1995; D. J. Middleton, Fl. Thailand 7(1): 113, fig. 36. 1999.

Apocynum frutescens L., Sp. Pl. 1: 213. 1753

Gardenia volubilis Lour., Fl. Cochinch. 148. 1790.

Ichnocarpus ovatifolius A. DC., Prodr. 8: 435. 1844; FKH 169. 1912.

Lianas to 10 m; branchlets pubescent when young, soon glabrous. Petioles 0.5–1.5 cm; leaf blade 5–11 × 2.5–4.5 cm, pubescent or glabrous abaxially, lateral veins 5–7 on each side of midvein. Cymes many-flowered, 1.5–8(–13) cm. Calyx densely pubescent. Corolla tube ca. 2.5 mm; lobes narrowly oblong, ca. 5 mm; anthers elliptic; disk lobes free, linear, longer than ovary. Ovary pubescent. Follicles cylindric, 8–15 cm × 4–5 mm, slightly torulose, pubescent. Seeds linear, coma ca. 2.5 cm.

Locality: Aberdeen, Mount Nicholson, Cape D'Aguilar, Sha Tin, Lam Tsuen, Ching Chau. *L. T. Lo 340; Y. S. Lau 3176; Y. W. Lam 783.*

Distribution: Hainan, Fujian, Guangdong, Guangxi, Guizhou, Yunnan; S Asia, Indochina, Malesia to Australia.

Ecology: Thickets, thin forest. Flowering: Apr–Jul.; fruiting: Aug.–Dec.

Uses: Medicinal (folklore), ornamental.

2. Ichnocarpus jacquetii (Pierre) D. J. Middleton 少花腰骨藤
Novon 4: 152. 1994; FOC 16: 186. 1995.

Micrechites jacquetii Pierre in Spire, Contr. Apocyn. 48. 1905.

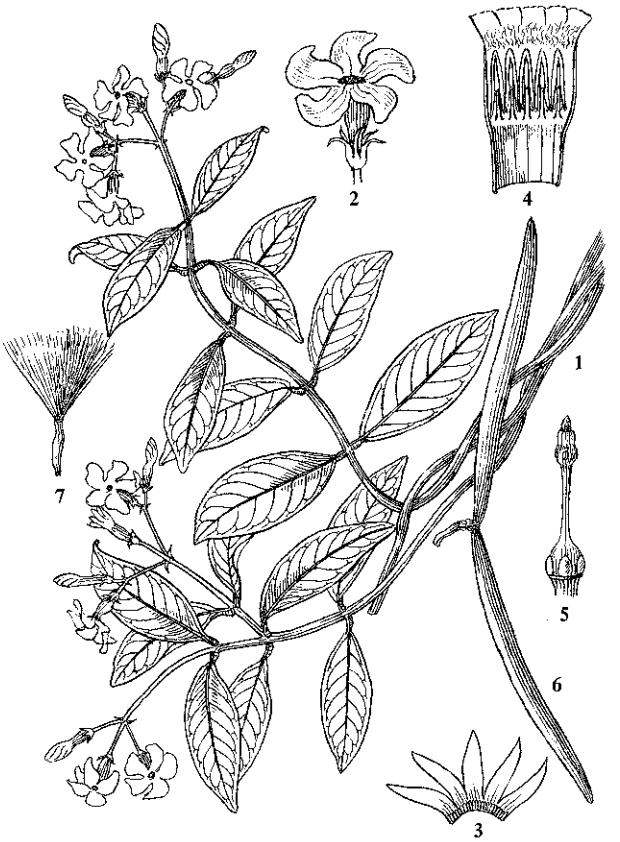


Figure 23. *Trachelospermum jasminoides* (Lindl.) Lem.
1. flowering branch; *2.* flower; *3.* calyx opened; *4.* corolla-tube opened up showing stamens; *5.* pistil and disk; *6.* follicles; *7.* seed. (drawn by H. P. Yu)

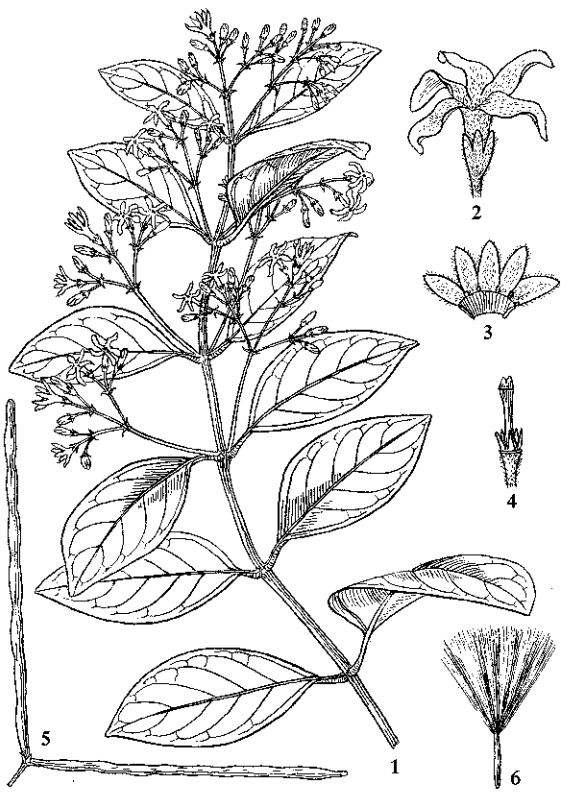


Figure 24. *Ichnocarpus frutescens* (L.) W. T. Aiton
1. flowering branch; *2.* flower; *3.* calyx opened up showing glands; *4.* pistil and disk; *5.* follicle; *6.* seed. (drawn by H. P. Yu)

Ichnocarpus oliganthus Tsiang, Sunyatsenia 3: 156–159, pl. 17, fig. 10. 1936; FGD 1: 476, fig. 536. 1987.

Lianas to 20 m, branchlets, abaxial surface of leaves, petioles and inflorescences rusty tomentose. Petioles 1–2 cm; leaf blade narrowly elliptic to oblong-elliptic, 4–8 × 1.5–3.5 cm, base broadly cuneate, apex shortly acuminate, lateral veins 7–9 on each side of midvein. Cymes 1.5–2.5 cm, 2–8-flowered; bracts many, ovate, ca. 2 mm. Calyx rusty tomentose outside, inside with 20 glands at the base. Corolla red, ca. 6.5 mm in diam., villous inside at throat; tube ca. 3 mm, dilated at middle; lobes long falcate, ca. 3 × 1.2 mm. Stamens inserted near base of corolla-tube; disk 5-lobed, slightly united at base, shorter than ovary. Ovary glabrous. Follicles linear-cylindric, 12–18 cm × 5 mm, rusty tomentose. Seeds dark brown, linear, 1-2 cm × ca. 1 mm, coma creamy white, to 3 cm.

Locality: Wu Kau Tang. *W. J. Tutcher 10924 (HK sheet 18830).*

Distribution: Hainan, Guangdong, Guangxi; Vietnam, Laos.

Ecology: Thin forests and thickets. Fruiting: Mar.

Uses: Medicinal (folklore), ornamental.

Notes: The plant was known in Hong Kong only by a specimen collected from Wu Kau Tang in 1914, identified as *I. polyanthus* (Blume) P. I. Forst previously. This specimen was cited in the protologue of *Ichnocarpus oliganthus* Tsiang (1936).

19. Anodendron A. DC. 鱔藤屬

Lianas with white latex. Leaves opposite, lateral veins usually wrinkled above. Cymes paniculate, terminal or axillary. Flowers small. Calyx deeply divided, with basal glands inside. Corolla salverform; tube cylindric, slightly dilated at insertion of stamens, throat constricted, faucal scales absent; lobes overlapping and twisted to right. Stamens included, inserted just below middle of corolla-tube; filaments short; anthers sagittate, connivent, adherent to pistil head, cells spurred at base; disk ring-like or cup-shaped, apex truncate or shortly 5-lobed. Ovary of 2 separate carpels united into a common style; ovules numerous in each carpel; style short; pistil head thick, base with a ring-like membrane. Fruit of paired divaricate follicles, thick, narrowly ovoid, apex acuminate. Seeds compressed, ovate or oblong; beaked, with a long apical coma.

About 16 species distributed in India, Sri Lanka, Malaysia, Vietnam, China; five species in China; one species in Hong Kong.

1. Anodendron affine (Hook. & Arn.) Druce 鱔藤 **(Fig. 25; Photos 49–50)**

Rep. Bot. Soc. Exch. Club Brit. Isles 4(Suppl. 2): 605. 1917; FRPS 63: 175, pl. 59. 1977; FGD 1: 464, fig. 519. 1987; FOC 16: 182. 1995; D. J. Middleton, Fl. Thailand 7(1): 128. 1999.

Holarrhena affinis Hook. & Arn., Bot. Beechey Voy. 198. 1837.

Aganosma laevis Champ., Hooker's J. Bot. Kew Gard. Misc. 4: 335. 1853; FHK 221. 1861.

Anodendron laeve (Champ.) Maxim. ex Franch. & Sav., Enum. Pl. Jap. 1(2): 315. 1875; Dunn & Tutcher, FKH 169. 1912.

Anodendron fangchengense Tsiang & P. T. Li, Acta Phytotax. Sin. 11: 378, pl. 48. 1973; FRPS 63: 176. 1977.

Anodendron salicifolium Tsiang & P. T. Li, Acta Phytotax. Sin. 11: 379. 1973; FRPS 63: 177, pl. 60. 1977.

Lianas to 10 m or longer, glabrous except for corolla. Branches pale grey. Petioles 0.5–2 cm; leaf blade narrowly oblong to narrowly ovate, 3–14 × 1.2–5 cm, papery or somewhat leathery, deep green adaxially, lighter abaxially; lateral veins 6–12 on each side of midvein, usually wrinkled in dry state. Cymes paniculate, terminal or axiallary, 3–26 × 3–13 cm, long-pedunculate. Sepals ovate, 2–3 mm. Corolla white or yellowish green, pilose inside, tube 3–4.5 mm; lobes falcate, narrowly oblong, as long as or shorter than the tube. Stamens inserted at base of corolla-tube; disk cup-shaped, shallowly 5-lobed or entire, attached to ovaries. Follicles narrowly ellipsoidal, dilated at base, 8–13 × 1.6–3 cm. Seed tawny, beaked, ca. 2 cm × 6 m, coma ca. 6 cm.

Locality: Hong Kong Island, Sha Tin, Tai Mo Shan, Sai Kung, Lantau Island. *Y. S. Lau 2104; P. S. Choi 428; Y. W. Lam 623.*

Distribution: S, SW & E China; Vietnam, Japan, India.

Ecology: Thickets or thin forests. Flowering: Apr.–Nov.; fruiting: Jun.–Feb. of the following year.

Uses: Medicinal (folklore), ornamental.

Notes: The type specimen of *Aganosma laevis* was collected by J. G. Champion from Hong Kong Island between 1847 and 1850.

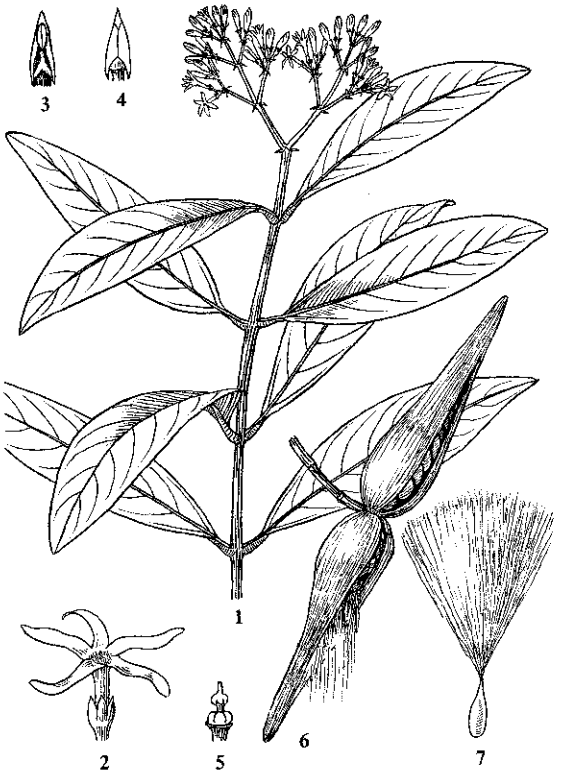


Figure 25. *Anodendron affine* (Hook. & Arn.) Druce

1. flowering branch; *2.* flower; *3.* ventral view of stamen; *4.* dorsal view of stamen; *5.* pistil and disk; *6.* follicles; *7.* seed. (drawn by H. P. Yu)

279. ASCLEPIADACEAE 蘿藦科

LI Ping-tao 李秉滔

Herbs, climbers or shrubs, rarely treelike, with milky or, less often, clear latex. Leaves simple, opposite or occasionally whorled, very rarely alternate, usually without obvious stipules, margin nearly always entire. Inflorescences terminal, axillary, or extra-axillary, cymose, often condensed and ± umbel-like, occasionally raceme-like. Flowers bisexual, 5-merous, usually regular. Sepals joined at base only, often with 5 or more basal glands. Corolla sympetalous, reflexed to urn -shaped or salverform; lobes valvate or overlapping in bud to right or left. Corona usually present, inserted on corolla, on stamens, or on both. Stamens 5, usually inserted at base of corolla-tube and adhering to stigma head forming gynostegium; filaments usually connate into a tube enclosing ovaries; anthers 2-celled, each often with membranous apical appendage; pollen tetrads contained loosely on a spathulate translator with a basal corpusculum (Periplocoideae), or pollen united into waxy pollinia, each attached through a caudicle (stalk) to the retinaculum (gland) between adjacent anthers. Ovaries 2, free, superior; ovules numerous; styles connate; stigma with fleshy head. Fruits of 1 or 2 follicles. Seeds numerous, strongly compressed, with a coma (a prominent basal tuft of silky hairs).

About 250 genera and over 2000 species widespread in tropical and subtropical regions, especially in Africa and southern S America, with a moderate representation in N and SE Asia; 44 genera and 271 species in China; 15 genera and 20 species in Hong Kong.

1a. Erect herbs.
2a. Leaves opposite or whorled, lateral veins prominent; corolla lobes reflexed; corona hooded; pollinia pendulous ..1. *Asclepias*
2b. Leaves opposite, lateral veins obscure; corolla lobes erect; corona scale-form; pollinia erect.....2. *Pentasachme*
1b. Twining climbers, rarely erect herbs (*Cynanchum paniculatum*, corona lobes as long as anthers).
3a. Plant succulent.
4a. Corolla rotate; corona stellate.....3. *Hoya*
4b. Corolla urceolate; corona anchor-shaped .....4. *Dischidia*
3b. Plant herbaceous or woody.
5a. Filaments free.
6a. Flower buds conical-ovoid, apex obtuse; corona inserted at throat of corolla-tube, lobes obovate, apex apiculate; pollen in 2 masses in each anther cell.....5. *Gymnanthera*
6b. Flower buds cylindric-lanceolate, apex caudate-lanceolate; corona inserted at middle of corolla-tube, lobes ovate or linear, apex obtuse; pollen in a single mass in each anther cell .....6. *Cryptolepis*
5b. Filaments connate into a tube enclosing ovary.
7a. Pollinaria each with 4 pollinia, fixed on a very small, sessile, pale retinaculum; branchlets, leaves and inflorescences tawny brown pubescent or puberulent .....7. *Toxocarpus*
7b. Pollinaria each with 2 pollinia, fixed on a stipitate, dark reddish retinaculum.
8a. Stipules present, leafy, rounded to ovate, 1–3.5 × 0.8–1.5 cm, amplexicaul; corona lobes revolute.....8. *Graphistemma*
8b. Stipules absent; corona lobes not revolute.
9a. Corona lobes absent or reduced to separate scales at base of gynostegium.
10a. Corolla salverform or urceolate; anther appendages erect or inflexed, longer than stigma .....9. *Jasminanthes*
10b. Corolla campanulate; anther appendages erect, shorter than stigma .....10. *Gymnema*
9b. Corona lobes fleshy or membranous, not scale-like.
11a. Corolla salverform, campanulate or urceolate.
12a. Corona lobes with inner appendages often longer than lobe proper and/or lobed or toothed, smooth toward base; corolla always salverform.....11. *Telosma*
12b. Corona lobes simple at tips, often ridged or grooved toward base; corolla campanulate to urceolate .....12. *Marsdenia*
11b. Corolla rotate or subrotate.
13a. Corona lobes as high as anthers and interior angle forming an acute tooth incumbent on top of the anthers; inflorescences umbel-like clusters of cymules, long pedunculate; follicles often with longitudinal or transverse ridges or wings .....13. *Dregea*
13b. Corona lobes shorter than anthers, tip incumbent on lower part of anther or on filament; inflorescences with a conspicuously elongate often branched rachis, rarely condensed and umbel-like and then short pedunculate; follicles always smooth.
14a. Corona lobes circular to almost square, laterally contiguous to form a cup, with narrow inflexed tips; pollinia horizontal .....14. *Tylophora*
14b. Corona not as above; pollinia pendulous.....15. *Cynanchum*

1. Asclepias L. 馬利筋屬

Herbs, frequently woody at base. Leaves opposite or whorled, short-petiolate. Cymes terminal and extra-axillary, erect, umbel-like, many-flowered. Calyx deeply 5-parted, with 5–10 glands inside. Corolla rotate, deeply 5-parted; lobes reflexed, valvate or rarely overlapping to right. Corona lobes 5, inserted on gynostegium, erect, apex hooded, with an incurved, ligular to horn-like adaxial appendage. Stamens inserted at base of corolla-tube; filaments connate into a tube; anther with apical incurved appendages and 1 pollinium in each cell, pendulous. Ovary of 2 separate carpels; stigma flattened at the top. Follicles fusiform, apex acuminate. Seeds flat, with a long coma.

About 120 species distributed in America, some naturalized in Old World; one species cultivated in China and in Hong Kong.

1. Asclepias curassavica L.
馬利筋(蓮生桂子花) **(Fig. 26; Photos 51–52)**

Sp. Pl. 1: 215. 1753; FHK 225. 1861; FKH 170. 1912; FRPS 63. 388, pl. 141. 1977; FGD 1: 511, fig. 582. 1987; FOC 16: 203. 1995.

Perennial herbs to 1 m tall. Stems pale grey, puberulent to glabrous. Leaves opposite; petioles to 1 cm; leaf blade lanceolate or oblong-lanceolate, 6–15 × 1–4 cm, base decurrent to petiole, apex acuminate or acute, glabrous or abaxially puberulent along veins. Cymes up to as long as leaves, 10–20-flowered; peduncle 3.5–6 cm, pubescent. Pedicels 1.2–1.5 cm, pubescent. Sepals lanceolate, 3 × 1 mm, pubescent. Corolla purple or red, 7–9 mm; lobes oblong, 5–8 × 3 mm, reflexed. Corona lobes yellow or orange, 3.5–4 mm; gynostegium 2.5–3 mm. Follicles fusiform, 5–10 × 1–1.5 cm. Seeds ovate, 6–7 × 3 mm; coma 2–4 cm.

Locality: Cultivated. *C. P. Lau 59; H. C. Tang 398; Y. S. Lau 235.*

Distribution: Native to tropical America, widely cultivated and naturalized in tropical and subtropical regions.

Ecology: Flowering: Almost all year round.

Uses: Ornamental.

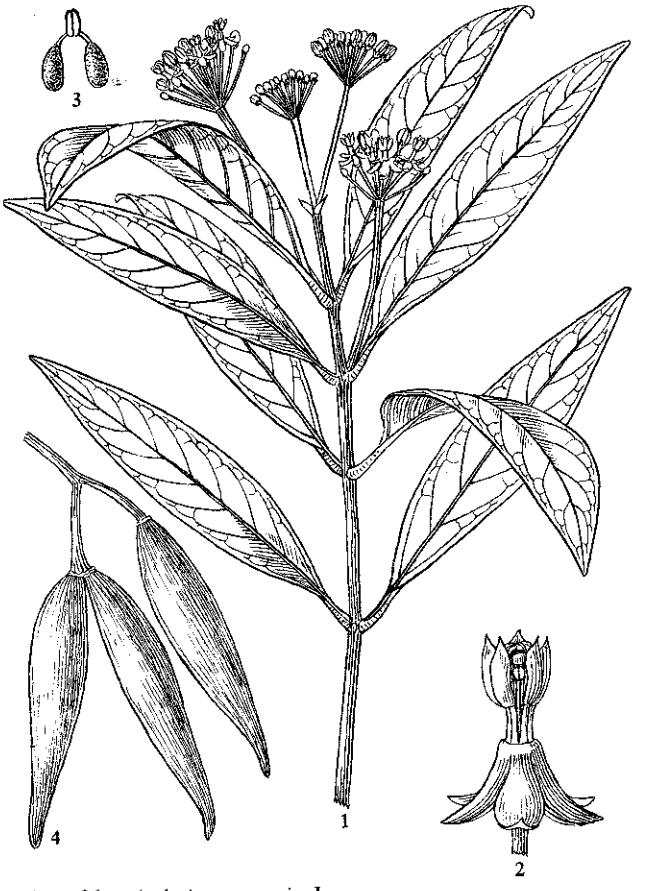


Figure 26. *Asclepias curassavica* L.
1. flowering branch; *2.* flower; *3.* pollinarium; *4.* follicles. (drawn by H. P. Yu)

2. Pentasachme Wall. ex Wight 石蘿摩屬

Perennial herbs. Leaves opposite, narrow. Cymes raceme-like or umbel-like. Pedicels threadlike. Calyx with basal glands. Corolla rotate or nearly bell-shaped; tube short; lobes narrow, longer than tube, twisted to right. Corona-lobes 5, inserted on corolla-tube, apical appendages denticulate or lobed. Filaments connate into a short tube; anthers erect, apex membranous and inflexed on base of stigma; pollinia 1 in each cell, erect, ovoid, apex with a small translucent beak. Stigma head conical or flat, apex 2-cleft. Follicles cylindric-lanceolate, smooth.

Four species distributed in SE Asia; one species in China; one species in Hong Kong.

1. Pentasachme caudatum Wall. ex Wight
石蘿摩 **(Fig. 27; Photos 53–54)**

Contr. Bot. India 60. 1834; FOC 16: 262. 1995.

Pentasachme championii Benth., Hooker's J. Bot. Kew Gard. Misc. 5: 54. 1853; FHK 228. 1861; FKH 172. 1912; FRPS 63: 415, pl. 153. 1977; FGD 1: 499, fig. 564. 1987.

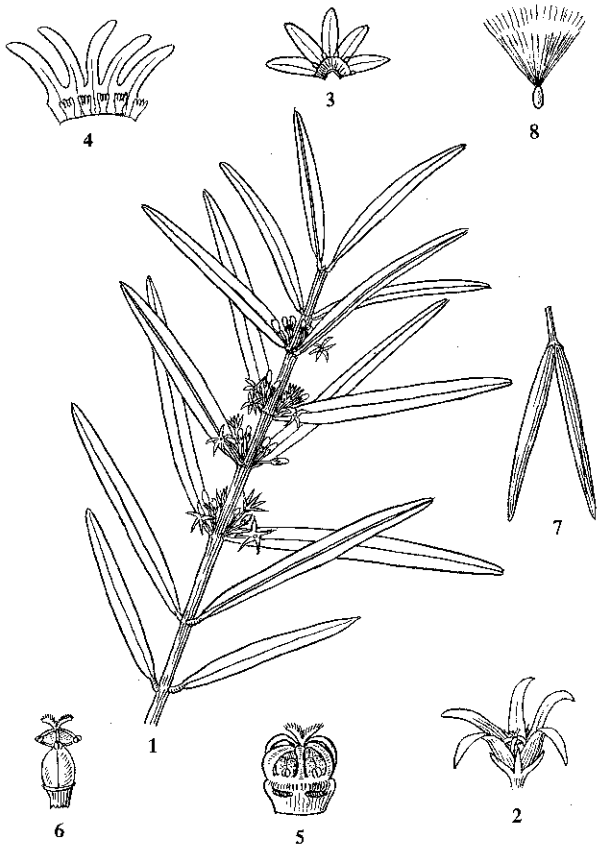


Figure 27. *Pentasachme caudatum* Wall. ex Wight
1. flowering branch; *2.* flower; *3.* calyx opened up showing glands; *4.* corolla opened up showing stamens; *5.* gynostegium; *6.* pistil; *7.* follicles; *8.* seed. (drawn by H. P. Yu)

Herbs to 80 cm tall, branched, glabrous throughout. Petioles 1–2 mm; leaf blade linear-lanceolate, 4–16 × 0.5–2 cm, midvein prominent on both surfaces, lateral veins obsolete. Cymes subsessile, much shorter than leaves, raceme-like, 4–8-flowered. Pedicels 0.3–2 cm. Sepals lanceolate, 1.5–3 × 1 mm. Corolla white; tube short; lobes linear-lanceolate, 6–15 × 2 mm. Corona-lobes white, thick, margin denticulate. Anthers laterally flattened; pollinia attached to caudicle at middle, retinaculum 1/3 of pollinia. Follicles cylindric-lanceolate, 5–7.5 × 0.3 cm. Seeds minute; coma 1.5 cm.

Locality: Common in Hong Kong. *H. C. Tang 2247; Y. S. Lau 420, 1804.*

Distribution: Hainan, Guangdong, Jiangxi, Guangxi, Yunnan; Bangladesh, Bhutan, India, Malaysia, Myanmar, Nepal, Singapore, Thailand, Vietnam.

Ecology: Streamsides in forests, open woodlands and thickets. Flowering: Feb.–Oct.; fruiting: May–Dec.

Uses: Medicinal (folklore), ornamental.

Notes: The type specimen was collected by J. G. Champion from Hong Kong Island between 1847 and 1850.

3. Hoya R. Br. 球蘭屬

Subshrubs or lianas, epiphytic or epilithic, often twining or climbing by adventitious roots. Leaves opposite, fleshy, papery, or membranous. Inflorescences extra-axillary or, less often, terminal; umbel-like, perennial, producing a succession of globose or flat-topped clusters, usually many, the old rachis thick with ± contiguous pedicel-scars. Calyx small, with basal glands. Corolla fleshy; rotate or bell-shaped, lobes valvate, interior often densely hairy or scurfy. Corona-lobes 5, depressed-patent or ± adnate vertically to gynostegium, fleshy, glossy when dried, inner angle a tooth incumbent on anthers, outer angle rounded or acute, margin revolute, longitudinally grooved basally. Stamens short-connate, apical membrane of anthers appressed against stigma head; pollinia 1 in each cell, oblong, erect, with raised, translucent margin. Stigma head discoid, rounded or subapiculate. Follicles often solitary, cylindric-fusiform.

At least 100 species in SE Asia to Oceania; 30 species in China; one species in Hong Kong.

1. Hoya carnosa (L. f.) R. Br. 球蘭 **(Fig. 28; Photo 55)**

Mem. Wern. Nat. Hist. Soc. 1: 27. 1810; FHK 228. 1861; FKH 172. 1912; FRPS 63: 481, pl. 179. 1977; FGD 1: 488, fig. 549. 1987; FOC 16: 232. 1995.

Asclepias carnosa L. f., Suppl. Pl. 170. 1781.

Shrub, epiphytic, climbing on trees or rocks, glabrous except for inflorescences. Stems robust, to 6 m, pale grey, smooth. Petioles 1–1.5 cm; leaf blade broadly ovate-cordate, ovate, to ovate-oblong, fleshy, 3.5–13 × 3–5 cm, base rounded to shallowly cordate, apex obtuse or short-acuminate, lateral veins ca. 4 on each side of midvein, obscure. Umbels extra-axillary, globose, ca. 30-flowered, pubescent; peduncle 4 cm; pedicels 2–4 cm. Corolla white, sometimes with a pink center, rotate, 1–2 cm in diam.; lobes triangular, densely papillate inside, margin recurved, apex reflexed. Corona-lobes stellately spreading, outer angle acute, middle ridge prominent, margin strongly reflexed and enclosing a hollow space at base, inner angle acute, incumbent on anthers. Stigma head obtuse or obscurely apiculate. Follicles linear-lanceolate, 6–10 × 0.5–1.5 cm. Seeds small; coma 2.5 cm.

Locality: Hong Kong Island, West Buffalo Hill, Ma On Shan, Ng Tung Chai, Lantau Island. *Y. S. Lau 1251; P. S. Choi 540; K. Y. Tam 140.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; India, Japan, Malaysia, Vietnam.

Ecology: On trees or rocks. Flowering: Apr.–Sep.

Uses: Ornamental.

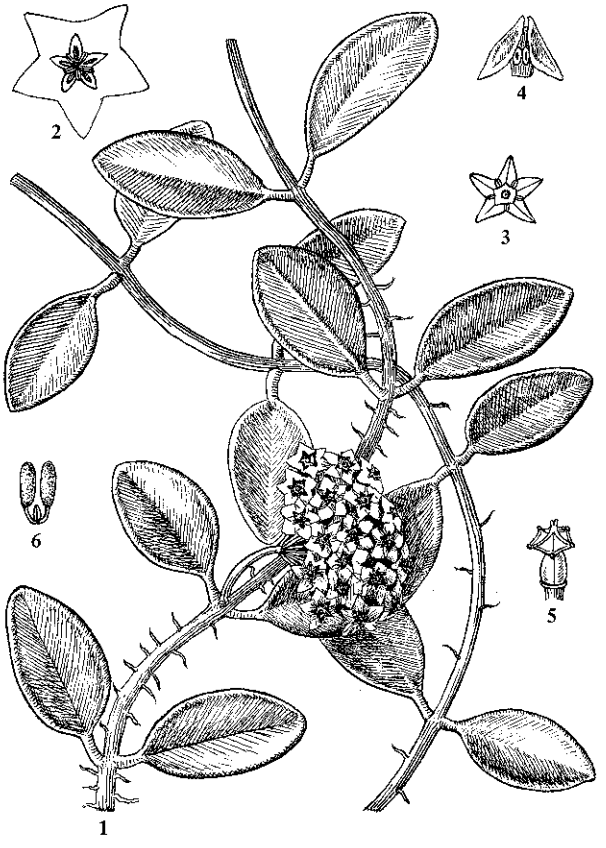


Figure 28. *Hoya carnosa* (L. f.) R. Br.
1. flowering branch; *2.* flower; *3.* corona; *4.* corona and gynostegium; *5.* pistil; *6.* pollinarium. (drawn by H. P. Yu)

4. Dischidia R. Br. 眼樹蓮屬

Herbs, epiphytic or epilithic. Stems and branches fleshy, usually climbing by adventitious roots, sometimes also twining, or hanging. Leaves opposite or partly in whorls of 3 or 4, fleshy. Inflorescences extra-axillary, small, rachis short, thick, often branched, eventually raceme-like, producing a series of often umbel-like groups of flowers. Flowers mostly very small. Calyx with 5 basal glands. Corolla white, red, or violet, ovoid to urn-shaped, with a narrow mouth, fleshy; lobes valvate in bud, short, often hairy. Corona-lobes 5, inserted on gynostegium, slender, erect or ascending, apex entire, notched, 2-cleft, or with recurved arms. Anthers erect, with apical membrane overlying stigma head; pollinia 1 in each cell, margin translucent, caudicles dilated at apex, erect. Follicles lanceolate or cylindric.

About 80 species distributed in tropical and subtropical Asia and Oceania; five species in China; one species in Hong Kong.

1. Dischidia chinensis Champ. ex Benth.
眼樹蓮(瓜子金) **(Fig. 29; Photos 56–58)**
Hooker's J. Bot. Kew Gard. Misc. 5: 55. 1853; FHK 228. 1861; FKH 173. 1912; FRPS 63: 504, pl. 188. 1977; FGD 1: 489, fig. 551. 1987; FOC 16: 237. 1995.

Herbs, glabrous throughout; stems green, clinging, twining, or hanging from trees or rocks, to 2 m. Petioles 2–3 mm; leaf blade ovate-elliptic, 1.5–3 × 1 cm, base cuneate or obtuse, apex acute to rounded, lateral veins 4 or 5 on each side of midvein. Umbels to 9-flowered; peduncle ca. 2 mm; pedicels 1 mm. Sepals ovate, ciliate. Corolla yellowish white, throat thickened, villous; lobes ovate-triangular, 1 × 1 mm. Corona-lobes anchor-shaped, stalked, apex linear, 2-cleft, spreading and recurved at both ends, with a small rounded papilla in sinus of divaricate arms. Pollinia oblong, caudicles enlarged at apex; apical membrane of anther acute. Ovaries glabrous; stigma head slightly apiculate. Follicles lanceolate or linear-lanceolate, 5–8 × 0.4 cm, smooth. Seeds ovate-oblong; coma 2.5 cm.

Locality: Tai Po Kau, Wu Kau Tang, Castle Peak, Fo Tan, Lantau Island. *W. J. Tutcher 10223; Y. S. Lau 1215; HK sheet 39857.*

Distribution: Hainan, Guangdong, Guangxi; Vietnam.

Ecology: Mixed woods, often climbing on trees. Flowering: May–Jul.

Uses: Medicinal (folklore), ornamental.

Notes: The type specimen was collected by J. G. Champion from Victoria Peak between 1847 and 1850.

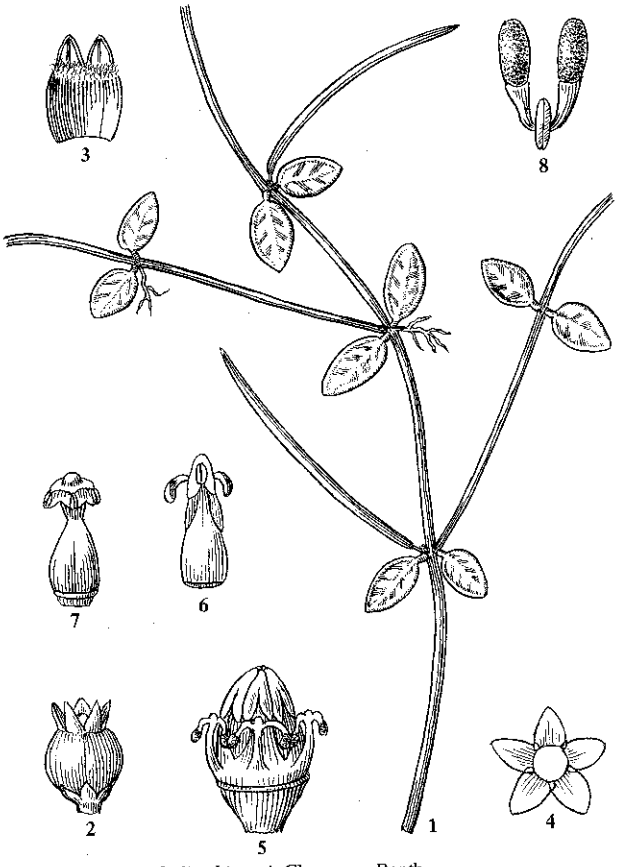


Figure 29. *Dischidia chinensis* Champ. ex Benth.
1. fruiting branch; *2.* flower; *3.* corolla opened; *4.* calyx opened; *5.* corona and gynostegium; *6.* ventral view of stamen; *7.* pistil; *8.* pollinarium. (drawn by H. P. Yu)

5. Gymnanthera R. Br. 海島藤屬

Shrubs or lianas, latex white. Leaves opposite, petiolate. Cymes axillary, extra-axillary or terminal, often shorter than leaves. Flowers subsessile. Calyx with 5–many basal glands. Corolla salverform, tube long-cylindric; lobes 5, overlapping to right. Corona-lobes inserted at throat of corolla-tube, ± adnate to filaments, ovate. Stamens 5, inserted on throat; filaments short, bases broad, ± connate, upper part narrow, free; anthers adnate to stigma head, apex acuminate, exserted; pollen tetrads in loose masses, 2 in each anther cell and fixed on 1 common retinaculum. Stigma head short conical. Follicles 2, divaricate, linear-lanceolate in outline. Seeds elliptic.

About four species distributed in S and SE Asia and Australia; one species in China and in Hong Kong.

1. Gymnanthera oblonga (Burm. f.) P. S. Green
海島藤 **(Fig. 30; Photo 59)**
Kew Bull. 47: 33. 1992; FOC 16: 193. 1995; P. T. Li & X. M. Chen, High. Pl. China 9: 136, pl. 213. 1999.

Jasminum oblongum Burm. f., Fl. Indica 6, t. 3, fig. 2. 1768.

Gymnanthera nitida R. Br., Prodr. 464. 1810; FGD 1: 537, fig. 617. 1987.

Lianas to 2 m. Branchlets tawny-brown, lenticellate, slightly pubescent. Petioles 5–10 mm; leaf blade oblong or elliptic, 3–5.5 × 1.5–2. cm, papery, glabrous, base rounded or broadly cuneate, apex rounded, apiculate. Cymes aparently axillary, nearly sessile, congested, ca. 2 cm wide, to 7-flowered, glabrous. Pedicels 5–10 mm. Sepals ovate, 2 × 1 mm, basal glands 5–10. Corolla yellowish green; tube 6–9 mm; lobes ovate, 7 × 5 mm, obtuse. Corona-lobes ovate, apex apiculate. Pollen carriers short cylindric, erect. Ovary of 2 separate carpels, glabrous. Follicles dark brown,

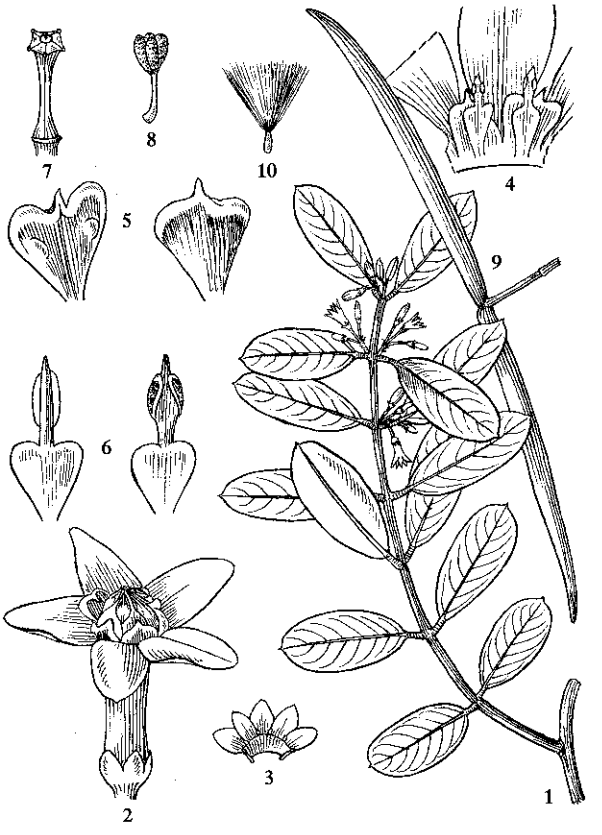


Figure 30. *Gymnanthera oblonga* (Burm. f.) P. S. Green
1. flowering branch; *2.* flower; *3.* calyx and glands; *4.* portion of corolla opened up showing corona; *5.* adaxial and abaxial surfaces of corona; *6.* dorsal and ventral views of stamens; *7.* pistil; *8.* pollinarium; *9.* follicles; *10.* seed. (drawn by H. P. Yu)

8–12 × 0.5–0.6 cm. Seed tawny-brown, oblong, 7 × 2 mm; coma ca. 2 cm.

Locality: Tai Tam Tuk, Sha Tin, Sai Kung, Tsing Yi, Yuen Long, Lantau Island. *Y. W. Lam 1721; HK sheet 39781, 40264.*

Distribution: Hainan, S Guangdong; Cambodia, Indonesia, Malaysia, New Guinea, Philippines, Thailand, Vietnam, Australia.

Ecology: Sandy beaches or rocks by streams. Flowering: Aug.–Oct.; fruiting: Sep.–Feb. of the following year.

Uses: Ornamental.

6. Cryptolepis R. Br. 白葉藤屬

Shrubs or woody lianas, latex white. Leaves opposite, abaxially glaucous. Cymes terminal, apparently axillary ro extra-axillary, pedunculate. Flower buds cylindric, apex caudate-acuminate. Calyx with 5–10 basal glands. Corolla salverform; tube short-cylindric or bell-shaped; lobes 5, linear or ovate, overlapping to right, inserted near middle of corolla-tube, free from filaments. Filaments broad below, narrow above; anthers connate, adnate to stigma head; pollen tetrads in masses, solitary in each anther cell, pollen carrier spathulate, erect. Stigma head broadly conical. Follicles widely divaricate, narrowly lanceolate in outline; coma white.

About 12 species in SE Asia and tropical Africa; two species in China; one species in Hong Kong.

1. Cryptolepis sinensis (Lour.) Merr. 白葉藤 **(Fig. 31)**

Philipp. J. Sci. 15: 254. 1919; FRPS 63: 263, pl. 90. 1977; FGD 1: 538, fig. 618. 1987; FOC 16: 193. 1995.

Pergularia sinensis Lour., Fl. Cochinch. 167. 1790.

Cryptolepis elegans Wall. ex G. Don, Gen. Hist. 4: 162. 1837; FKH 170. 1912.

Lianas to 3 m; glabrous throughout. Branchlets red-brown, exfoliating. Petioles 5–7 mm; leaf blade oblong to lanceolate, 1.5–6 × 0.8–2.5 cm, base rounded to shallowly cordate, apex rounded, apiculate; lateral veins 5–9 on each side of midvein. Cymes terminal or axillary, lax, longer than leaves. Pedicels 1–3.5 cm. Sepals ovate, ca. 1 mm; basal glands 10. Corolla yellowish; tube ca. 5 mm; lobes oblong-lanceolate or linear, 1–1.5 cm. Corona lobes club-shaped. Anthers glabrous. Follicles cylindric, to 12.5 cm × 6.8 mm. Seeds brown, oblong, ca. 1 cm × 2 mm; coma ca. 2.5 cm.

Locality: Shing Mun, Yuen Long, Lantau Island. *L. T. Lo 267; HK sheet 1844.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Taiwan; Cambodia, India, Indonesia, Malaysia, Vietnam.

Ecology: Thin forests or thickets. Flowering: Apr.–Sep.; fruiting: Jun.–Dec.

Uses: Medicinal (folklore).

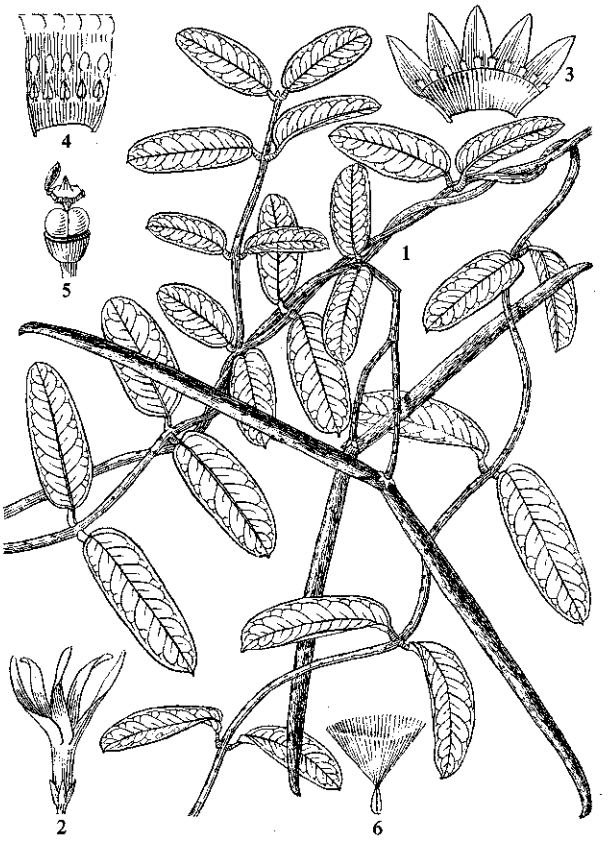


Figure 31. *Cryptolepis sinensis* (Lour.) Merr.
1. fruiting branch; *2.* flower; *3.* calyx opened; *4.* corolla opened up showing stamens and corona; *5.* pistil; *6.* seed. (drawn by H. P. Yu)

7. Toxocarpus Wight & Arn. 弓果藤屬

Shrubs or woody lianas, villous or rusty tomentose, rarely glabrous. Leaves opposite. Cymes axillary, umbel-like. Sepals 5, small, sometimes with minute basal glands. Corolla rotate or rarely bell-shaped; tube very short; lobes 5, patent-reflexed, overlapping to left, rarely to right. Corona lobes 5, inserted at back of gynostegium, dorsally compressed, slightly exceeding stamens. Anthers small, retuse, sometimes with minute apical appendage appressed to stigma head; pollinia 2 in each anther cell, erect or horizontal. Style short; stigma head exserted beyond anthers, beaked or swollen. Follicles divaricate, terete, usually villous. Seeds flat, beaked; coma white.

About 40 species distributed in tropical Asia, Africa and Pacific islands; 11 species in China; two species in Hong Kong.

1a. Leaves reddish brown villous to tomentose, at least abaxially when young ..... 1. *T. fuscus*

1b. Leaves glabrous or puberulent ..... 2. *T. wightianus*

1. Toxocarpus wightianus Hook. & Arn. 弓果藤 **(Fig. 32; Photos 60–61)**

Bot. Beechey. Voy. 200. 1836; FHK 224. 1861; FKH 170. 1912; FRPS 63: 284, pl. 97. 1977; FGD 1: 493, fig. 556. 1987; FOC 16: 197. 1995.

Toxocarpus ovalifolius Tsiang, Sunyatsenia 2: 193, pl. 35. 1934; FRPS 63: 282. 1977.

Lianas, slender, to 8 m.; branchlets tawny brown puberulent, lenticellate. Petioles 1–1.5 cm, rusty tomentose; leaf blade elliptic or elliptic-oblong to ovate-orbicular, 2.5–6 × 1.5–4.5 cm, somewhat leathery, base rounded to slightly cordate, apex acute to rounded or

slightly emarginate, apiculate to cuspidate, glabrous, lateral veins 5–8 on each side of midvein. Cymes ± umbel-like, to 10-flowered, much shorter than leaves; peduncle to 6 mm, rusty pubescent. Pedicels 3 mm, minutely villous. Sepals ovate-oblong, membranous, rusty tomentose. Corolla yellowish, ± rotate, glabrous; tube 2 × 3 mm; lobes narrowly lanceolate, 8 × 1–2 mm. Corona-lobes triangular, 2 mm, obtuse. Pollinia minute. Stigma head fusiform. Follicles narrowly lanceolate in outline, 8–9 × 1 cm, divaricate at an angle 180–200°, densely rusty tomentose, pericarp thick. Seeds ovate-oblong, 1 × 0.3–0.5 cm, not beaked; coma 3 cm.

Locality: Common in Hong Kong. *S. P. Lau 184; Y. W. Lam 781, 808.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan; India, Vietnam.

Ecology: Forests and thickets. Flowering: Jun.–Aug.; fruiting: Aug.–Jan. of the following year.

Uses: Medicinal (folklore).

2. Toxocarpus fuscus Tsiang 鏽毛弓果藤

Sunyatsenia. 4: 81. 1939; FRPS 63: 288. 1977; FGD 1: 491, fig. 553. 1987; FOC 16: 197. 1995.

Lianas to 5 m. Young branchlets rusty pubescent, glabrescent and lenticellate with age. Petiole ca. 2.5 cm, rusty tomentose; leaf blade broadly ovate-oblong, 9–15 × 5–5.8 cm, papery, adaxially glabrous except for rusty hairs along midvein, abaxially rusty pubescent, base rounded, apex acute or short acuminate; lateral veins 5–7 pairs. Cymes to 8.5 cm, shorter than leaves, few branched, 12–20-flowered, rusty pubescent; peduncle less than 1 cm. Flower buds long acuminate. Pedicel ca. 5 mm. Sepals lanceolate, ca. 3 mm. Corolla yellow, ca. 9 mm, glabrous; lobes oblong-lanceolate. Corona lobes ovate, longer than anthers, apex acute. Stigma head long beaked.

Locality: Mount Nicholson, Tai Mo Shan, Wong Chuk Yeung, Kai Kung Shan. *F. W. Xing 8951.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan.

Ecology: Open woods. Flowering: May.

8. Graphistemma Champ. ex Benth. 天星藤屬

Lianas, latex white. Leaves opposite, stipulate. Cymes extra-axillary, short-pedunculate, raceme-like, usually simple. Flowers large. Calyx 5 lobed, glands present. Corolla subrotate, thick; lobes 5, longer than tube, overlapping to right. Corona ring-like, inserted at base of gynostegium, deeply 5-parted; lobes erect, membranous, revolute, separated by truncate sinus, shorter than anthers. Filaments connate into a tube; anthers somewhat concave at middle, appendages rounded, covering stigma head; pollinia 1 in each anther-cell, oblong, pendulous. Stigma head elevated. Follicles ovoid-cylindric, woody. Seeds ovate; coma white.

One species distributed in Vietnam; one species in China and in Hong Kong.

1. Graphistemma pictum (Champ. ex Benth.) Benth. & Hook. f. ex Maxim. 天星藤 **(Fig. 33; Photos 62–63)**

Melanges Biol. Bull. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 9: 776. 1876; FKH 170. 1912; FRPS 63: 412, pl. 152. 1977; FGD 1: 490, fig. 552. 1987; FOC 16: 228. 1995.

Holostemma pictum Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 5: 53. 1853; FHK 224. 1861.

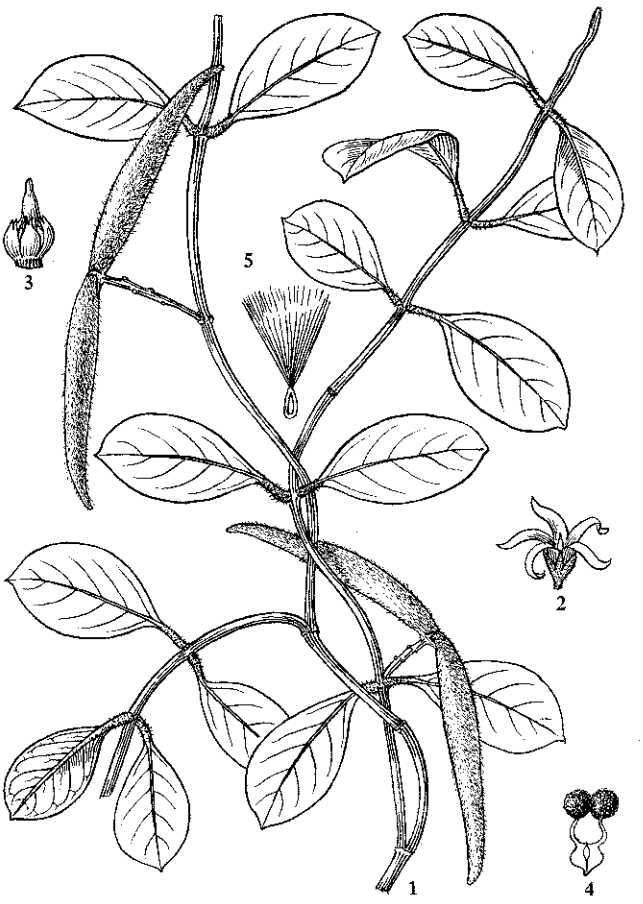


Figure 32. *Toxocarpus wightianus* Hook. & Arn.
1. fruiting branch; *2.* flower; *3.* corona and gynostegium; *4.* pollinarium; *5.* seed. (drawn by H. P. Yu)

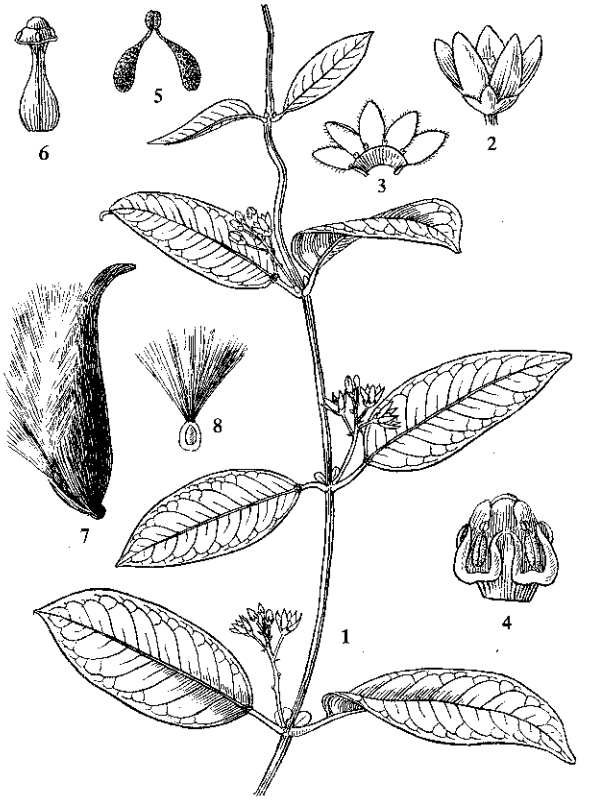


Figure 33. *Graphistemma pictum* (Champ. ex Benth.) Benth. & Hoof. f. ex Maxim.
1. flowering branch; *2.* flower; *3.* calyx opened up showing glands; *4.* corona and gynostegium; *5.* pollinarium; *6.* pistil; *7.* follicle; *8.* seed. (drawn by H. P. Yu)

Lianas to 8 m, glabrous. Stipules present, leafy, rounded to ovate, 10–35 × 8–15 mm, amplexicaul; petioles 1–4.5 cm, flat, with group of adaxial glands; leaf blade oblong-lanceolate, 6–20 × 2.5–7 cm, base rounded, sometimes slightly cordate, apex acuminate or acute, veins pale, lateral veins ca. 10 on each side of midvein. Inflorescences 3–12-flowered; peduncle 0.5–5 cm. Pedicels 0.5–1.5 cm. Corolla abaxially green, adaxially purplish with yellow margin; lobes oblong, 8–10 × 3–4 mm, minutely ciliate. Follicles 9–11 × 3–4 cm. Seeds brownish, ovate, 1.3 cm; coma to 4 cm.

Locality: Hong Kong Island, Chek Keng, Tai Po Kau, Lantau Island. *Y. S. Lau 600; L. T. Lo 353; HK sheet 40095.*

Distribution: Hainan, Guangdong, Guangxi; Vietnam.

Ecology: Thin forests or thickets; 100–700 m. Flowering: Apr.–Aug.; fruiting: Jun.–Dec.

Uses: Medicinal (folklore), ornamental.

Notes: The type specimen was collected by J. G. Champion from Victoria Peak between 1847 and 1850.

9. Jasminanthes Blume 黑鰻藤屬

Woody lianas, with white latex. Leaves opposite, petiolate. Cymes extra-axillary, umbel-like, simple or dichotomous. Calyx deeply 5-parted, usually eglandular, segments erect and connate at base. Corolla salverform or urn-shaped; tube elongate, base broad, throat constricted or slightly dilated, with 5 pairs of longitudinal lines of hairs inside; lobes 5, twisted to right, usually longer than tube, acuminate in bud. Corona-lobes 5, adnate to back of stamens, erect, apex free, dorsally compressed, with board-shaped processes on back, conspicuous, rarely minute or obsolete. Filaments connate into a short tube; anthers with apical membranous appendage, erect or inflexed on stigma head; pollinia 1 in each anther-cell, erect. Stigma head conical or capitate, included in apical anther membrane. Follicles lanceolate or oblong-lanceolate, apex acuminate. Seeds comose.

About five species distributed in China and Thailand; four species in China; one species in Hong Kong.

1. Jasminanthes mucronata (Blanco) W. D. Stevens & P. T. Li 黑鰻藤 **(Fig. 34; Photo 64)**

Novon 5: 10. 1995; FOC 16: 242. 1995.

Apocynum mucronatum Blanco, Fl. Filip. 852. 1837.

Stephanotis chinensis Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 5: 53. 1853; FHK 227. 1861; FKH 172. 1912.

Stephanotis mucronata (Blanco) Merr., Sp. Blancoan 316. 1918; FRPS 63: 466, pl. 174. 1977; FGD 1: 520, fig. 594. 1987.

Lianas, to 12 m. stems with 2 lines of hairs, lenticellate. Petioles 2–3 cm; leaf blade ovate-oblong, 7–12 × 4.5–8 cm, papery, base cordate, apex acuminate, pubescent or glabrescent, lateral veins ca. 8 on each side of midvein. Cymes usually 2–4-flowered; peduncle 1.5–2 cm; bracteoles ovate, pubescent abaxially. Pedicels 2–3 cm. Sepals oblong, 7 mm. Corolla white, with purple juice; tube 2 cm, glabrous outside; lobes falcate, 3 × 0.5 cm, spreading. Gynostegium shorter than corolla-tube. Corona-lobes 5, shorter than anthers. Apical appendage of anther oblong-ovate, longer than stigma; pollinia ellipsoidal. Stigma head capitate, apex obscurely 2-lobed. Follicles lanceolate, 12 × 1 cm, glabrous. Seeds oblong, 1 cm; coma 2.5 cm.

Locality: Happy Valley, Tai Mo Shan, Ma On Shan, Lantau Island. *Y. W. Lam 222; HK sheet 19025, 30755.*

Distribution: Guangdong, Guangxi, Guizhou, Sichuan, Hunan, Zhejiang, Fujian, Taiwan.

Ecology: Montane forests, often attached to trees; 100–600 m. Flowering: Feb.–May.

Uses: Medicinal (folklore), ornamental.

Notes: The type specimen was collected by J. G. Champion from Happy Valley between 1847 and 1850.

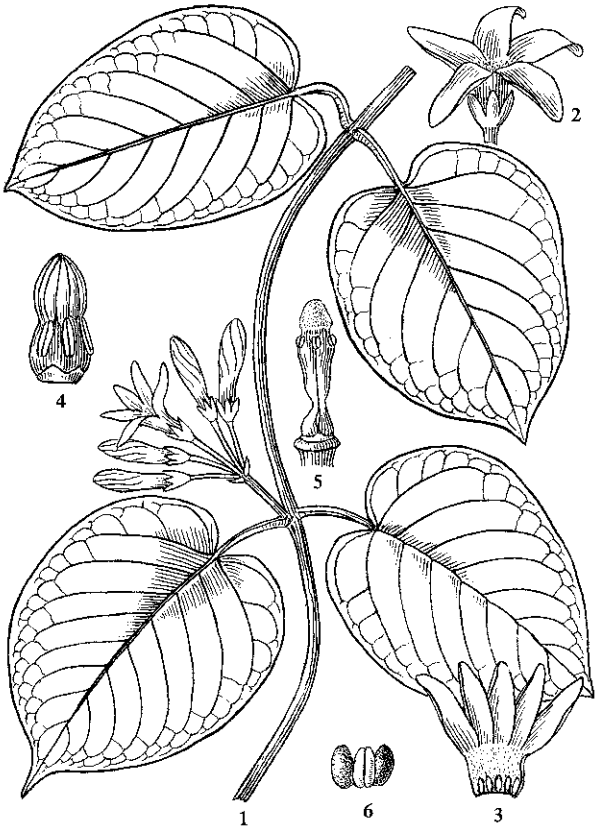


Figure 34. *Jasminanthes mucronata* (Blanco) W. D. Stevens & P. T. Li
1. flowering branch; *2.* flower; *3.* corolla opened; *4.* corona and gynostegium; *5.* pistil; *6.* pollinarium. (drawn by H. P. Yu)

10. Gymnema R. Br. 匙羹藤屬

Lianas, with white latex. Leaves opposite, petiolate. Cymes often raceme-like, sessile or pedunculate, often 2 at a node. Flowers small. Calyx with basal glands. Corolla campanulate; tube with 5 longitudinal ridges inside, sometimes produced into fleshy appendages and /or with lines of hairs along each side; lobes 5, ca. as long as the tube, twisted to right or subvalvate. Corona-lobes otherwise absent. Stamens 5, inserted at base of corolla-tube; filaments connate into a tube; anthers erect, apical appendages membranous; pollinia 2 per pollinarium, oblong, erect. Stigma head hemispherical, obtusely conical or clavate and beaked, exceeding anthers. Follicles solitary or paired and widely divergent, ovoid to strongly bearked, often broad at base; seeds comose.

About 25 species distributed in tropical or subtropical Asia, S Africa and Oceania; seven species in China; two species in Hong Kong.

1a. Leaves papery, often obovate, base cuneate or broadly so, apex obtuse or acute; corolla glabrous; calyx-lobes as long as corolla-tube ..... 1. *G. sylvestre*

1b. Leaves membranous, ovate-oblong to broadly ovate, base rounded to shallowly cordate, apex acuminate to caudate; corolla puberulent abaxially; calyx-lobes shorter than corolla-tube ..... 2. *G. inodorum*

1. Gymnema sylvestre (Retz.) R. Br. ex Schult.
匙羹藤 **(Fig. 35; Photos 65–66)**

Syst. Veg. 6: 57. 1820; FRPS 63: 418, pl. 154. 1977; FGD 1: 500, fig. 565. 1987; FOC 16: 238. 1995.

Periploca sylvestris Retz., Obs. Bot. 2: 15. 1781.

Gymnema affine Decne., Prodr. 8: 622. 1844; FHK 227. 1861; FKH 170. 1912.

Woody lianas, with white latex. Stems to 8 m, sparsely lenticellate; yong branchlets pubescent, glabrescent. Petioles 3–12 mm; leaf blade obovate to ovate, 3–8.5 × 1.5–5.5 cm, thick-papery, adaxially pubescent to glabrous except for groove of midvein, abaxially tomentose to glabrous except for veins, lateral veins 4 or 5 on each side of midvein, convergent. Cymes much shorter than leaves, pubescent; peduncle 2–5 mm, rachis with close-spaced spiral of pedicel-scars. Sepals ovate, ciliate. Corolla greenish white; lobes ovate, glabrous. Corona-lobes and stigma head exserted. Follicles mostly solitary, broadly lanceolate in outline, 5–9 × 2 cm, glabrous, with an acuminate beak. Seeds ovate, 8 × 4 mm; coma silky white, 3.5 cm.

Locality: Common in Hong Kong. *S. P. Lau 162; N. H. Li 141; HK sheet 39262.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Zhejiang, Fujian, Taiwan; India, Sri Lanka, Vietnam, Japan, Malaysia, Indonesia, Africa, Australia.

Ecology: Margins of forests and thickets. Flowering: May–Oct.; fruiting: Aug.–Feb. of the following year.

Uses: Medicinal (folklore), poisonous.

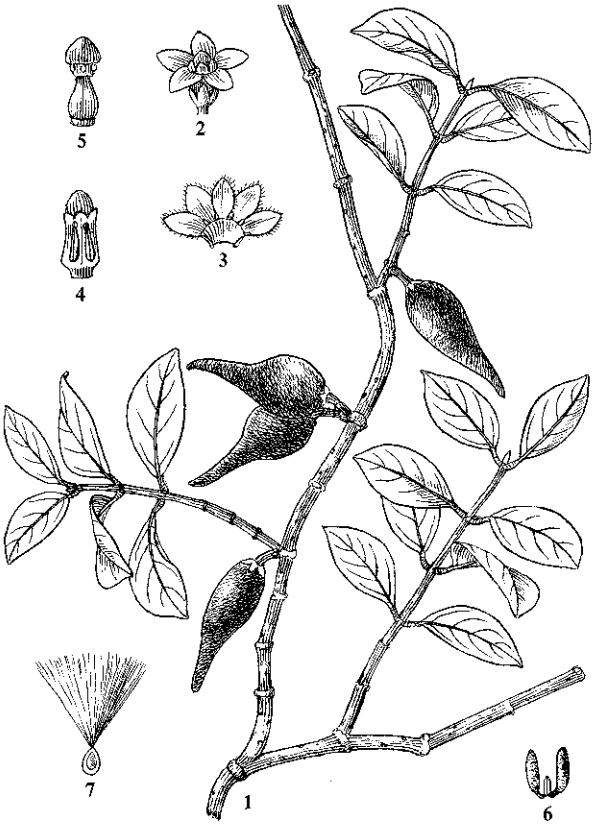


Figure 35. *Gymnema sylvestre* (Retz.) R. Br. ex Schult.
1. fruiting branch; *2.* flower; *3.* calyx opened; *4.* gynostegium; *5.* pistil; *6.* pollinarium; *7.* seed. (drawn by H. P. Yu)

2. Gymnema inodorum (Lour.) Decne. 廣東匙羹藤

Prodr. 8: 551. 1844; FRPS 63: 425. 1977; FGD 1: 501, fig. 567. 1987; FOC 16: 240. 1995.

Cynanchum inodorum Lour., Fl. Cochinch. 166. 1790.

Lianas to 10 m. Stems glabrous; young branchlets pale grey, lenticellate, puberulent. Petioles 2–6 cm; leaf blade membranous, ovate-oblong to ovate or broadly ovate, 4–13 × 2–9 cm, base rounded to shallowly cordate, apex acuminate to caudate, glabrous or thinly puberulent along veins, lateral veins 4–6 on each side of midvein. Inflorescences eventually raceme-like with sessile umbel-like cymes arranged in spiral, up to 4 cm; peduncle 1–2 cm. Pedicels 1–1.5cm. Sepals oblong, 2–3 × 1.4 mm, shorter than corolla-tube, puberulent, ciliate. Corolla yellow, 6–7 mm, minutely puberulent outside; tube cylindric, glabrous except for longitudinal bands of stiff hairs alternating with lobes; lobes oblong, 3–4 × 1.6–1.8 cm, apex rounded, glabrous except for ciliate margins. Pollinia oblong. Stigma head dome-shaped, exserted from corolla-tube. Follicles lanceolate in outline, up to 16 × 3 cm, wall thick and slightly fibrous, glabrous. Seeds ca. 15 × 10 mm; coma 4 cm.

Locality: Sai Kung, Fung Yuen. *Y. S. Lau 2841; L. T. Lo 343.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan; India, Nepal, Sikkim, Thailand, Vietnam, Philippines.

Ecology: Thin forests or thickets. Flowering: Jan.–Jun.

Uses: Medicinal (folklore), ornamental.

11. Telosma Coville in Contr. 夜來香屬

Lianas, with white latex. Leaves opposite, long-petiolate. Cymes extra-axillary, pendulous, rachis laxly branched. Calyx with 5 glands at base. Corolla-tube cylindric with enlarged base, throat sometimes constricted; lobes 5, patent, twisted to right. Corona-lobes 5, adnate to base of staminal tube, margin and apex free, erect, oblong, obtuse, with ligulate inner lobes adnate to near apex, or corona-lobes notched. Stamens 5, attached to the base of corolla; filaments connate into a tube; membranous anther appendages incurved; pollinia 1 in each cell, oblong, erect. Ovary of 2 separate carpels; style short; stigma head convex or conical. Follicles thick, acuminate, smooth. Seeds comose.

About ten species distributed in Asia, Oceania and tropical Africa; three species in China; one species in Hong Kong.

1. Telosma cordata (Burm. f.) Merr.
夜來香 **(Fig. 36; Photo 67)**
Philipp. J. Sci. Bot. 19: 372. 1921; FRPS 63: 438, pl. 163. 1977; FGD 1: 514, fig. 586. 1987; FOC 16: 241. 1995.

Asclepias cordata Burm. f., Fl. Indica 72, fig. 2. 1768.

Lianas frutescent, latex white. Stems 1–10 m, yellowish green, pubescent when young, pale grey, glabrescent and usually sparsely lenticellate in age. Petioles 1.5–5 cm; leaf blade ovate, 4–12 × 3–10 cm, base deeply cordate with narrow sinus, apex acuminate, basal veins 3, lateral veins 6 on each side of midvein. Cymes umbel-like, 15–30-flowered. Peduncle 0.5–1.5 cm, puberulent. Sepals oblong-lanceolate, puberulent. Corolla yellowish green; tube 6–10 × 4–6 mm, puberulent outside, pilose or glabrous with pilose throat inside; lobes oblong 6–12 × 3–6 mm, ciliate. Corona-lobes slightly fleshy, basal part ovate, apex acuminate, often notched to deeply lobed, internal appendage often longer than lobe proper. Pollinia oblong or reniform. Stigma head capitate. Follicles lanceolate in outline, 7–13 × 2–3.5 cm, glabrous, somewhat obtusely 4-angled. Seeds broadly ovate, 1 × 1 cm, flat, apex truncate, margin membranous; coma 3–4 cm.

Locality: Cultivated. *Y. S. Lau 1276, 2999; Y. W. Lam 1127.*

Distribution: Native to S China; widely cultivated in tropical and subtropical Asia, Europe and America.

Ecology: Flowering: May–Oct.; fruiting: Oct.–Dec.

Uses: Food (flowers edible), ornamental.

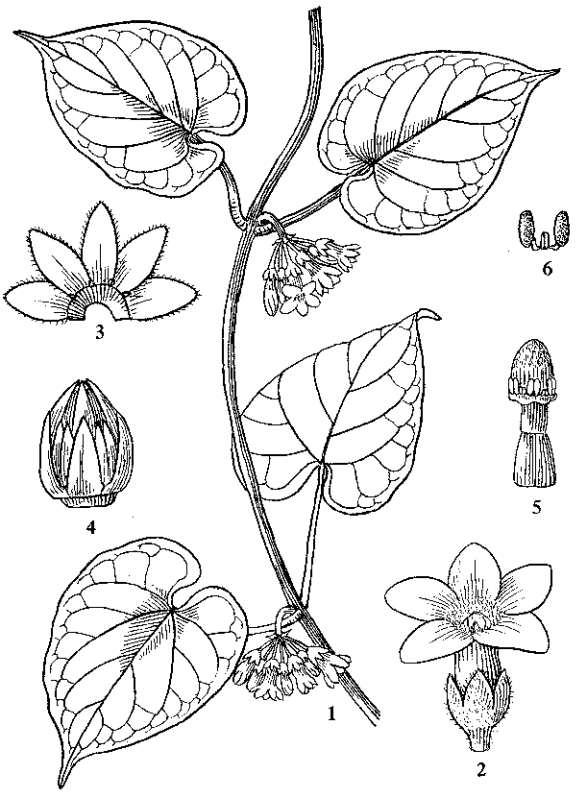


Figure 36. *Telosma cordata* (Burm. f.) Merr.
1. flowering branch; *2.* flower; *3.* calyx opened up showing glands; *4.* corona and gynostegium; *5.* pistil; *6.* pollinarium. (drawn by H. P. Yu)

12. Marsdenia R. Br. 牛奶菜屬

Woody lianas, with white latex. Leaves opposite, petiolate. Inflorescences terminal or extra-axillary, umbel-like, paniculate, or raceme-like, pedunculate. Sepals 5, quincuncial, basal glands or scales often present. Corolla urceolate or campanulate, throat often hairy; lobes 5, twisted to right. Corona-lobes 5, erect, acuminate, fleshy, attached to gynostegium. Stamens 5, filaments connate into a tube; anthers erect, appendages inflexed; pollinia 2 per pollinarium, often oblong, erect. Stigma head flat, convex, or beaked. Follicles mostly thick, acuminate, smooth or longitudinally winged; coma white.

About 100 species distributed in Asia, America, tropical Africa; 25 species in China; two species in Hong Kong.

1a. Leaves bluish when dry; corolla urceolate, throat with a ring of hairs, otherwise glabrous; corona-lobes as long as anthers; follicles oblong-lanceolate ..... 1. *M. tinctoria*
2a. Leaves tawny when dry; corolla campanulate, throat with a very dense tuft of woolly hairs, conspicuous in dried material, reflexed hairy in tube; corona-lobes shorter than anthers; follicles ellipsoidal ..... 2. *M. lachnostoma*

1. Marsdenia tinctoria R. Br. 藍葉藤
Mem. Wern. Nat. Hist. Soc. 1: 30. 1810; FHK 226. 1861; FKH 172. 1912; FRPS 63: 444, pl. 165. 1977; FGD 1: 516, fig. 588. 1987; FOC 16: 248. 1995.

Lianas to 5 m or longer, densely to sparsely pubescent when young, glabrescent. Petioles 1–4 cm; leaf blade oblong to broadly ovate, 5–13 × 2–7 cm, thin-papery, bluish when dry, base rounded to cordate, apex acuminate, lateral veins 5–7(–10) on each side of midvein. Inflorescences densely flowered, globose to long raceme-like cluster of cymules, (1.5–)3–15 cm; peduncle (0.5–)2.5–5 cm; pedicels 3–5 mm. Sepals suborbicular, ca. 2 mm. Corolla yellowish white, dark blue when dry, urceolate, 3.5–4(–6) mm, throat with a ring of hairs, otherwise glabrous; tube ca. 2.5 mm; lobes ovate, 1–1.5 mm, apex rounded. Corona-lobes 5, lanceolate, as long as anther. Pollinia narrowly oblong. Stigma head discoid, slightly convex at apex. Follicles oblong-lanceolate, 5–10 × 0.8–1 cm, pilose to sub-tomentose. Seeds ovate, 1 × 0.3 cm; coma 1–2 cm.

Locality: Aberdeen. *HK sheet 3917.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Hubei, Hunan, Taiwan; India, Indonesia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam.

Ecology: Forests or thickets. Flowering: Mar.–May; fruiting: Aug.–Dec.

Uses: Medicinal (folklore)

2. Marsdenia lachnostoma Benth.
毛喉牛奶菜 **(Fig. 37; Photos 68–69)**

FHK 226. 1861; FKH 172. 1912; FRPS 63: 450. 1977; FGD 1: 518, fig. 590. 1987; FOC 16: 248. 1995.

Lianas, suffrutescent, to 2 m or longer, stems, petioles and inflorescences thin pubescent, glabrescent. Petioles 6–17 mm; leaf blade ovate to oblong, 2.5–9 × 2–4 cm, base rounded or subcordate, apex acute or obtuse, abaxially pale or glaucous. Inflorescences umbel-like, branched, compact, much shorter than leaves; peduncle 10–15 mm; pedicels 1.5–2 mm, ciliolate. Sepals ovate, 2 mm. Corolla campanulate, 3.5–4 mm; tube longer than lobes, with reflexed hairs inside and a very dense tuft of woolly hairs at throat, conspicuous in dried material; lobes oblong, glabrous except at base. Corona-lobes ovate-lanceolate, shorter than anthers; pollinia oblong or reniform. Stigma head conical. Follicles ellipsoidal, thickly walled, 4.5–5.5 × 1.5–2 cm. Seeds ca. 0.9–1.3 cm × 6–8 mm; coma 2–2.5 cm. Follicles oblong-ovate or elliptic, 3.5–5 × 2–3 cm, glabrous, greenish; fruit stalk 2–2.5 cm; seeds broadly ovate or suborbicular, flat, 2–2.5 mm, margin membranous; coma white, 2–2.5cm.

Locality: North Point, Ma On Shan, Sai Kung, Tung Lung Chau. *Y. S. Lau 1400; S. C. Ng 2170; HK sheet 38590.*

Distribution: Hong Kong; Cambodia, Laos, Thailand.

Ecology: Thin forests or thickets. Flowering: May–Jul.; fruiting: Jul.–Nov.

Notes: The type specimen was collected by C. Wright from Hong Kong Island in 1854. Listed in *Rare and Precious Plants of Hong Kong.*

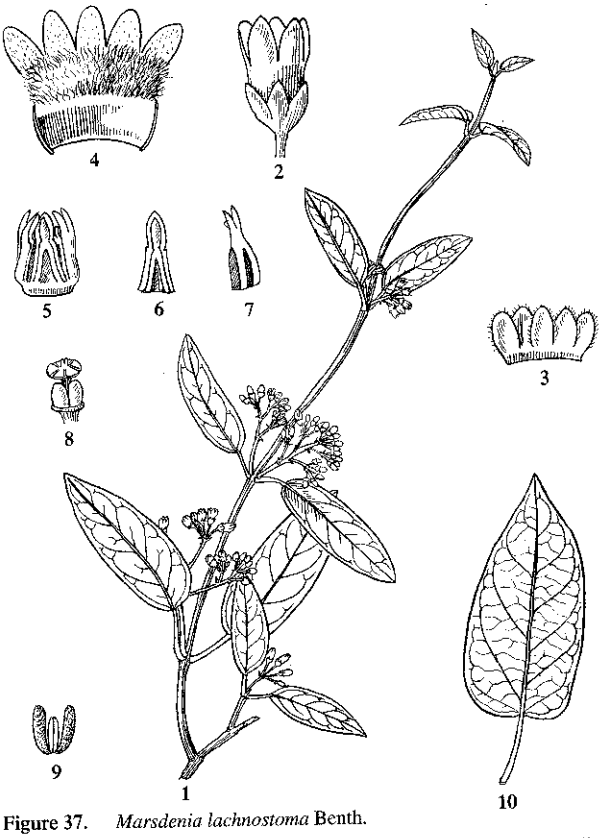


Figure 37. *Marsdenia lachnostoma* Benth.
1. flowering branch; *2.* flower; *3.* calyx opened up; *4.* corolla opened; *5.* corona and gynostegium; *6.* outer view of stamen and corona; *7.* lateral view of stamen and corona; *8.* pistil; *9.* pollinarium; *10.* leaf. (drawn by H. P. Yu)

13. Dregea E. Mey. 南山藤屬

Woody lianas, with white latex. Leaves opposite, petiolate. Inflorescence an umbel-like cluster of cymules, with long and slender peduncle and pedicels. Sepals 5, overlapping, with 5 basal glands. Corolla rotate to shallowly bowl-shaped, deeply 5-divided; lobes overlapping to right. Corona-lobes 5, ± spreading, thick-fleshy, adnate to stamens, outer angle obtuse or rectangular, interior angle produced into an acute tooth incumbent to anthers. Anthers with membranous apical appendage; pollinia 2 per pollinarium, oblong, erect. Ovary of 2 separate carpels; ovules many in each carpel; stigma head umbonate or thickly conical. Follicles widely divergent, thick, finely longitudinally ribbed or corrugated. Seeds comose.

About 12 species distributed in S Asia and Africa; four species in China; one species in Hong Kong.

1. Dregea volubilis (L. f.) Benth. ex Hook. f.
南山藤 **(Fig. 38; Photo 70)**

Fl. Brit. India 4: 46. 1883; FKH 172. 1912; FRPS 63: 493, pl. 183. 1977; FGD 1: 525, fig. 600. 1987; FOC 16: 250. 1995.

Asclepias volubilis L. f. Suppl. 170. 1781.

Lianas to 12 m. Branches pale grey, lenticellate; branchlets green, smooth. Petioles 2.5–6 cm; leaf blade broadly ovate or suborbicular, 7–18 × 4–17 cm, base shallowly cordate, apex acute or short-acuminate, glabrous or ± softly pubescent, lateral veins 4 pairs. Inflorescences pendulous, many-flowered; peduncle 2–6 cm, slender, puberulent. Pedicels 2–2.5 cm; flowers green or yellowish green, fragrant. Sepals ovate-oblong, 2.5–3 mm, pubescent, ciliate. Corolla glabrous, lobes broadly ovate, 6–12 × 5–12 mm, obtuse, ciliate. Corona yellowish green, 4–4.5 mm in

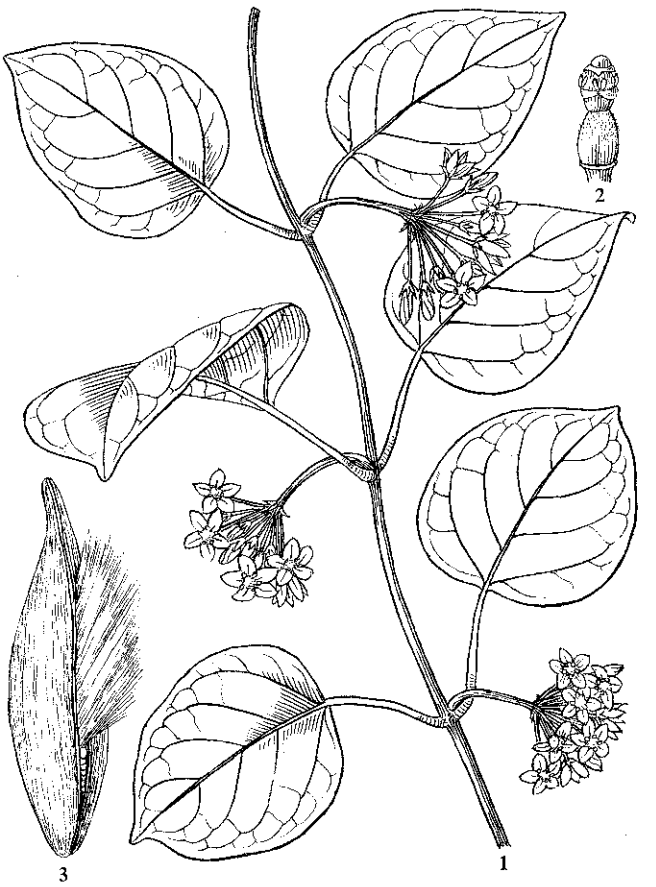


Figure 38. *Dregea volubilis* (L. f.) Benth. ex Hook. f.
1. flowering branch; 2. pistil; *3.* follicle. (drawn by H. P. Yu)

diam. Anther appendage white; pollinia oblong. Ovaries pilose. Follicles narrowly ovoid, 10–15 × 3–4 cm, longitudinally wrinkled-striate or irregularly ribbed. Seeds ovate, 12 × 6 mm, flattened, marginate; coma 4.5 cm.

Locality: Aberdeen, Fung Yuen, Fanling, Ping Kong, Kei Ling Ha. *S. C. Ng 2520; HK sheet 34046, 40152.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Taiwan; Bangladesh, India, Indonesia, Nepal, Malaysia, Sri Lanka, Thailand, Vietnam.

Ecology: Forests or thickets. Flowering: May–Jun.; fruiting: Jun.–Dec.

Uses: Medicinal (folklore), ornamental.

14. Tylophora R. Br. 娃兒藤屬

Perennial lianas, herbaceous or woody. Inflorescences extra-axillary, rarely terminal, mostly with several cymules born along a simple or branched, often zigzag rachis, less often umbel-like; cymules raceme-like or sometimes umbel-like. Calyx with basal glands. Corolla rotate or subrotate, deeply 5-lobed; lobes narrowly overlapping to right to subvalvate, often distinctly veined. Corona lobes 5, usually erect, turgid, adnate to and not exceeding gynostegium; anthers short, appendages arching over stigma head; pollinia 2 per pollinarium, horizontal, suberect, rarely erect, caudicles ascending or suberect, retinaculum small. Stigma head depressed, flattened or concave, rarely longer than anthers. Follicles oblong-lanceolate or fusiform. Seeds comose.

About 60 species distributed in tropical and subtropical Asia, Africa and Australia; 31 species in China; one species in Hong Kong.

1. **Tylophora ovata** (Lindl.) Hook. ex Steud.
娃兒藤 **(Fig. 39; Photos 71–72)**

Nomencl. Bot. (ed. 2) 2: 726. 1841; FRPS 63: 533, pl. 200. 1977; FGD 1: 535, fig. 616. 1987; FOC 16: 258. 1995.

Diplolepis ovata Lindl., Trans. Hort. Soc. London 6: 286. 1826.

Tylophora hispida Decne., Prodr. 8: 610. 1844; FHK 225. 1861; FKH 172. 1912.

Lianas, to 5 m, rusty hispid, villous, or pubescent except for adaxial surface of leaves and sometimes follicles. Petioles 0.5–3 cm; leaf blade ovate, 2.5–12.5(–16) × 1.2–9 cm, base cordate to subcordate, apex acute or short-acuminate and mucronate, lateral veins 4–6 on each side of midvein. Inflorescences 4–13 cm; peduncle 0.5–2 cm; rachis simple, zigzag, occasionally forked. Cymules sessile, raceme-like, densely flowered; pedicels threadlike, 5–10 mm. Sepals subulate-acuminate to ovate, ciliate; basal glands 5 or absent. Corolla yellowish or yellow-green, rotate, ca. 5 mm in diam., glabrous or puberulent; tube ca. 1 mm; lobes oblong-ovate or ovate, ca. 1.5–2.5 × 1–1.2 mm, obtuse. Corona-lobes ovoid, pouched, apex obtuse, covering the base of anthers. Anther with rounded appendages; pollinia globose to ovoid, horizontal. Ovaries glabrous; stigma head depressed. Follicles lanceolate to oblong-lanceolate in outline, 40–70 × 3–12 mm, puberulent or glabrous, apex sometimes recurved. Seeds oval, 5–7 × 2–4 mm; coma 2–3.5 cm.

Locality: Common in Hong Kong. *Y. S. Lau 2339, 3226; P. S. Choi 543.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Fujian, Taiwan; India, Pakistan, Nepal, Myanmar, Laos, Vietnam.

Ecology: Forests and thickets. Flowering: Apr.–Aug.; fruiting: Aug.–Dec.

Uses: Medicinal (folklore).

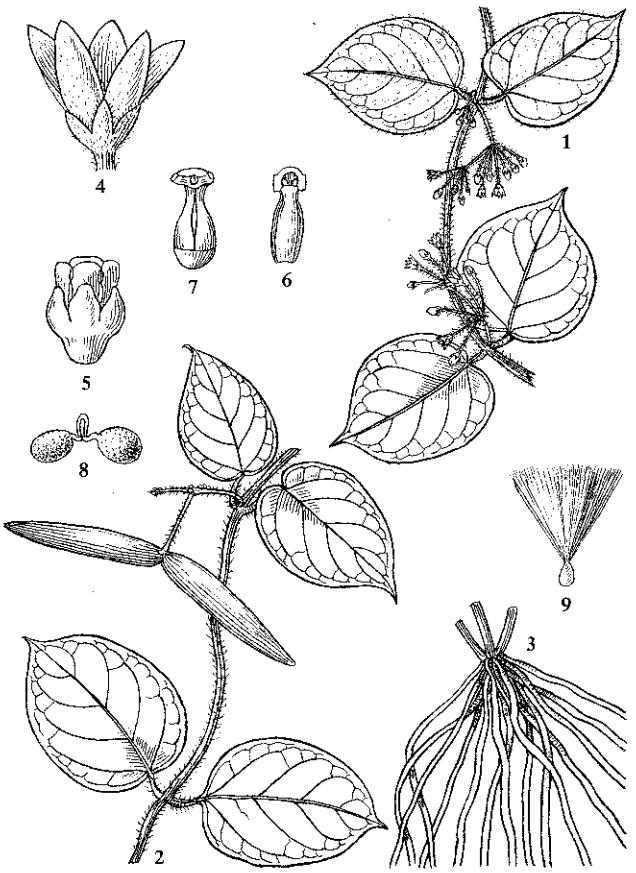


Figure 39. *Tylophora ovata* (Lindl.) Hook. ex Steud.
1. flowering branch; *2.* fruiting branch; *3.* roots; *4.* flower; *5.* corona and gynostegium; *6.* adaxial view of stamen; *7.* pistil; *8.* pollinarium; *9.* seed. (drawn by H. P. Yu)

15. Cynanchum L. 鵝絨藤屬

Subshrubs or perennial herbs, twining or rarely erect, often rhizomatous. Roots fibrous, woody or fleshy. Leaves opposite, rarely whorled, often petiolate, sometimes with small stipule-like leaves in axils. Inflorescences extra-axillary or occasionally terminal, rarely axillary, umbel-like, corymbose, or raceme-like. Sepals 5, erect, often with basal glands. Corona rotate or subrotate; tube short; lobes 5, patent or reflexed, overlapping to right or left, rarely subvalvate. Corona inserted at base of gynostegium, membranous or fleshy, cupular, cylindric, or deeply 5-divided, sometimes with adaxial appendages. Filaments connate into tube; anthers with membranous

apical appendage; pollinia 2 per pollinarium, pendulous. Stigma head convex or shortly conical. Follicles fusiform or lanceolate, usually smooth, rarely narrowly winged or setose; coma white.

About 200 species distributed in tropical, subtropical and temperate Eurasia, Africa and America; 57 species in China; three species in Hong Kong.

1a. Stems erect; leaves linear or lanceolate; corona 5-lobed ..... 1. *C. paniculatum*

1b. Stems twining; leaves ovate, oblong-hastate or ovate-triangular; corona cupular or tubular.

2a. Stems pubescent; leaves ovate or ovate-oblong, 4.5–12(–20) × 3.5–8(–10) cm, base deeply cordate; follicles fusiform, echinate, spines curved at tip ..... 2. *C. corymbosum*

2b. Stems glabrous; leaves oblong-hastate or ovate-triangular, 20–35 × 5–15 mm, base rounded to subcortate-hastate; follicles lanceolate, smooth ..... 3. *C. insulanum*

1. Cynanchum paniculatum (Bunge) Kitag. 徐長卿 **(Photos 73–74)**

J. Jap. Bot. 16: 20. 1940; FRPS 63: 351, pl. 125. 1977; FGD 1: 509, fig. 578. 1987; FOC 16: 218. 1995.

Asclepias paniculata Bunge, Enum. Pl. China Bor. 43. 1833.

Perennial herbs. Roots numerous fibrous, fragrant. Stems slender, erect, to 1 m, glabrous or hispid on lower part, unbranched or with few branches from upper parts. Leaves opposite; petioles 3 mm; leaf blade lanceolate to linear, 5–13 × 0.5–1.5 cm, stiffly papery, both ends acute, glabrous or adaxially puberulent, ciliate, lateral veins obscure. Inflorescences terminal and from upper nodes, laxly branched, to 7 cm; peduncle 2.5–4 cm; pedicels 5–10 mm. Sepals lanceolate, 1–1.5 × 0.5 mm; with or without glands. Corolla yellow-green, subrotate, globrous; tube short; lobes ovate, 4–5.5 × 1.5–3 mm. Corona deeply 5-lobed, lobes ovate-oblong, fleshy, slightly laterally compressed, apex obtuse, as long as anthers, adaxially keeled up to middle and adnate to anthers. Anther with semiorbicular appendages, slightly shorter than stigma head; pollinia oblong. Stigma head slightly umbonate. Follicles lanceolate in outline, 4–8 × 0.3–0.8 cm. Seeds oblong, 5 × 3 mm; coma 1.5–3 cm.

Locality: Clear Water Bay, Ko Lau Wan. *Y. S. Lau 3114; HK sheet 32938.*

Distribution: Widely distributed in China; Japan, Korea, Mongolia.

Ecology: Sunny grassy hillslopes. Flowering: Jun.–Sep.; fruiting: Jul.–Dec.

Uses: Medicinal (folklore).

2. Cynanchum corymbosum Wight 刺瓜 **(Fig. 40; Photos 75–76)**

Contrib. Bot. Ind. 56. 1834; FRPS 63: 379, pl. 138. 1977; FGD 1: 504, fig. 571. 1987; FOC 16: 212. 1995.

Perennial herbs, with thick tubers. Stems twining, to 2 m, pale grey, pubescent along 2 lines. Petioles 2.5–4.5 cm; leaf blade ovate or ovate-oblong, 4.5–12(–20) × 3.5–8(–10) cm, thinly papery, base deeply cordate, basal lobes rounded, apex apiculate or acuminate, glabrous except for veins, abaxially glaucous, adaxially darkening on drying, basal veins 5, lateral veins 3 on each side of midvein. Inflorescences raceme-like, 2.5–7 cm, laxly branched and less often to 13 cm; cymules 2-flowered; peduncle 1–5 cm, puberulent; pedicels 2–18 mm, pubescent. Sepals ovate, 1.5–2 × 1 mm, glabrous or pubescent; basal glands 5, minute. Corolla greenish white drying dark, subrotate; lobes oblong-lanceolate, ca. 5 × 1.5 mm, glabrous. Corona ± tubular, pure white, 3–4 mm high, plicate and with ± free adaxial appendages between acute teeth, marginal teeth 10, alternately rounded and acute, ca. 0.5–0.7 mm. Anther with oval appendages; pollinia oblong. Stigma head 2-fid, included within anthers. Follicles fusiform, 9–12 × 2–3 cm, conspicuously echinate; spines curved at tip. Seeds brown, 7–10 × 5 mm, conspicuously dentate at end opposite coma; coma 3–4 cm.

Locality: Tai Mo Shan, Ma On Shan, Tin Fu Tsai. *L. T. Lo 635; HK sheet 34041.*

Distribution: Guangdong, Guangxi, Yunnan, Sichuan, Hunan, Fujian; Cambodia, India, Laos, Malaysia, Myanmar, Vietnam.

Ecology: Thickets, open woods, riversides, valleys. Flowering: May–Oct.; fruiting: Aug.–Dec.

Uses: Medicinal (folklore).

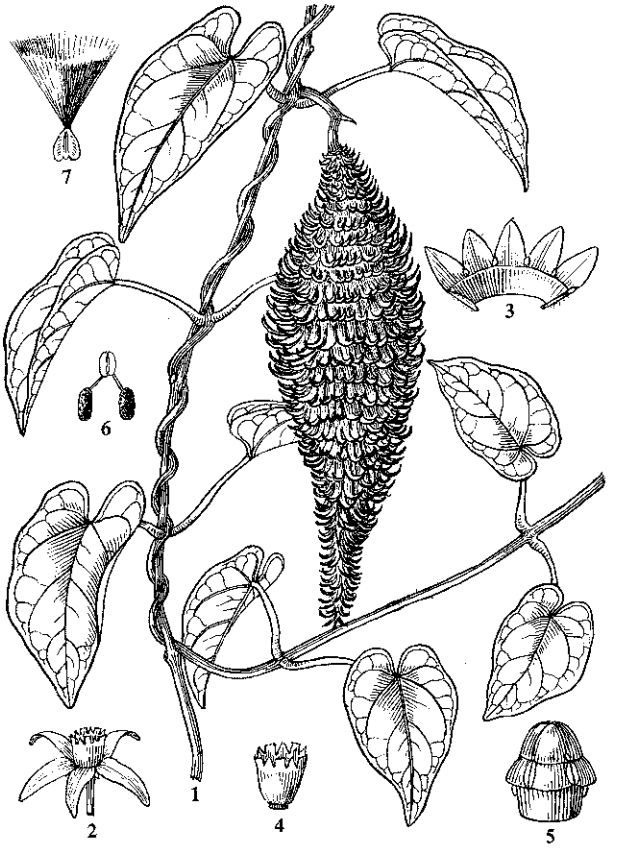


Figure 40. *Cynanchum corymbosum* Wight

1. fruiting branch; *2.* flower; *3.* calyx opened; *4.* corona; *5.* gynostegium; *6.* pollinarium; *7.* seed. (drawn by H. P. Yu)

3. Cynanchum insulanum (Hance) Hemsl.
海南杯冠藤 **(Fig. 41; Photos 77–78)**

J. Linn. Soc. Bot. 26(173): 107. 1889; FRPS 63: 383. 1977; FGD 1: 507, fig. 575. 1987; FOC 16: 213. 1995.

Cynoctonum insulanum Hance, J. Bot. 6(71): 330. 1868.

Twining herbs, to 60 cm, glabrous except for pubescent nodes, petioles and leaf margins. Leaves opposite; petioles 1–15 mm; leaf blade oblong-hastate, ovate-triangular to linear-lanceolate, 2–3.5 × 0.5–1.5 cm, base rounded to subcordate-hastate, apex acute or short apiculate, lateral veins 5 or 6 on each side of midvein. Inflorescences umbel-like, much shorter than leaves, 4- or 5-flowered. Sepal oblong, ca. 1 × 0.5 mm, acute; basal glands 5. Corolla greenish white, subrotate; tube ca. 0.5 mm; lobes ovate-oblong, ca. 2 × 1 mm, acute. Corona-tube cupular, thinly membranous, ca. 2 mm, longer than gynostegium, longitudinally plicate; anthers nearly square, appendages ovate; pollinia oblong. Stigma head capitate, included within anthers. Follicles lanceolate, 4.5–5 × 0.7–0.8 cm, with 2 inconspicuous longitudinal ridges, glabrous. Seeds oblong, 3 mm; coma 2 cm.

Locality: Sai Kung (Tai Wan). *Y. W. Lam 466, 1219; HK sheet 39286.*

Distribution: Hainan, Guangdong, Guangxi.

Ecology: Sandy beaches. Flowering: May–Oct.; fruiting: Oct.–Nov.

Notes: Listed in *Rare and Precious Plants of Hong Kong*.

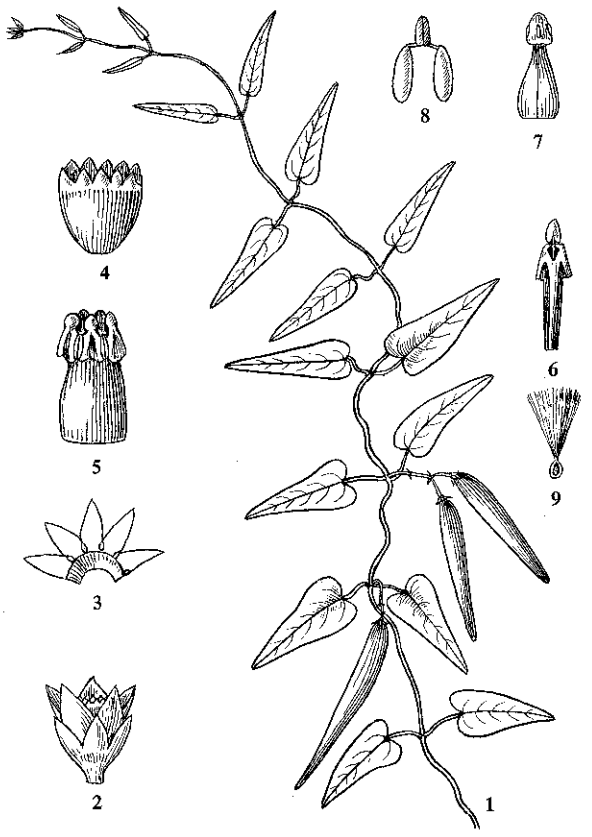


Figure 41. *Cynanchum insulanum* (Hance) Hemsl.
1. fruiting plant; *2.* flower; *3.* calyx opened; *4.* corona; *5.* gynostegium; *6.* ventral view of stamen; *7.* pistil; *8.* pollinarium; *9.* seed. (drawn by H. P. Yu)

282. SOLANACEAE 茄科

HU Qi-ming 胡启明

Herbs, shrubs, trees, or vines, with or without spines, glabrous or pubescent with unbranched or branched, often glandular hairs. Leaves alternate or paired and frequently unequal in size, simple to pinnately lobed or compound, petiolate or sessile, without stipules. Inflorescence cymose, branched or unbranched. Flowers usually perfect, (4–)5-merous, actinomorphic or zygomorphic; calyx campanulate, sometimes accrescent in fruit, corolla rotate, campanulate, stellate, or urceolate, white, green, yellow, pink, or purple; stamens equal or unequal; filaments generally short and inserted at the corolla base; anthers basifixed, equal or unequal, blunt or tapered toward apex, opening by terminal pores, sometimes expanding into longitudinal slits. Ovary 2-carpellate; ovules many; style articulate at base or above the base, usually slender; stigma capitate. Fruit a berry, or a capsule, usually many-seeded; seeds often flattened; embryo embedded in abundant endosperm.

About 95 genera with more than 2000 species distributed mainly in tropical and subtropical regions, especially in Americas; 20 genera and 101 species in China; 12 genera and 24 (16 cultivated or naturalized) species in Hong Kong.

1a. Shrubs or small trees.
  2a. Fruit a capsule.
    3a. Flowers 14–20 cm long; fruit spiny ..... 1. *Datura*
    3b. Flowers less than 5 cm long; fruit not spiny ..... 2. *Brunsfelsia*
  2b. Fruit a berry.
    4a. Plants spiny; flowers solitary or in pairs in axils of leaves ..... 3. *Lycium*
    4b. Plants spineless, or sometimes with prickles; flowers usually in cymes.
      5a. Corolla narrowly tubular; fruit 1 to few seeded ..... 4. *Cestrum*
      5b. Corolla rotate, fruit many-seeded ..... 5. *Solanum*
1b. Annual or perennial herbs, rarely subshrubs.
  6a. Fruit a capsule.
    7a. Fruit spiny, opening by 4 valves ..... 1. *Datura*
    7b. Fruit spineless, opening by 2 valves.
      8a. Flowers solitary; calyx lobed to the base ..... 6. *Petunia*
      8b. Flowers in terminal panicles; calyx lobed to middle ..... 7. *Nicotiana*
  6b. Fruit a berry.

9a. Calyx enlarged after anthesis, completely enclosing the fruit.
10a. Ovary 2-locular; fruiting calyx 5-toothed ..... 8. *Physalis*
10b. Ovary 3–5-locular; fruiting calyx 5-parted ..... 9. *Nicandra*
9b. Calyx not conspicuously enlarged, not completely enclosing the fruit.
11a. Anthers free, opening by longitudinal slits ..... 10. *Capsicum*
11b. Anthers coherent into a column around the style.
12a. Anthers opening by longitudinal slits; leaves pinnately compound ..... 11. *Lycopersicon*
12b. Anthers opening by terminal pores; leaves simple.
13a. Flowers solitary or in pairs in axils of leaves; calyx 10-lobed ..... 12. *Lycianthus*
13b. Flowers in cymes or clusters; calyx 4–5-lobed ..... 5. *Solanum*

1. Datura L. 曼陀羅屬

Herbs, subshrubs or small trees. Leaves simple, alternate, petiolate. Flowers large, usually solitary in branch forks or in axils of leaves; calyx long-tubular, 5-toothed or spathe-like, after anthesis splitting transversely at the very base or above the base and with the left part enlarged as a cup on the fruit; corolla long funnelform or salver-shaped with spreading plicate limb, shortly and broadly 5-lobed; stamens 5, inserted below middle of corolla-tube; anthers opening longitudinally; ovary 2-locular or falsely 4-celled; style long filiform, 2-lobed. Fruit a capsule, opening by 4-valves or bursting irregularly, prickly or smooth outside; seeds numerous, reniform or suborbicular, somewhat compressed laterally.

About 16 species distributed mostly in tropical and subtropical regions; three species in China; two species naturalized in Hong Kong.

Datura suaveolens Humb. & Bonpl. ex Willd. (大花曼陀羅) was also cultivated as an ornamental plant.

1a. Calyx tube cylindric; corolla 14–20 cm; fruit horizontal, irregularly 4-valved ..... 1. *D. metel*
1b. Calyx tube 5-angular; corolla 6–10 cm; fruit erect, regularly 4-valved ..... 2. *D. stramonium*

1. Datura metel L. 洋金花 **(Fig. 42; Photos 79–80)**

Sp. Pl. 179. 1753; FHN 3: 470, fig. 863. 1974; FRPS 67(1): 147, pl. 38: 3–4. 1978; FGD 2: 386, fig. 265: 1–4. 1991; FOC 17: 330. 1994; FTW ed. 2, 4: 552, pl. 251. 1998.

Datura alba Rumph. ex Nees, Trans. Linn. Soc. London 17: 73. 1873; FHK 245. 1861; FKH 183. 1912.

Annual stout herbs, 50–150 cm tall, glabrous throughout. Stem erect, woody at base. Leaves alternate; petioles 2–6 cm; leaf blade ovate to broadly ovate, 5–20 × 4–15 cm, apex acuminate, base asymmetrical, rounded, truncate or cuneate, margin irregularly sinuate-dentate, lobed or occasionally entire. Flowers solitary in branch forks or in axils of leaves; pedicels ca. 1 cm. Calyx tubular, 4–9 cm, with triangular or lanceolate lobes. Corolla long funnelform, 14–20 cm, white, yellowish, or pale purple; limb 6–10 cm in diam.; lobes broadly triangular, mucronate at apex. Stamens 5. Ovary bristly; style 11–16 cm. Capsule horizontal, subglobose or depressed globose, ca. 3 cm in diam., with short prickles, bursting irregularly in 4-valves.

Locality: Shek O, Ng Tung Chai, Tai Long Sai Wan, Ap Lei Chau, Ping Chau. *Y. S. Lau 2108; S. P. Lau 47; HK sheet 40300.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Fujian, Taiwan; widely naturalized or cultivated in tropical and subtropical regions.

Ecology: Wastelands and roadsides near villages. Flowering & fruiting: Mar.–Dec.

Uses: Medicinal (folklore).

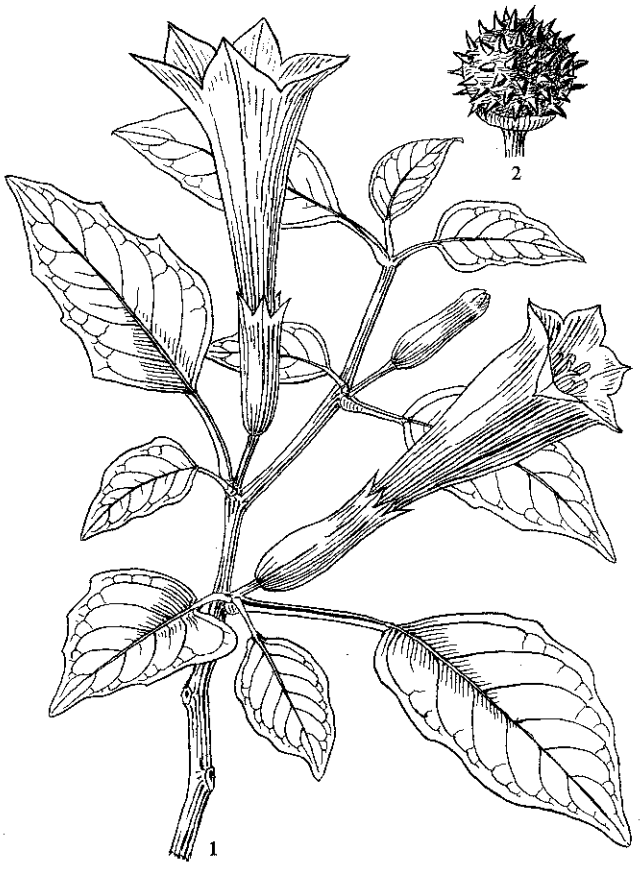


Figure 42. *Datura metel* L.
1. flowering branch; 2. fruit. (drawn by H. P. Yu)

2. Datura stramonium L. 曼陀羅

Sp. Pl. 1: 179. 1753; FRPS 67(1): 144, pl. 38: 1–2. 1978; FGD 2: 387, fig. 265: 5–7. 1991; FOC 17: 330. 1994.

Annual stout herbs or subshrubs, 30–150 cm tall, glabrescent or pubescent on the young parts. Stem erect, woody at base. Leaves alternate; petioles 2–5 cm; leaf blade broadly ovate or ovate, 6–18 × 4–12 cm, base asymmetrical cuneate, apex acuminate, margin irregularly sinuous or dentate-lobed, lobes triangular; lateral veins 3–5 on each side of midvein. Flowers solitary in branch forks or in axils of leaves, erect; pedicels ca. 1 cm. Calyx tube 4–5 cm, 5-angular, shallowly 5-lobed. Corolla funnelform, 6–10 cm, white or pale purple; limb 3–5 cm in diam., shallowly 5-lobed; lobes mucronate at apex. Stamens 5, included. Ovary bristly; style ca. 6 cm. Capsule

erect, globose or ovoid, ca. 3–4.5 × 2–4 cm, with short prickles, bursting regularly in 4-valves.

Locality: Cultivated. *L. T. Lo 447.*

Distribution: Widely naturalized or cultivated in tropical and subtropical regions.

Ecology: Flowering & fruiting: Mar.–Oct.

Uses: Medicinal (folklore).

2. Brunfelsia L. 鴛鴦茉莉屬

Shrubs or small trees. Leaves alternate, simple, entire. Flowers in terminal or axillary cymes, or occasionally reduced with only 1 flower. Calyx tubular or campanulate, 5-toothed or 5-lobed. Corolla salverform or funnelform, white, yellow or purple; tube slender, straight or slightly curved; limb spreading, ± irregular, 5-lobed; lobes imbricate in bud; stamens 4, in 2 pairs, attached to corolla-tube, included; filaments thick; anthers monomorphic. Ovary sessile, 2-locular, with numerous ovules in each locule; style compressed, 2-lobed. Fruit a capsule, leathery or fleshy and berry-like.

About 40 species distributed in tropical America; two species cultivated in China; one species cultivated in Hong Kong.

Brunfelsia macrophylla Benth. (大葉鴛鴦茉莉) was also cultivated previously.

1. Brunfelsia calycina Benth. 大鴛鴦茉莉 **(Fig. 43)**

Prodr. 10: 199. 1847; FGZ 579. 1956; FFJ 5: 5. 1993.

Evergreen shrubs, 1–1.5 m tall, much branched, glabrous or nearly so. Leaves alternate; petioles 3–5 mm; leaf blade oblong to elliptic-oblong, 5.5–8.5(–10) × 1.5–3(–3.5) cm, base cuneate to broadly cuneate, apex acuminate, margin entire. Flowers solitary or in few-flowered cymes; pedicels 1–2 mm. Calyx tubular, 12–16 mm, 5-toothed. Corolla salverform; tube slender, 1.5–2 cm; limb spreading, 2.5–3.5 cm in diam., initially violet but change to white later. Stamens and style included. Fruit subglobse, berry-like, pale yellow when mature, 5–7 mm in diam., indehiscent.

Locality: Cultivated. *HK sheet 34809.*

Distribution: Native to Brazil; widely cultivated in tropical and subtropical regions.

Ecology: Flowering: Spring and autumn.

Uses: Ornamental.

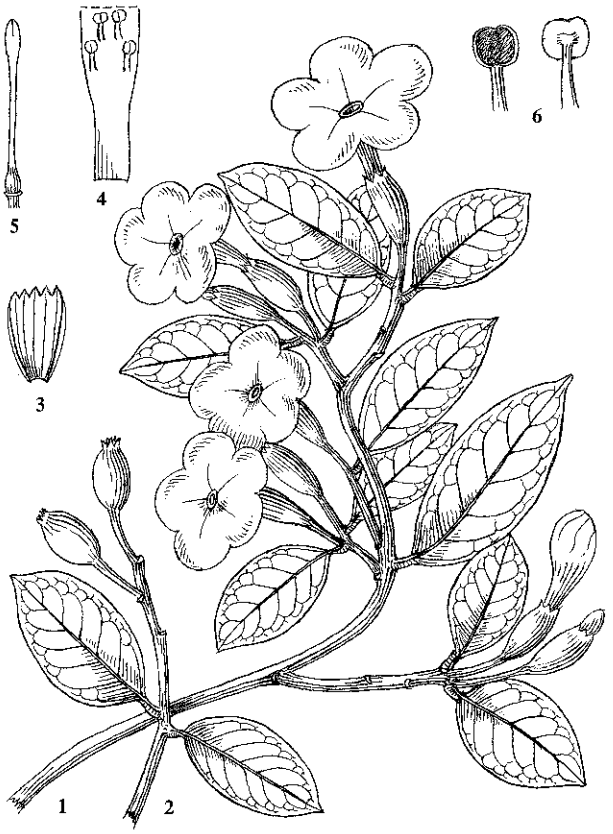


Figure 43. *Brunfelsia calycina* Benth.

1. flowering branch; *2.* fruiting branch; *3.* calyx; *4.* corolla-tube opened up showing stamens; *5.* pistil; *6.* stamens. (drawn by H. P. Yu)

3. Lycium L. 枸杞屬

Shrubs, often thorny. Leaves alternate or clustered, entire. Flowers usually pedicellate, solitary or several clustered in axils of the leaves or at the old nodes. Calyx campanulate, 5-toothed or 5-lobed, persistent. Corolla tubular or funnelform, limb (4–)5-lobed, the lobes imbricate in the bud. Stamens 5, attached to middle or below middle of corolla-tube; anthers opening longitudinally. Ovary 2-locular, with many ovules in each locule; style slender; stigma shallowly 2-lobed. Fruit a berry, globular or ovoid; seeds numerous.

About 80 species distributed in warm and temperate regions, especially in S America; seven species and three varieties in China; one species in Hong Kong.

1. Lycium chinense Mill. 枸杞 **(Fig. 44; Photos 81–82)**

Gard. Dict. ed. 8, no. 5. 1768; FHK 245. 1861; FKH 183. 1912; FHN 3: 470, fig. 862. 1974; FRPS 67(1): 15, pl. 3: 1–4. 1978;



Figure 44. *Lycium chinense* Mill.

1. flowering branch; *2.* fruiting branch; *3.* corolla opened up showing stamens; *4.* pistil. (drawn by H. P. Yu)

FGD 2: 364, fig. 247. 1991; FFJ 5: 5, fig. 3. 1993; FTW ed. 2, 4: 557, pl. 254, photo 297. 1998.

Shrubs, 50–100 cm tall, glabrous, much branched; branches often with spines. Leaves alternate, or in clusters of 2–4; petioles 4–10 mm; leaf blade lanceolate-oblong or obovate, 1.5–5 × 0.5–2.5 cm, base cuneate, apex acute or obtuse, margin entire. Flowers solitary or in pairs on long shoots, or clustered with leaves on short shoots. Pedicels 1–2 cm. Calyx 3–4 mm, 3–5-lobed. Corolla funnelform, 9–12 mm, pale purple, limb broadly campanulate, deeply 5-lobed; lobes ovate, apex rounded. Stamens 5, exserted. Berries ovoid or shortly oblong, 7–15 mm, orange-red.

Locality: Cultivated. *Y. S. Lau 1508; L. T. Lo 50; HK sheet 34820.*

Distribution: Widely distributed in China; also in Korea and Japan.

Ecology: Flowering & fruiting: Jun.–Nov.

Uses: Food (vegetable), medicinal (folklore).

4. Cestrum L. 夜香樹屬

Shrubs or small trees. Leaves alternate, entire. Flowers in terminal or axillary corymbs or panicles. Calyx campanulate or tubular, apex 5-lobed or 5-toothed; lobes valvate in bud. Corolla tubular or salverform, with a long tube ± enlarged or contracted at the throat, apex shallowly 5-lobed; lobes valvate in bud. Stamens 5, attached to the middle of corolla-tube; filaments often with hairs or small dentoid appendages at base; anthers opening longitudinally. Ovary 2-locular, often with a short stipe; ovules 3–6 in each locule; style slender; stigma peltate and sometimes obscurely 2-lobed. Fruit a berry, with a few or only 1 seed.

About 160 species distributed mostly in tropical America; three species cultivated in China; one species cultivated in Hong Kong.

1. Cestrum nocturnum L. 夜香樹 **(Fig. 45; Photos 83–84)**

Sp. Pl. 191. 1753; FGZ 577. 1956; FRPS 67(1): 149, pl. 40: 6–10. 1978; FGD 2: 387, fig. 266: 1–3. 1991; FFJ 5: 6, fig. 4. 1993; FOC 17: 331. 1994.

Shrubs 2–3 m tall, with slender reclining branches, glabrous throughout. Leaves alternate; petioles 0.5–1 cm; leaf blade oblong-ovate to oblong-lanceolate, 5–15 × 2–4.5 cm, base subrounded or broadly cuneate, apex acuminate, ± oblique, margin entire. Flowers in terminal and axillary cymes, 5–10 cm, very fragrant at night. Pedicels ca. 0.5 mm. Calyx narrowly campanulate, 2.5–3 mm, apex 5-toothed. Corolla salverform, pale green to cream-coloured; tube slender, ca. 2 cm, slightly contracted at throat; apex 5-lobed; lobes triangular, ca. 4 mm, erect or spreading. Stamens 5, attached to the upper part of corolla-tube; filaments with a pair of dentoid appendages at the base; anthers reaching the throat. Ovary ovoid, with a short stipe; style equaling corolla-tube; stigma capitate. Berry oblong, 6–7 mm, 1-seeded.

Locality: Cultivated. *Y. S. Lau 664, 2959; L. T. Lo 596.*

Distribution: Native to S America; widely cultivated in tropical regions.

Ecology: Flowering: Jun.–Nov.

Uses: Ornamental.

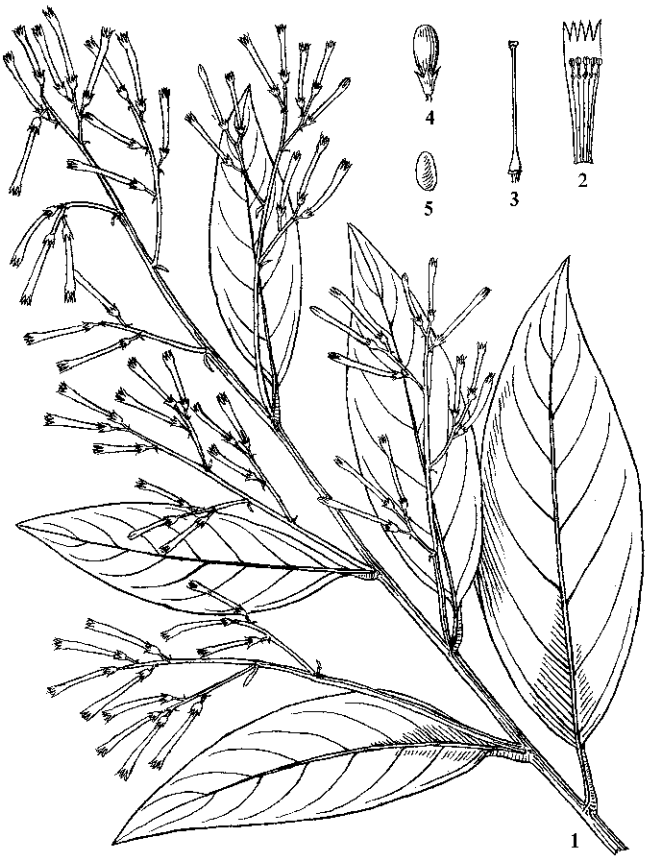


Figure 45. *Cestrum nocturnum* L.
1. flowering branch; *2*. corolla opened up showing stamens; *3*. pistil; *4*. fruit; *5*. seed. (drawn by H. P. Yu)

5. Solanum L. 茄屬

Herbs, shrubs, climbers or soft-wooded small trees, sometimes prickly. Leaves entire or irregularly toothed, lobed, or divided, rarely pinnately compound, alternate, solitary or in pairs, with a smaller one developed in the axil of the larger one. Flowers bisexual or andromonoecious, solitary, or more often in short racemes or cymes on lateral or leaf opposed peduncles, sometimes paniculate. Calyx 4–5-lobed, persistent, sometimes enlarged in fruit. Corolla rotate or slightly cup-shaped, 5-angled or 5-lobed; lobes folded in the bud. Stamens 4–5, attached to throat of corolla; filaments very short; anthers oblong or linear, erect and connivent in a cone round the style, opening at the top in 1 or 2 pores, without any prominent connective between the cells. Ovary 2(–5)-locular, with numerous ovules on axile placenta; style simple, with small, obtuse stigma. Fruit a berry.

About 1200 species distributed mostly in tropical and subtropical regions; 41 species (about 20 introduced) in China; 12 species in Hong Kong (mostly cultivated or naturalized).

1a. Plants unarmed; anthers stout, not tapering to apex, apical pores large, usually as broad as anther cell.

2a. Plants with subterranean tubers; leaves odd-pinnate compound ..... 1. *S. tuberosum*
2b. Plants without subterranean tubers; leaves entire or variously parted.
3a. Small trees, densely stellate-tomentose overall; flowers in flat or rounded upright panicles ..... 2. *S. erianthum*
3b. Annual herbs, glabrous or sparsely pubescent; inflorescence subumbellate.
4a. Anthers more than 2 mm; corolla white, 8–10 mm; fruit 8–10 mm, crowned with appressed calyx-lobes ..... 3. *S. nigrum*
4b. Anthers less than 1.5 mm; corolla white, with a yellow eye, less than 5 mm; fruit less than 8 mm, crowned with strongly reflexed calyx-lobes ..... 4. *S. americanum*
1b. Plants prickly; anthers tapering to a slender subulate apex, apical pores small.
5a. Plants with coarse, straight simple hairs.
6a. Fruit light yellow, pyriform, with 1–5 papillate protuberances at base ..... 5. *S. mammosum*
6b. Fruit orange-red, subglobose, without protuberances at base ..... 6. *S. capsicoides*
5b. Stems covered with stellate hairs.
7a. Fruit densely stellate hirsute; plants tomentose; calyx lobes nearly leaf-like, more than 8 mm ..... 7. *S. lasiocarpum*
7b. Fruit glabrous; plant variously pubescent; calyx lobes not leaf-like; mostly less than 7 mm.
8a. Small trees; corolla more than 5 cm wide, with contrasting abaxial pleats; fruit more than 3 cm in diam. ..... 8. *S. wrightii*
8b. Herbs or shrubs; corolla less than 5 cm wide, without contrasting pleats; fruit less than 3 cm in diam.
9a. Flowers in racemose panicles, many-flowered; peduncles 1–2-branched; plants 1–2(–3) m tall ..... 9. *S. torvum*
9b. Flowers solitary or in few-flowered racemes; peduncles not branched; plants mostly less than 1 m tall.
10a. Flowers bisexual; infructescence with 2–several fruits of less than 1.4 cm across ..... 10. *S. violaceum*
10b. Flowers andromonoecious; infructescence usually with a single fruit of more than 1.4 cm across.
11a. Fruit 2–3 cm across; globose; calyx lobes triangular-lanceolate, ca. 5 mm ..... 11. *S. undatum*
11b. Fruit mostly much more than 4 cm across; variously shaped, seldom globose; calyx lobes lanceolate, much longer ..... 12. *S. melongena*

1. Solanum tuberosum L. 馬鈴薯 **(Photo 85)**

Sp. Pl. 185. 1753; FHN 3: 463. 1974; FRPS 67(1): 94, pl. 23: 7–10. 1978; FOC 17: 320. 1994.

Perennial herbs, 30–80 cm tall, with subterranean tubers; tubers globose, oblate, or ellipsoidal, 3–10 cm in diam. Leaves odd-pinnate, ovate in outline, 10–20 cm or longer; leaflets 3 or 4 pairs, mixed with small irregular lobes on the rachis, ovate or oblong, unequal, (1–)2–6(–8) × 1–4.5 cm, base rounded, apex acute, margin entire, sparsely pilose on both surfaces. Flowers in subterminal, leaf opposed, or axillary sparingly branched panicles. Calyx campanulate, sparsely pilose; lobes 5, lanceolate. Corolla rotate, white, pink or blue-purple, 2.5–3 cm in diam.; limb 5-lobed, lobes triangular. Ovary ovoid, glabrous. Berry globose, smooth, ca. 1.5 cm in diam.

Locality: Cultivated. *Y. S. Lau 3328.*

Distribution: Native to S America; cultivated worldwide.

Ecology: Flowering: Summer.

Uses: Food.

2. Solanum erianthum D. Don
假煙葉樹 **(Fig. 46; Photos 86–87)**

Prodr. Fl. Nepal. 96. 1825; FFJ 5: 12, fig. 11. 1993; FOC 17: 316. 1994; FTW ed. 2, 4: 566. 1998.

Solanum verbascifolium auct. non L.: FKH 183. 1912; FRPS 67(1): 72. 1978.

Shrubs or small trees, 1.5–10 m tall, densely tomentose. Leaves simple; petioles thick, 1.5–5.5 cm; leaf blade ovate-oblong, 10–29 × 4–12 cm, base broadly cuneate or obtuse, apex shortly acuminate, margin entire or obscurely sinuate, adaxially green, abaxially greyish green; lateral veins 7–9 on each side of midvein. Cymes corymbose, subterminal; peduncle 3–10 cm; pedicels



Figure 46. *Solanum erianthum* D. Don

1. flowering branch; *2.* calyx and pistil; *3.* corolla opened up showing stamens; *4.* stamens; *5.* fruit. (drawn by H. P. Yu)

3–5 mm. Calyx campanulate, 5-lobed to middle. Corolla white, tube as long as calyx; limb ca. 1.5 cm in diam., deeply 5-lobed; lobes oblong. Stamens 5; filaments 1–1.5 mm. Ovary ovoid, densely stellate-tomentose. Berry globose, ca. 1.5 cm in diam., initially stellate-tomentose, glabrescent, yellowish brown when mature.

Locality: Naturalized in Hong Kong. *Y. S. Lau 240, 477, 2948.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Fujian, Taiwan; native to S America, widespread in tropical Asia and Australia.

Ecology: Wastelands, roadsides near villages. Flowering & fruiting: Almost all year round.

Uses: Medicinal (folklore).

3. Solanum nigrum L. 龍葵 **(Photos 88–89)**

Sp. Pl. 186. 1753; FHK 242. 1861; FKH 183. 1912; FRPS 67(1): 76, pl. 19: 1–6, 1978; FFJ 5: 9, fig. 6. 1993; FOC 17: 318. 1994; FTW ed. 2, 4: 571, pl. 259, photo 302. 1998.

Annual or biennial herbs, 30–100 cm tall, glabrous or nearly so. Leaves simple; petioles 1–2 cm; leaf blade ovate, 2.5–10 × 1.5–5.5 cm, base cuneate to broadly cuneate, apex shortly acute, margin entire or irregularly and coarsely toothed; lateral veins 5–6 on each side of midvein. Scorpioid cymes extra-axillary, 3–6(–10)-flowered, almost contracted into umbels on short (2–4 cm) lateral peduncles; pedicels 5–12 mm. Calyx small, shallowly cup-shaped, 5-toothed. Corolla white; limb ca. 9 mm in diam., deeply 5-lobed; lobes ovate. Stamens 5; filaments very short. Ovary ovoid, white-tomentose on the lower part. Berry globose, ca. 8 mm in diam., black when mature.

Locality: Common in Hong Kong. *S. P. Lau 9; Y. S. Lau 2361; Y. W. Lam 441.*

Distribution: Widely distributed in China; also in warm regions of Asia, Europe and America.

Ecology: Wastelands and roadsides. Flowering & fruiting: Summer to autumn.

Uses: Medicinal (folklore).

4. Solanum americanum Mill. 少花龍葵 **(Fig. 47; Photo 90)**

Gard. Dict. ed. 8, no. 5. 1768; FFJ 5: 9. 1993; FOC 17: 317. 1994; FTW ed. 2, 4: 564, pl. 256. 1998.

Solanum photeinocarpum Nakam. & Odash., J. Soc. Trop. Agric. 8: 54, fig. 2. 1936; FRPS 76(1): 77. 1978.

Annual herbs, 25–100 cm tall. Stems glabrous or nearly so. Leaves simple; petioles slender, 1–2 cm, sparsely pubescent; leaf blade ovate or ovate-oblong, 4–8 × 2–4 cm, base cuneate, decurrent to the petiole, apex acuminate, margin subentire, sinuate or irregularly and coarsely toothed, sparsely pubescent on both surfaces. Cymes extra-axillary, 3–6(–10)-flowered, almost contracted into umbels; peduncles 1–2.5 cm; pedicels 5–8 mm. Calyx small, 5-lobed to middle; lobes ovate. Corolla white, sometimes with a yellow eye, 5-lobed to middle or beyond middle; lobes ovate-oblong, 3–4 mm, pubescent abaxially. Stamens 5; filaments short, pubescent. Ovary ovoid, white-tomentose on the lower part. Berry globose, ca. 5 mm in diam., black when mature.

Locality: Naturalized in Hong Kong. *Y. S. Lau 530.*

Distribution: Guangdong, Guangxi, Yunnan, Hunan, Jiangxi, Fujian, Taiwan; perhaps native to S America, widely spread to all tropical and warm regions.

Ecology: Wastelands, roadsides near villages. Flowering & fruiting: Nearly all year round.

Uses: Medicinal (folklore).

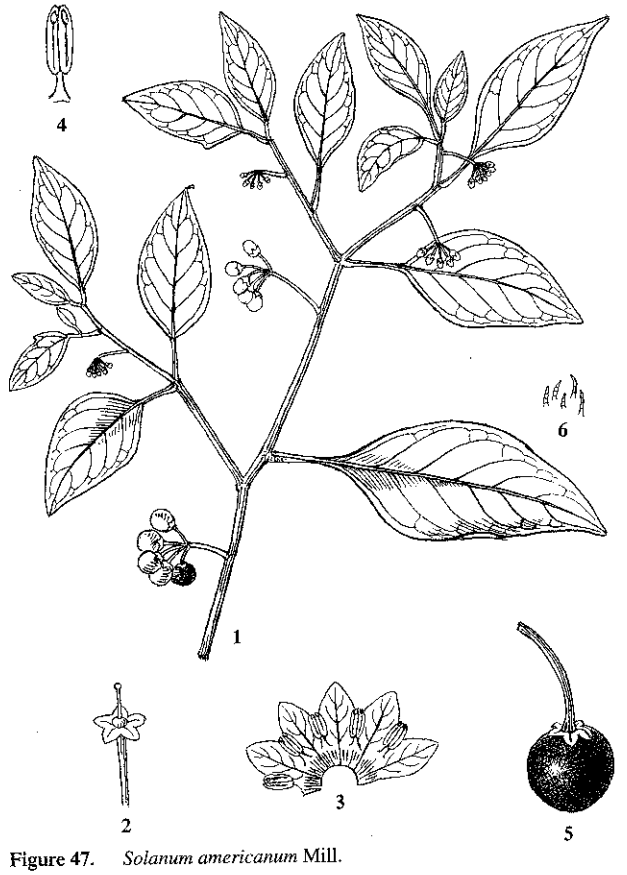


Figure 47. *Solanum americanum* Mill.
1. flowering and fruiting branch; *2.* calyx and pistil; *3.* corolla opened up showing stamens; *4.* stamens; *5.* fruit; *6.* amplification of hair. (drawn by H. P. Yu)

5. Solanum mammosum L. 乳茄(五代同堂茄) **(Photos 91–92)**

Sp. Pl. 187. 1753; FRPS 67(1): 106, pl. 21: 15–19. 1978; FOC 17: 323. 1994

Stout herbs, to 1 m tall. Stems and branches covered with articulate hairs, glandular hairs and compressed prickles. Leaves simple; petioles 2.5–8 cm; leaf blade ovate, 5–10 × 4.5–9.5 cm, base ± cordate, apex acute or obtuse, margin irregularly and coarsely (3–)5(–7)-lobed; lobes triangular, both surfaces densely covered with hairs, and with prickles on the midvein and veins. Scorpioid cymes extra-axillary, 2–4-flowered, sometimes reduced to 1 flower; peduncle 3–10 mm; pedicels 5–10 mm. Calyx shallowly cup-shaped, deeply 5-lobed; lobes ovate-lanceolate. Corolla violet; tube ca. 1.5 mm; limb ca. 1.8 cm in diam., deeply 5-lobed; lobes lanceolate. Stamens 5; filaments ca. 1.5 mm. Ovary ovoid, glabrous or nearly so. Berry inverse pear-shaped, 4.5–5.5 cm, often with 4–5 protuberances at base, yellow when mature.

Locality: Cultivated. *K. L. Yip 4413, 4475.*

Distribution: Native to Brazil; widely cultivated in tropical regions.

Ecology: Flowering & fruiting: Apr.–Oct.

Uses: Ornamental.

6. Solanum capsicoides All. 牛茄子(癫茄) **(Photos 93–94)**

Philos. Math. Soc. Roy. Turin 5: 64. 1773; FOC 17: 323. 1994; FTW ed. 2, 4: 564. 1998.

Solanum surattense acut. non Burm. f.: FRPS 67(1): 105, pl. 27: 3–5. 1978.

Herbs or subshrubs, 0.5–1 m tall. Stems and branches glabrous or pilose, with pale yellow straight prickles. Leaves simple; petioles stout, 2–7 cm; leaf blade broadly ovate, 5–13 × 4–12 cm, base cordate, apex acute or acuminate, margin 5–7-lobed to middle, pubescent on adaxial surface, glabrous, or hairy only along veins on abaxial surface, with prickles along veins on both surfaces. Cymes 1–4-flowered, extra-axillary; peduncle short or obsolete; pedicels 5–12 mm. Calyx 5–8 mm, 5-lobed beyond middle; lobes ovate, pubescent. Corolla white, greenish at base, tube ca. 2.5 mm; limb deeply 5-lobed; lobes lanceolate, ca. 10 × 4 mm. Stamens 5; filaments ca. 2.5 mm. Ovary ovoid, glabrous. Berry subglobose, 3.5–6 cm in diam., initially stellate-tomentose, orange-red when mature.

Locality: Naturalized in Hong Kong. *Y. S. Lau 1345; HK sheet 19995.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Jiangsu, Fujian, Taiwan; perhaps native to Brazil, but widely spread over warm regions.

Ecology: Wastelands, roadsides near villages and thickets. Flowering: Summer to autumn; fruiting: Autumn to winter.

Uses: Medicinal (folklore).

7. Solanum lasiocarpum Dunal 毛茄

Hist. Nat. Solanum 222. 1813; FOC 17: 323. 1994; FTW ed. 2, 4: 567, photo: 300. 1998.

Solanum ferox auct. non L.: FHK 243. 1861; FKH 183. 1912; FRPS 67(1): 110, pl. 27: 6–9. 1978.

Herbs or subshrubs, 1–1.5 m tall, densely covered with pale yellow stellate hairs throughout. Stems and branches with flat, erect or slightly recurved prickles. Leaves simple; petioles 3–8 cm, often prickly; leaf blade ovate, 10–20 × 8–18 cm, base truncate or subhastate, apex acute, margin with 5–11 sinuate lobes, pubescent and prickly along veins on both surfaces. Scorpioid cymes extra-axillary, several-flowered; peduncle ca. 3 mm; pedicels ca. 1 cm. Calyx cup-shaped, 5-lobed beyond middle; lobe ovate-lanceolate, ca. 8 mm. Corolla white, tube ca. 1 mm; limb ca. 2 cm in diam., deeply 5-lobed; lobes ovate-lanceolate, ca. 1 cm. Stamens 5; filaments very short. Ovary ovoid, pubescent. Berry globose, ca. 2 cm in diam., covered with tawny hairs.

Locality: Sai Kung, Mau Ping, Shing Mun, Tai Po, Sha Tau Kok. *Y. S. Lau 479, 1344; L. T. Lo 220.*

Distribution: Guangdong, Guangxi, Yunnan, Taiwan; widely distributed in SE Asia.

Ecology: Wastelands, roadsides. Flowering: Summer; fruiting: Autumn to winter.

Uses: Medicinal (folklore).

8. Solanum wrightii Benth. 大花茄

FHK 243. 1861; FKH 183. 1912; FRPS 67(1): 115. 1978; FOC 17: 322. 1994.

Trees to 10 m tall. Branches and petioles hispid with stiff stellate hairs or bristles, and armed with a few straight stout prickles. Leaves simple; petioles 5–10 cm; leaf blade broadly ovate, 25–30 × 15–20 cm, base oblique, apex acute or obtuse, margin entire or sinuate lobed, with irregular ovate or lanceolate lobes, scabrid with dispersed bristle-like hairs on adaxial surface, coarsely stellate-hairy on abaxial surface. Cymes many-flowered, axillary or extra-axillary; peduncles unbranched or bifid; pedicels 0.6–1.5 cm, very hispid. Calyx 1–1.5 cm, densely hispid, deeply 5-lobed; lobes lanceolate, apex long-subulate. Corolla initially deep purple, gradually fading through blue to white; limb 6–9 cm in diam., 5-lobed to 1/3 of its length, the lanceolate center of each lobe stellate-hairy outside. Stamens 5; filaments 2–3 mm; anthers 1.2–1.5 cm. Berry globose, 3–4 cm in diam., red when mature.

Locality: Cultivated. *HK sheet 4101, 4102, 4103.*

Distribution: Tropical and subtropical regions; native to Bolivia and Brazil.

Ecology: Flowering: Summer to autumn.

Uses: Ornamental.

Notes: The type specimen of this species was collected by C. Wright from Hong Kong Island between 1853 and 1854. Bentham (1861) described this species based on a plant cultivated in Hong Kong. Dunn & Tutcher (1912) last recorded the species on the Bonham Road, Hong Kong.

9. Solanum torvum Sw. 水茄 **(Photo 95)**

Prodr. 47. 1788; FRPS 67(1): 95. pl. 26: 7–8. 1978; FFJ 5: 15, fig. 16. 1993; FOC 17: 321. 1994; FTW ed. 2, 4: 576, pl. 262, photo 304. 1998.

Shrubs 1–3 m tall, sparsely armed with pale yellow or reddish prickles. Branchlets, petioles, abaxial surface of leaves and peduncles densely covered with tawny stellate hairs. Leaves solitary or in pairs; petioles thick, 2–4 cm; leaf blade ovate to elliptic, 6–19 × 4–13 cm, base cordate or cuneate, ± oblique, apex acute, margin 5–7-lobed or sinuate, densely covered with stellate hairs on both surfaces; lateral veins 3–5 on each side of midvein, unarmed or sometimes prickly. Cymes extra-axillary, 2–3-branched; peduncle 1–1.5 cm, sometimes prickly; pedicels 5–10 mm. Calyx cup-shaped, covered with stellate and glandular hairs abaxially, apex 5-lobed. Corolla white; tube

ca. 1.5 mm; limb ca. 1.5 cm in diam., deeply 5-lobed; lobes ovate-lanceolate, ca. 8 mm. Stamens 5; filaments ca. 1 mm; anthers ca. 7 mm. Ovary ovoid, glabrous. Berry globose, 1–1.5 cm in diam., glabrous, yellowish when mature.

Locality: Naturalized in Hong Kong. *Y. S. Lau 1949; L. T. Lo 78; HK sheet 39452.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, S Xizang, Fujian, Taiwan; native to Caribbean; widely naturalized in tropical regions.

Ecology: Wastelands, roadsides near villages. Flowering & fruiting: Almost all year round.

Uses: Medicinal (folklore).

10. Solanum violaceum Ortega 刺天茄

Nov. Pl. Descr. Dec. 56. 1798; FOC 17: 322. 1994; FTW ed. 2, 4: 578, pl. 263, photo 305. 1998.

Solanum chinense Dunal, Hist. Nat. Solanum 240. 1813.

Solanum indicum auct. non L.: FHK 242. 1861; FKH 182. 1912; FRPS 67(1): 100, pl. 26: 1–6. 1978; Check List HK Plants 220. 2002; 77. 2004.

Shrubs 0.5–2 m tall, much branched. Branchlets sparingly prickled and densely tawny grey stellate-tomentose. Leaves simple, unequal-paired; petioles thick, 1.5–4 cm, densely stellate-tomentose and sparingly prickled; leaf blade ovate, 5–11 × 2–8.5 cm, base cordate or truncate, apex obtuse or acute, margin 5–7 sinuate-lobed, adaxial surface tomentose with short-stalked, stellate hairs, abaxial surface with long-stalked hairs and straight needle-like prickles; lateral veins 3–4 on each side of midvein. Scorpioid cymes extra-axillary, 2–6 cm; peduncle ca. 1.5 cm; pedicels 4–15 mm, pubescent and prickly. Calyx cup-shaped, 4–7 mm, 5-lobed beyond middle; lobes lanceolate, 3–5 mm. Corolla blue-purple or white; tube ca. 1.5 mm; limb 1–2 cm in diam., deeply 5-lobed; lobes ovate to ovate-lanceolate, 5–8 × 2–5 mm, obtuse. Stamens 5; filaments ca. 1 mm; anthers oblong, 5–6 mm. Berry globose, 0.8–1.3 cm in diam., shiny orange when mature.

Locality: Tai Po, Fanling. *W. J. Tutcher 9175; Y. S. Lau 476; HK sheet 36079.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Fujian, Taiwan; widely spread over tropical Asia.

Ecology: Wastelands, roadsides, thickets. Flowering & fruiting: Almost all year round.

Uses: Medicinal (folklore).

(Photo 96)

11. Solanum undatum Lam. 野茄

Tab Encycl. 2: 22. 1793; FOC 17: 325. 1994; FTW ed. 2, 4: 578. 1998.

Solanum cumingii Dunal, Prodr. 13(1): 363. 1852; FRPS 67(1): 119. 1978.

Solanum coagulans auct. non Forssk.: FRPS 67(1): 116. 1978; Check List HK Plants 220. 2002; 76. 2004.

Solanum sanctum auct. non L.: FHK 243. 1861.

Soanum incanum auct. non L.: FKH 182. 1912.

Herbs or subshrubs, 0.5–1.5 m tall. Stems and branches shaggy-tomentose with stellate hairs, glabrescent, sparingly armed with prickles. Leaves unequal paired; petioles 1–4 cm; leaf blade ovate or elliptic, 15–14 × 4–7 cm, base obtuse or truncate, apex acute or obtuse, margin 5(–7)-sinuate lobed, both surfaces densely shaggy-tomentose with stellate hairs, and with short stout prickles along veins. Scorpioid cymes extra-axillary; peduncles very short; pedicels 0.5–2 cm. Calyx campanulate, 6–9 mm, 5-lobed beyond middle; lobes triangular lanceolate. Corolla purple blue or white; limb 1.5–3 cm in diam., deeply 5-lobed; lobes broadly triangular or ovate. Stamens 5; filaments 1.5–1.8 mm; anthers 5–8 mm. Ovary ovoid, glabrous. Berry globose, 2–3 cm in diam., glabrous, yellow when mature.

Locality: Tai Po, Sheung Shui. *Y. S. Lau 475, 2945; L. T. Lo 260.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Fujian, Taiwan; widely distributed in SW and SE Asia, also in Africa.

Ecology: Thickets. Flowering: Summer; fruiting: Autumn to winter.

(Photo 97)

12. Solanum melongena L. 茄(矮瓜)

Sp. Pl. 186. 1753; FRPS 67(1): 118. 1978; FFJ 5: 18, fig. 19. 1993; FOC 17: 325. 1994.

Annual herbs or shrubby, to 1 m tall. Branches often purplish and stellate-tomentose when young, glabrescent. Leaves simple; petioles thick, 2–4.5 cm, stellate-tomentose; leaf blade ovate to oblong-ovate, 8–18 × 5–11 cm, base broadly cuneate or subrounded, oblique, apex obtuse, margin shallowly or deeply sinuate-lobed, stellate-tomentose and sometimes with a few prickles on both surfaces; lateral veins 4–5 on each side of midvein. Flowers usually solitary; peduncle obsolete; pedicels 1–1.8 cm, stellate-tomentose. Calyx stellate-tomentose, 5-lobed to middle; lobes lanceolate. Corolla purplish or violet; tube ca. 2 mm; limb 3(–5) cm in diam., deeply 5-lobed; lobes triangular. Stamens 5; filaments ca. 2.5 mm; anthers ca. 7.5 mm. Ovary ovoid, apex densely stellate-tomentose. Berry greatly variable in shape and size, usually subglobose or cylindric, more than 6 cm in diam., purple, white or yellow when mature.

Locality: Cultivated. *HK sheet 20078.*

Distribution: Probably originated from SE Asia; widely cultivated from tropical to temperate regions.

Ecology: Flowering & fruiting: Summer to autumn.

Uses: Food (vegetable), medicinal (folklore).

6. Petunia Juss. 碧冬茄屬

Annual or perennial herbs, usually with glandular hairs. Leaves simple, entire, alternate or sometimes opposite on the upper part of stem. Flowers solitary, terminal and axillary. Calyx 5-lobed to near base; lobes oblong to linear. Corolla funnelform or salverform; limb usually 5-lobed regular or obscurely 2-lipped; lobes broad and short, imbricate in the bud. Stamens 5, inserted at or below middle in corolla-tube, 4 in pairs, the fifth much smaller or rudimentary. Ovary 2-locular; stigma 2-lobed; ovules numerous in each locule. Fruit a capsule, many-seeded.

About three species distributed in S America; one species cultivated in China and Hong Kong.

1. Petunia hybrida Hort. ex Vilm. 碧冬茄 **(Fig. 48)**

Fl. Pleine Terre 1: 615–616. 1863; FRPS 67(1): 154, pl. 40: 1–5. 1978; FGD 2: 390, fig. 268. 1991; FOC 17: 332. 1994.

Annual herbs, 30–60 cm tall, much branched, viscid-pubescent throughout. Leaves alternate or the upper opposite; petioles short or almost obsolete; leaf blade ovate, 3–8 × 1.5–4.5 cm, base broadly cuneate, apex acute, margin entire. Flowers solitary in axils of leaves; pedicels 3–5 cm. Calyx 5-lobed to near base; lobes linear, 1–1.5 cm, obtuse, persistent. Corolla funnelform, 5–7 cm, white, purple or violet; limb shallowly 5-lobed, 5–7 cm in diam. Stamens 5, inserted in the lower part of corolla-tube, 4 long, the fifth shorter. Ovary 2-locular. Capsule conical, ca. 1 cm opening by 2 valves when mature.

Locality: Cultivated. *Y. S. Lau 1885.*

Distribution: A hybrid of garden origin, cultivated elsewhere.

Ecology: Flowering & fruiting: Summer to autumn.

Uses: Ornamental.

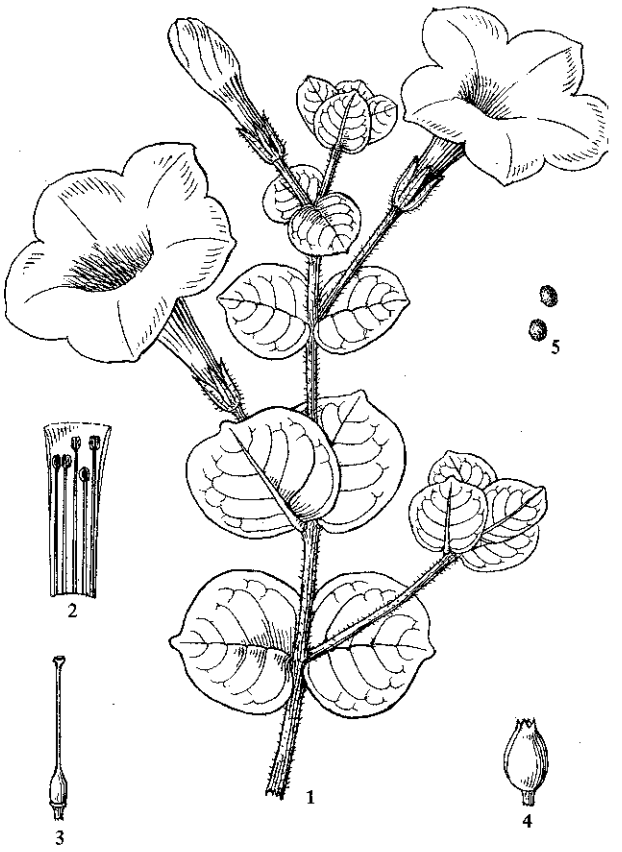


Figure 48. *Petunia hybrida* Hort. ex Vilm.
1. flowering branch; *2.* corolla-tube opened up showing stamens; *3.* pistil; *4.* capsule; *5.* seeds. (drawn by H. P. Yu)

7. Nicotiana L. 煙草屬

Annual herbs, shrubs or small trees, often viscid-pubescent. Leaves simple, alternate, entire, or rarely sinuate, petiolate or sessile. Inflorescences paniculate, racemose or reduced to solitary flower. Calyx tubular or tubular-campanulate, regular or irregular, 5-lobed, persistent and enlarged in fruiting time. Corolla tubular, funnelform or salverform, regular or slightly irregular; tube elongate; limb 5-lobed or subentire. Stamens 5, inserted half way in corolla-tube; filaments slender; anthers opening longitudinal. Ovary 2-locular, with numerous ovules in each locule; stigma 2-lobed. Fruit a capsule, dehiscing by apical valves.

About 95 species distributed in Africa, Americas, Australia and Oceania; three species cultivated in China; one species cultivated in Hong Kong.

1. Nicotiana tabacum L. 煙草 **(Fig. 49; Photos 98–99)**

Sp. Pl. 180. 1753; FHN 3: 471. 1974; FRPS 67(1): 152, pl. 39. 1978; FGD 2: 389, fig. 267: 1–2. 1991; FOC 17: 332. 1994.

Annual herbs, 0.5–2 m tall, viscid-pubescent throughout. Leaves alternate, sessile or nearly so; leaf blade oblong-lanceolate, lanceolate to oblong-ovate, 10–30(–70) × 8–15(–30) cm, base attenuate, auriculate or semi-amplexicaul, apex acuminate, margin entire or slightly sinuate. Panicles terminal, many-flowered; pedicels 5–20 mm. Calyx tubular or tubular-campanulate, 5-lobed; lobes triangular-lanceolate. Corolla funnelform, pink; tube 4–6.5 cm; limb 1.5–2 cm in diam., 5-lobed. Stamens 5; filaments

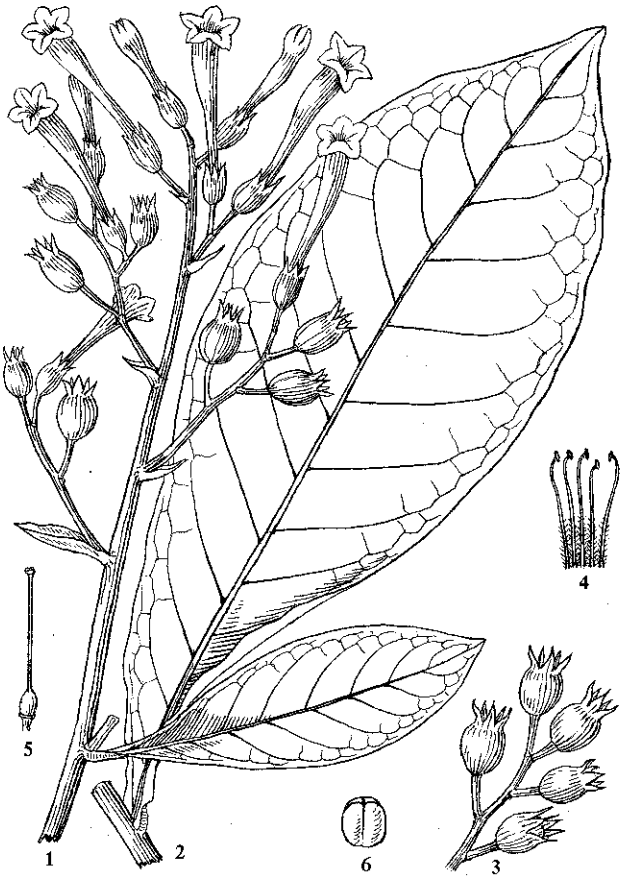


Figure 49. *Nicotiana tabacum* L.
1. inflorescence; *2.* leaf; *3.* fruits; *4.* stamens; *5.* pistil; *6.* seed. (drawn by H. P. Yu)

pubescent at base. Ovary 2-locular; stigma 2-lobed. Capsule ovoid, ca. 1.5 cm, many-seeded.

Locality: Cultivated. *L. T. Lo 129; Y. S. Lau 2107, 2552.*

Distribution: Native to S America; cultivated elsewhere.

Ecology: Flowering & fruiting: Jun.–Oct.

Uses: Tobacco (source of nicotine).

8. Physalis L. 酸漿屬

Annual or perennial herbs. Leaves simple, alternate or sometimes paired, entire or irregularly sinuate-toothed, rarely pinnately lobed. Flowers solitary, axillary or extra-axillary. Calyx campanulate, 5-lobed; lobes valvate in bud, inflated after flowering. Corolla broadly campanulate or nearly rotate, white or yellow, shallowly 5-lobed or only 5-angled, folded in bud. Stamens 5, inserted at base of corolla-tube; filaments dilated at base; anthers short, opening longitudinally. Ovary 2-locular, with many ovules in each locule; style slender; stigma obscurely 2-lobed. Fruit a berry, globose, enclosed in the inflated calyx, many-seeded.

About 75 species distributed mostly in Americas; six species in China; one species in Hong Kong.

1. Physalis angulata L. 苦蘵 **(Fig. 50; Photos 100–101)**

Sp. Pl. 183. 1753; FHK 244. 1861; FKH 183. 1912; FRPS 67(1): 56, pl. 15: 3–4. 1978; FGD 2: 366, fig. 249: 1–4. 1991; FOC 17: 312. 1994; FTW ed. 2, 4: 560, pl. 255, photo 298. 1998.

Annual herbs. 30–50 cm tall, much branched, sparsely pubescent or glabrescent. Leaves alternate; petioles 1–5 cm; leaf blade ovate, oblong or almost lanceolate, 3–6 × 2–4 cm, base broadly cuneate or cuneate, apex acuminate or acute, margin entire or with a few coarse irregular teeth, almost glabrous on both surfaces. Flowers solitary in axils of leaves; pedicels 5–12 mm. Calyx campanulate, 4–5 mm, 5-lobed to middle; lobes lanceolate, as are the pedicels sparsely and shortly pubescent. Corolla 4–8 mm, pale yellow, often marked with 5 purple spots near the throat, shallowly 5-lobed; limb 6–8 mm in diam. Stamens 5; anthers blue-purple or yellow. Fruiting calyx globular, 1.5–2.5 in diam., papery, pale green. Berry globose, ca. 1.2 cm in diam., completely enclosed by the persistent calyx.

Locality: Deep Water Bay, Mai Po, Tai Po. *P. S. Choi 415; Y. W. Lam 2210; HK sheet 35170.*

Distribution: Hainan, Guangdong, Guangxi, Hunan, Hubei, Henan, Anhui, Jiangxi, Jiangsu, Zhejiang, Fujian, Taiwan; widely spread over tropical and subtropical region.

Ecology: Wastelands, roadsides near villages. Flowering & fruiting: May–Dec.

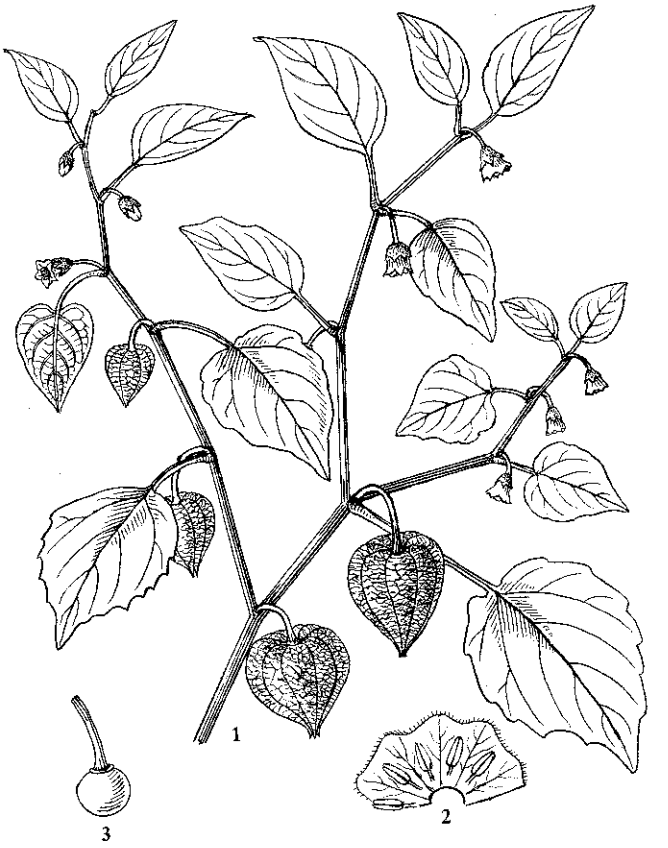


Figure 50. *Physalis angulata* L.
1. flowering and fruiting branch; *2.* corolla opened up showing stamens; *3.* fruit. (drawn by H. P. Yu)

9. Nicandra Adans. 假酸漿屬

Annual herbs. Leaves alternate, petiolate; leaf blade simple, irregularly toothed or lobed. Flowers solitary, axillary or in branch forks, pedicellate, actinomorphic. Calyx campanulate, deeply 5-parted. Corolla campanulate, shallowly lobed; lobes ovate. Stamens included, attached to corolla tube; filaments slender; anthers elliptic, dehiscing longitudinally. Ovary 3-5-locular, with numerous ovules in each locule; style filiform; stigma subcapitate, 3-5-lobed. Fruiting calyx conspicuously enlarged, persistent, enclosing fruit, lobes cordate-sagittate, each with 2 basal auriculate lobes. Berry globose, dry. Seeds reniform-discoid, compressed, pitted.

One species native to S America, but widely cultivated or naturalized elsewhere, also in China and in Hong Kong.

1. Nicandra physalodes (L.) Gaertn. 假酸漿

Fruct. Sem. Pl. 2: 237. 1791; FRPS 67(1): 6. 1978; FOC 17: 301. 1994.

Atropa physalodes L., Sp. Pl. 1: 181. 1753.

Annual herbs, up to 1 m tall; stems erect, angular, glabrescent or sparsely pubescent. Leaves alternate; petiole 1.5–6 cm; leaf blade ovate or elliptic, 4–12(–20) × 2–8(–13) cm, apex acute or shortly acuminate, base cuneate, margin coarsely sinuate-dentate or lobed, papery, sparsely pubescent on both surfaces. Flowers solitary, axillary or in branch forks. Pedicel 1.5–4 cm. Calyx 0.8–3 cm, deeply 5-parted; lobes broadly ovate, apex acute, base cordate-sagittate, with 2 acute auricles. Corolla pale blue, blue-purple, or bluish with white center, 2.5–4 cm in diam. Berry brown or yellow, 1–2 cm in diam. Seeds pale brown, 1–1.2 mm in diam.

Locality: Naturalized. *Y. S. Lau 2995.*

Distribution: Naturalized in Gansu, Guizhou, Hebei, Sichuan, Xinjiang, Xizang, Yunnan; a widely distributed weed, native to Peru.

Ecology: Wastelands, roadsides near villages. Flowering & fruiting: Summer to autumn.

Uses: Medicinal (folklore), ornamental.

10. Capsicum L. 辣椒屬

Annual or perennial herbs, sometimes shrubby. Stems erect, much branched. Leaves simple, alternate. Flowers solitary or in cluster of 2–3 in axils of branches. Calyx campanulate or cup-shaped, apex truncate or minutely 5-toothed. Corolla rotate, 5-lobed to middle; lobes valvate in bud. Stamens 5, inserted near base of corolla-tube; filaments slender; anthers free, opening longitudinally. Ovary 2(–3)-locular; style slender; stigma clavate, sometimes obscurely 2–3-lobed. Fruit a pod-like indehiscent berry, many-seeded.

About 25 species distributed in S America; one species cultivated in China and in Hong Kong.

1. Capsicum annuum L. 辣椒 **(Fig. 51; Photo 102)**

Sp. Pl. 188. 1753; FHN 3: 469, fig. 861. 1974; FRPS 67(1): 62. 1978; FGD 2: 368. 1991; FOC 17: 313. 1994; FTW ed. 2, 4: 550. 1998.

Annual or perennial herbs, 50–80 cm tall. Stems much branched, woody at base. Leaves alternate or the upper paired or clustered; petioles 2–6 cm; leaf blade ovate to ovate-lanceolate, 4–10 × 1.5–4 cm, base cuneate, apex acuminate or acute, margin entire or obscurely sinuate, sparsely pubescent along midvein on adaxial surface, with tufts of hairs in axils of veins on abaxial surface. Flowers solitary in axils of leaves or branches. Calyx cup-shaped, obscurely 5-toothed. Corolla white, 5-lobed. Stamens 5; anthers blue-purple. Berry usually red, orange-yellow, variously shaped.

Locality: Cultivated. *S. P. Lau 21.*

Distribution: Native to Mexico and S America; widely cultivated worldwide and naturalized in tropical and subtropical regions.

Ecology: Flowering & fruiting: Summer to autumn.

Uses: Food (vegetable), additive (colouring, flavouring).

Notes: Three varieties of this species, *C. annuum* var. *conoides* (Mill.) Irish (朝天椒; Photo 103), *C. annuum* var. *fasciculatum* (Sturtev.) Irish (簇生椒) and *C. annuum* var. *grossum* (L.) Sendtn. (菜椒; Photo 104), are also cultivated.

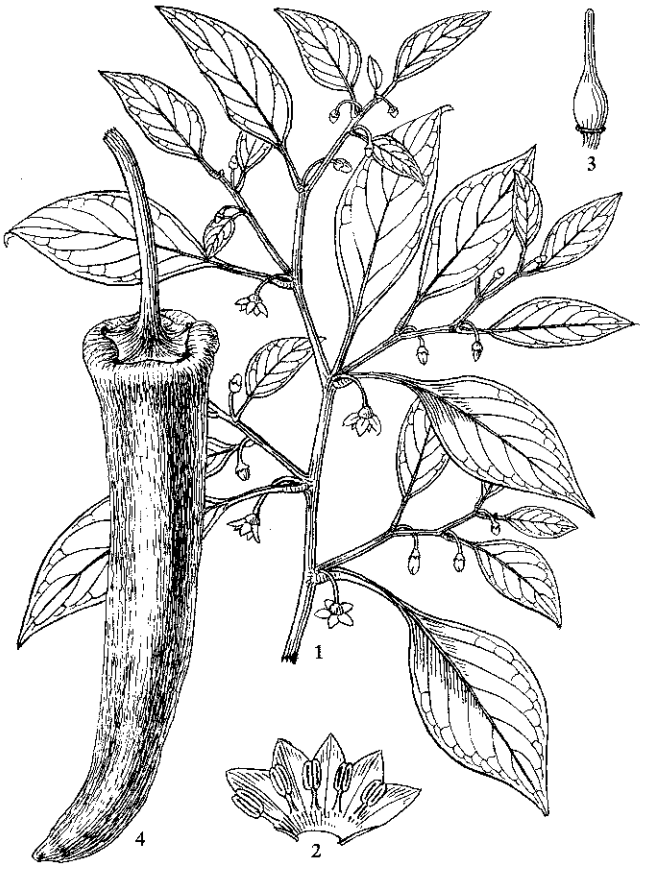


Figure 51. *Capsicum annuum* L.

1. flowering branch; *2.* corolla opened up showing stamens; *3.* pistil; *4.* fruit. (drawn by H. P. Yu)

11. Lycopersicon Mill. 番茄屬

Annual or perennial herbs, or subshrubs. Leaves alternate, pinnate or pinnatifid. Flowers in cymes or panicles, extra-axillary. Calyx rotate, deeply 5–6-lobed; lobed linear-lanceolate. Corolla rotate, yellow; tube short; limb 5–6-lobed; lobes lanceolate. Stamens 5–6, inserted in corolla-tube; filaments short; anthers coherent, opening longitudinally. Ovary 2–5-locular, with many ovules in each locule; style slender; stigma capitate. Fruit a berry, depressed globose or globose, many-seeded.

About nine species distributed in S and N America; one species cultivated in China and in Hong Kong.

1. Lycopersicon esculentum Mill. 番茄 **(Fig. 52; Photo 105)**

Gard. Dict. ed. 8, no. 2. 1768; FHN 3: 467. 1974; FRPS 67(1): 137, pl. 35. 1978; FGD 2: 385, fig. 264. 1991; FOC 17: 329. 1994; FTW ed. 2, 4: 557. 1998.

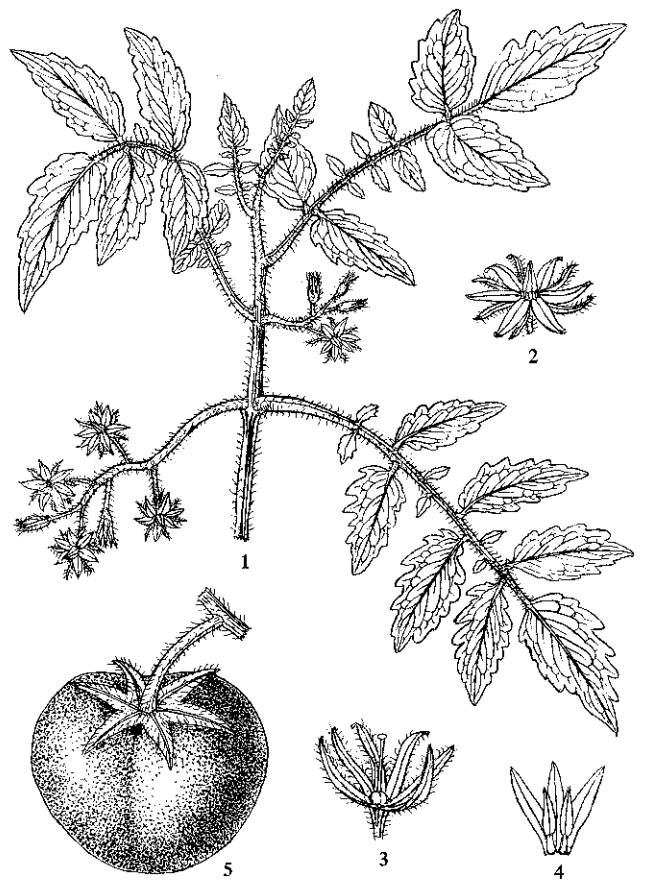


Figure 52. *Lycopersicon esculentum* Mill.

1. flowering branch; *2.* flower; *3.* calyx and pistil; *4.* corolla opened (partial); *5.* fruit. (drawn by H. P. Yu)

Annual herbs, erect or sprawling, 1–2 m tall, viscid pubescent and strong-smelling. Leaves odd-pinnate, ovate-oblong in outline, unequal, 10–35 cm or longer; leaflets usually 5–9, ovate or oblong, 5–7(–12) × 2–5 cm, base oblique, apex acuminate, margin irregularly toothed or lobed. Cymes lateral, 5–8 cm, 3–7-flowered; peduncles 2–4 cm; pedicels 1–1.5 cm. Calyx deeply 5-lobed; lobes lanceolate. Corolla rotate, yellow, ca. 2 cm in diam. Berry red or yellow, usually subglobose, flattened at the ends.

Locality: Cultivated. *S. Y. Hu 5341, 9025, 12904* (CUHK).

Distribution: Native to Mexico and S America; widely cultivated throughout the world.

Ecology: Flowering & fruiting: Summer to autumn.

Uses: Food (vegetable, fruit).

12. Lycianthes (Dunal) Hassl. 紅絲線屬

Shrubs, subshrubs or sometimes creeping herbs. Leaves simple, alternate, solitary or unequal-paired. Flowers 1–several fascicled in axils of leaves; peduncles obsolete or absent. Calyx cup-shaped, (5–)10-toothed; the teeth subulate or linear, unequal. Corolla rotate or stellate, white or purplish blue, 5-lobed to middle. Stamens 5, inserted near apex of corolla-tube; filaments short, glabrous; anthers opening by apical pores. Ovary ovoid, 2-locular, with numerous ovules in each locule; style slender; stigma obtuse. Fruit a berry, globose, red or purple-red when mature.

About 180 species distributed mostly in C and S America; ten species in China; one species in Hong Kong.

1. **Lycianthes biflora** (Lour.) Bitter

紅絲線 **(Fig. 53; Photo 106)**

Abh. Naturwiss. Vereine Bremen 24: 461. 1920; FHN 3: 466, fig. 859. 1974; FRPS 67(1): 122, pl. 30. 1978; FGD 2: 383, fig. 263. 1991; FOC 17: 326. 1994; FTW 2, 4: 552, pl. 252, photo 295. 1998.

Solanum biflorum Lour., Fl. Cochinch. 1: 129. 1790.

Solanum decemdentatum Roxb., Hort. Beng. 16. 1814; Fl. Ind. 2: 247. 1824; FKH 243. 1861.

Erect herbs or subshrubs, 0.5–1.5 m tall. Branchlets, petioles, pedicels and calyx densely covered with pale yellow, simple hairs and mixed with 1–2-rayed hairs. Leaves solitary or the upper unequal paired; petioles 0.5–4 cm, narrowly winged; leaf blade sparsely pubescent adaxially, denser and mixed with 1–2-rayed hairs abaxially; blade of the larger leaves elliptic-ovate to oblong, 9–15 × 3.5–7 cm, base cuneate and decurrent to the petioles, apex acuminate; blade of smaller leaves broadly ovate, base broadly cuneate to rounded, apex shortly acuminate. Flowers usually 2, rarely 3–6 fascicled in axils of leaves; pedicels 5–13 mm. Calyx broadly campanulate, ca. 5 mm, with 10 subulate teeth. Corolla white or pale purple; tube ca. 1.5 mm; limb deeply 5-lobed; lobes ovate to narrowly ovate, ca. 6 × 1.5 mm. Stamens 5; filaments ca. 1 mm; anthers ca. 3 mm, opening by subapical and introrse pores. Ovary ovoid, glabrous; style slender, ca. 8 mm. Berry globose, 6–8 mm in diam., red when mature.

Locality: Victoria Peak, Pok Fu Lam, Kowloon Peak, Shing Mun, Tai Mo Shan, Wang Shan Keuk Ha Tsuen. *Y. S. Lau 302, 2306; L. T. Lo 648.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Sichuan, Jiangxi, Fujian, Taiwan; S and SE Asia to Malaysia.

Ecology: Ravines, streamsides and other wet places. Flowering: May–Aug.; fruiting: Jul.–Nov.

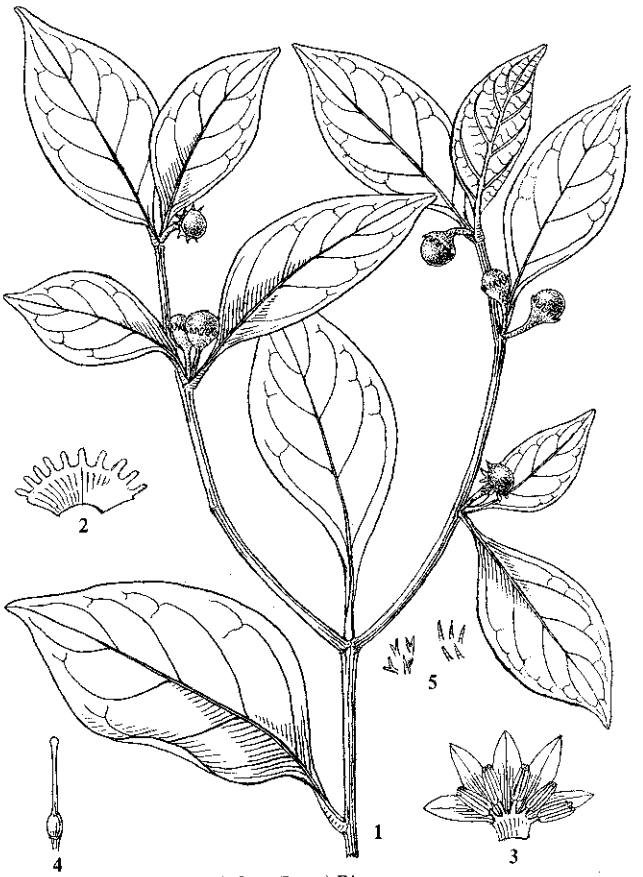


Figure 53. *Lycianthes biflora* (Lour.) Bitter
1. fruiting branch; *2.* calyx opened; *3.* corolla opened up showing stamens; *4.* pistil; *5.* amplification of hairs. (drawn by H. P. Yu)

283. CONVOLVULACEAE 旋花科

XIA Nian-he 夏念和

Herbs, subshrubs or shrubs, lianas or rarely trees, often lactiferous. Leaves simple, alternate, entire, 3-lobed or dissected, exstipulate or rarely stipulate. Flowers solitary, axillary or in cymes, racemes, panicles, umbels, bisexual, actinomorphic, usually 5-merous. Bracts in pair, often small, rarely enlarged after flowering. Sepals distinct, imbricate, often persistent. Corolla sympetalous, funnelform, campanulate, salverform, or urceolate; limb subentire or deeply lobed; lobes valvate. Stamens alternating with corolla lobes, inserted on corolla-tube; filaments equal or unequal in length; anthers 2-celled, introrse, dehiscing by longitudinal slits; pollen smooth or spiny.

Disk annular or cupular. Ovary superior, 2(−5)-carpellate, 1−2(−4)-locular; ovules (1−)2 per locule; placentation basal. Styles 1−2, rarely absent; stigma entire or 2(−3)-lobed, rarely peltate. Fruit a capsule, dehiscing by valves, circumscissile, or irregularly shattering, less often a berry. Seeds usually trigonous, smooth or pubescent.

About 58 genera and 1650 species widely distributed in tropical, subtropical, and temperate regions; 20 genera and 129 species in China; 11 genera and 35 species in Hong Kong.

1a. Ovary deeply 2-lobed; styles 2, basal; prostrate creeping small herb with small flowers; leaves reniform to heart-shaped or orbicular ..... 1. *Dichondra*

1b. Ovary unlobed; styles 1 or 2, terminal; erect or climbing plants or with large flowers; leaves not reniform to heart-shaped.

2a. Styles absent or nearly so, stigma adnate to ovary; corolla deeply 5-lobed, each lobe with small lobes ..... 2. *Erycibe*

2b. Styles evident, 1−2; corolla entire or 5-lobed, lobes without small lobes.

3a. Styles 2; erect herb ..... 3. *Evolvulus*

3b. Style 1.

4a. Calyx enclosed by 2 leafy bracts ..... 4. *Calystegia*

4b. Calyx not enclosed by bracts.

5a. Stigma 2-lobed, not globose; fruit a capsule.

6a. Outer 3 sepals larger ..... 5. *Hewittia*

6b. Sepals subequal ..... 6. *Jacquemontia*

5b. Stigma globose; fruit a berry or capsule.

7a. Fruit a berry; persistent calyx enlarged, often red adaxially ..... 7. *Argyreia*

7b. Fruit a capsule; persistent calyx not red adaxially.

8a. Persistent calyx longer than fruit, ovate, wider than 1 cm ..... 8. *Operculina*

8b. Persistent calyx shorter than fruit, rarely lateral persistent sepals longer than fruit but narrower than 1 cm.

9a. Corolla white, red, pink or purple, rarely yellow, lobes 2-veined; pollen grains spiny ..... 9. *Ipomoea*

9b. Corolla often yellow, lobes 5-veined; pollen grains smooth.

10a. Prostrate herbs; leaf blade hastate and ± amplexicaul at base ..... 10. *Xenostegia*

10b. Twining herbs or woody climbers; leaf blade not hastate and not amplexicaul at base ..... 11. *Merremia*

1. Dichondra J. R. Forst. & G. Forst. 馬蹄金屬

Prostrate creeping small herbs. Leaves petiolate; stipules minute; leaf blade reniform to heart-shaped or orbicular, entire. Flowers solitary, axillary, pedicellate; bracts minute. Sepals joined basally, ± equal, usually spathulate, becoming enlarged in fruit. Corolla campanulate, lobed to middle or below, lobes valvate or imbricate. Stamens inclusive, anthers small; pollen grains not spiny. Ovary deeply 2-lobed, each lobe with 2 ovules. Styles 2, basal, free, filiform; stigmas capitate. Capsule irregularly 2-valved or indehiscent, or deeply 2-lobed. Seeds 1 or 2 per lobe, subglobose, smooth.

About 14 species distributed in tropical and subtropical regions all over the world; one species in China and in Hong Kong.

1. Dichondra micrantha Urban 馬蹄金 **(Fig. 54; Photo 107)**

Symb. Antill. 9: 243. 1924; FTW 4: 353, pl. 1036. 1978; FOC 16: 275. 1995; FTW ed. 2, 4: 349, pl. 156. 1998; FGD 4: 332, fig. 195. 2000.

Dichondra repens var. *micrantha* (Urban) Lu, Quart. J. Chin. Forest. 6: 166. 1972.

Dichondra repens auct. non. J. R. Forst. & G. Forst.: FHK 240. 1861; FKH 181. 1912; FHN 3: 473, fig. 864. 1974; FRPS 64(1): 8, pl. 1: 1−4. 1979; FFJ 4: 475, fig. 380. 1989; Check List HK Plants 222. 2002; 77. 2004.

Perennial herb. Stems slender, prostrate, freely branching, sparsely greyish white pubescent, rooting at nodes. Petiole 2−5 cm, greyish white pubescent; leaf blade reniform to heart-shaped or orbicular, 0.5−2.5 cm in diam., abaxially sparsely appressed pilose, adaxially glabrous. Pedicel erect, shorter than petiole,

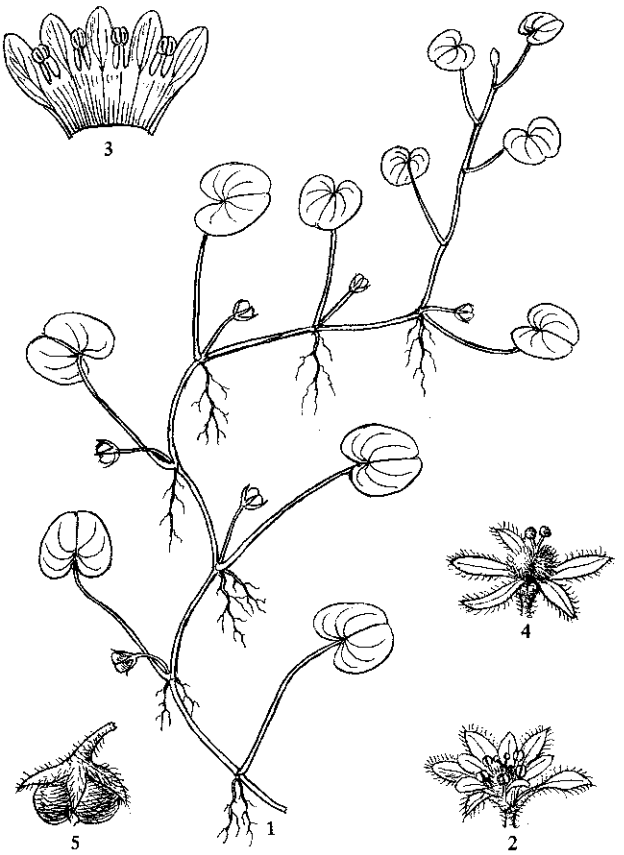


Figure 54. *Dichondra micrantha* Urban

1. fruiting plant; *2.* flower; *3.* corolla opened up showing stamens; *4.* calyx and pistil; *5.* fruit. (drawn by H. P. Yu)

pubescent. Calyx broadly campanulate, deeply 5-lobed; lobes obovate-oblong to spathulate, ca. 2 mm, margin densely pubescent. Corolla yellow, ca. 2 mm, 5-lobed to middle, glabrous. Stamens equal, filaments short. Ovary greyish white pubescent. Styles free, slightly unequal. Capsule subglobose, ca. 2 mm in diam.; pericarp membranous, sparsely pubescent, purplish when mature. Seeds yellow to brown, glabrous.

Locality: Tai Tam, Sha Lo Tung. *S. P. Lau 96; Y. W. Lam 264.*

Distribution: Areas S of Changjiang River; Japan including Ryukyu Islands, S Korea, Thailand, N & S America, Pacific islands.

Ecology: Grassy hillslopes. Flowering & fruiting: Apr.–Sep.

Uses: Medicinal (folklore).

2. Erycibe Roxb. 丁公藤屬

Woody or scandent shrubs. Stems lenticellate, young parts glabrous or reddish tomentose. Leaves petiolate, entire, leathery or papery. Inflorescences terminal or axillary, racemose or paniculate; bracts caducous, usually minute. Flowers small, fragrant. Sepals free, persistent, subequal, leathery, usually pubescent abaxially. Corolla white or yellow, campanulate, deeply 5-lobed; tube short, glabrous abaxially; lobes 2-lobulate apically, midpetaline bands densely appressed pubescent abaxially; lateral lobules glabrous. Stamens inclusive; pollen grains not spiny. Disk inconspicuous. Ovary globose or ellipsoidal, 1-locular, 4-ovuled. Styles absent or nearly so. Stigma ± conical, with 5–10 longitudinal, straight or spirally twisted ridges. Fruit a slightly fleshy berry. Seed 1.

About 67 species mainly distributed in S & SE Asia, N Australia; ten species in China; one species in Hong Kong.

1. Erycibe obtusifolia Benth. 丁公藤 **(Fig. 55; Photo 108)**

FHK 236. 1861; FHN 3: 477. 1974; FRPS 64(1): 20, pl. 4: 5–6. 1979; FOC 16: 279. 1995; FGD 4: 333, fig. 196. 2000.

Erycibe versatilihirta C. Y. Ma, Acta Bot. Yunnan. 7(1): 91, pl. 1. 1985.

Woody vine, glabrous except for inflorescences. Stems to 5 cm in diam.; branchlets distinctly striate-angular, yellowish brown when dry. Petiole 0.8–1.2 cm; leaf blade leathery, elliptic or obovate, 6–10 × 2.5–4 cm, base cuneate, apex obtuse or acute; lateral veins 4–6 pairs, prominent abaxially. Inflorescences terminal or axillary, paniculate or racemose, 4–15 cm. Pedicels 4–6 mm. Sepals suborbicular, ca. 3 mm in diam., ± dull yellow pubescent abaxially. Corolla yellowish white, 8–10 mm; lobules broadly elliptic, undulate, entire. Stamens unequal, apex acuminate; filaments ca. as long as anthers. Ovary ellipsoidal, glabrous. Stigma conical, adnate to ovary, spirally ridged. Fruit red to yellow, ellipsoidal, 1.2–1.4 × 0.7–0.8 cm.

Locality: Stanley, Cape Collinson, Cape D'Aguilar, Lung Fu Shan, Lantau Island, Tung Lung Chau, Lamma Island. *Y. W. Lam 1448; S. C. Ng 2172; HK sheet 38756.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; Vietnam.

Ecology: Forests and thickets. Flowering: May; fruiting: Oct.–Nov.

Uses: Medicinal (folklore).

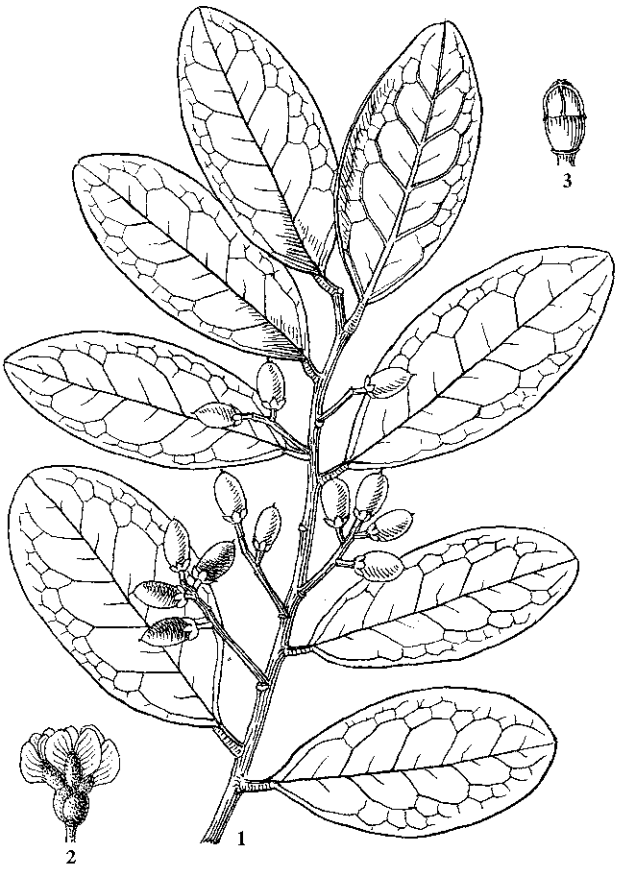


Figure 55. *Erycibe obtusifolia* Benth.
1. fruiting branch; *2.* flower; *3.* pistil. (drawn by H. P. Yu)

3. Evolvulus L. 土丁桂屬

Annual or perennial herbs, subshrubs, or shrubs. Stems erect, scandent, but never twining. Leaves petiolate or sessile; leaf blade small, entire. Flowers 1 to few, pedicellate or sessile in leaf axils; bracts tiny. Sepals distinct, equal or subequal, not enlarged after flowering. Corolla rotate, funnelform, or salverform; limb ± entire to 5-lobed, midpetaline bands often pilose abaxially. Stamens inclusive or exserted; pollen grains not spiny. Disk cupular or absent. Ovary glabrous or pilose, (1–)2-locular; ovules 2 per locule. Styles 2, filiform, distinct or united basally, each 2-cleft; stigma filiform, terete or slightly clavate. Capsule globose or ovoid, usually 2–4-valved. Seeds 1–4, smooth or minutely tuberculate, glabrous.

About 100 species distributed in tropical and subtropical regions throughout the world, mainly in N & S America; two species in China; one species in Hong Kong.

1. Evolvulus alsinoides (L.) L. 土丁桂 **(Fig. 56; Photos 109–110)**

Sp. Pl., ed. 2, 392. 1762; FHK 240. 1861; FKH 181. 1912; FHN 3: 473, fig. 865. 1974; FRPS 64(1): 12, pl. 2: 1–4. 1979; FFJ 4: 477, fig. 381. 1989; FOC 16: 276. 1995; FGD 4: 335, fig. 197. 2000.

Convolvulus alsinoides L., Sp. Pl. 1: 157. 1753.

Evolvulus chinensis Choisy, Mém. Soc. Phys. Genève 8: 77. 1837.

Evolvulus pudicus Hance ex Walp., Ann. Bot. Syst. 3: 115. 1852.

Perennial herb. Stems slender, prostrate or ascending, slender, with appressed and spreading pale yellow hairs. Petiole short, hairy; leaf blade petiolate or subsessile, 1–2 × 0.4–0.9 cm, base rounded or broadly cuneate, apex obtuse or acute, mucronate, appressed pale yellow pubescent on both surfaces, sometimes subglabrous adaxially; lateral veins 3 pairs, slightly prominent abaxially. Cymes 1–few-flowered, pubescent; peduncles filiform, 2.5–3.5 cm; bracts linear-subulate to linear-lanceolate, 1.5–4 mm. Pedicels 2.5–4 mm, hairy. Sepals lanceolate, 2.5–4 mm, villous. Corolla rotate, white, pale blue, sometimes pale purple, 6–10 mm in diam. Stamens inclusive; filaments filiform, adnate to base of corolla tube. Ovary glabrous. Styles 2, distinct. Capsule globose, 4-valved. Seeds 4 or fewer, black, smooth.

Locality: Aberdeen, Tsim Bei Tsui, Castle Peak, Sha Chau, Lamma Island, Lantau Island. *S. P. Lau 129; P. S. Choi 382; Y. S. Lau 1533.*

Distribution: Areas S of Changjiang River; S & SE Asia, E Africa.

Ecology: Sandy soil, dry slopes, maritime areas, grasslands, thickets, roadsides. Flowering & fruiting: May–Nov.

Uses: Medicinal (folklore).

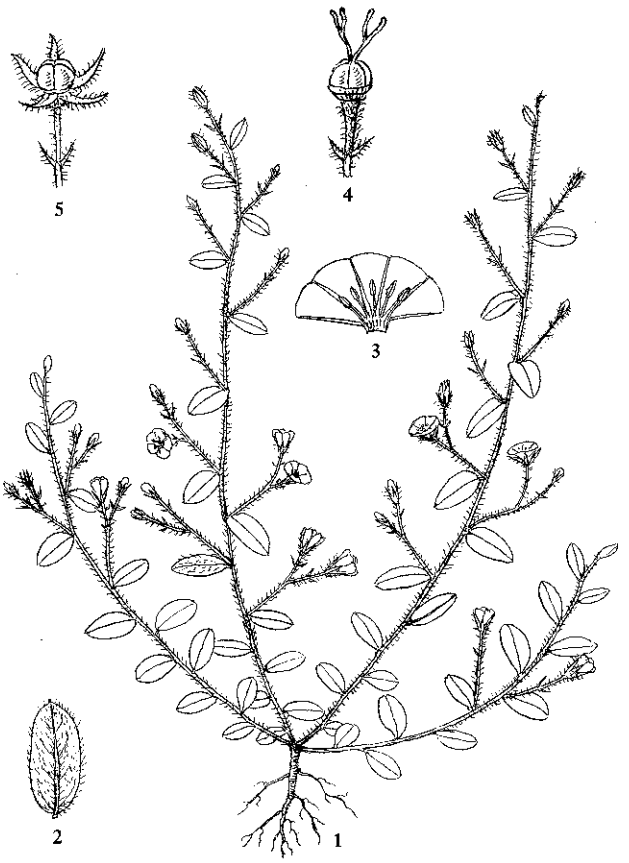


Figure 56. *Evolvulus alsinoides* (L.) L.
1. flowering plant; *2.* leaf; *3.* corolla opened up showing stamens; *4.* pistil; *5.* fruit. (drawn by H. P. Yu)

4. Calystegia R. Br. 打碗花屬

Perennial or annual, prostrate or erect to twining herbs. Leaves subsessile to petiolate, oblong to hastate or sagittate, or rarely pedate. Inflorescences axillary, 1–several-flowered cymes; bracteoles 2, sepal-like, inserted immediately below calyx, ovate and sometimes saccate, enclosing calyx, persistent. Sepals subequal, persistent. Corolla campanulate or funnelform, with 5 distinct midpetaline bands, glabrous. Stamens inclusive, equal. Pollen grains globose, pantoporate, not spiny. Ovary 1-locular or incompletely 2-locular, 4-ovuled. Style 1, inclusive; stigmas 2, clavate. Capsule globose, glabrous, indehiscent. Seeds 4, smooth or minutely tuberculate.

About 70 species distributed in temperate and subtropical regions of the world; six species in China; one species in Hong Kong.

1. Calystegia hederacea Wall. 打碗花(旋花) **(Fig. 57)**
Fl. Ind. 2: 94. 1824; FRPS 64(1): 47. 1979; FFJ 4: 484. 1989; FOC 16: 287. 1995; FGD 4: 339, fig. 201. 2000.

Calystegia hederacea Wall. var. *elongata* Liou & Ling, Fl. Ill. Nord Chine 1: 25, pl. 8, fig. 2. 1931.

Volvulus hederaceus (Wall.) Kuntze, Rev. Gén. Bot. 447. 1891.

Annual herb, glabrous. Stems erect when young, later shoots prostrate or twining, finely striate. Petiole 1–5 cm; basal leaf blade oblong, 2–3(–5.5) × 1–2.5 cm, base hastate, apex rounded, distal leaf blade 3-lobed, middle lobe oblong or oblong-lanceolate, lateral lobes subtriangular, entire or 2–3-lobed. Lower peduncles exceeding leaves, upper peduncles shorter; bracteoles ± ovate, 0.7–1.4(–1.8) cm × (4–)6–10(–12) mm, flat, apex acute to ± obtuse. Corolla pale pink or occasionally whitish or purplish, 2–3.5 cm. Stamens 1.1–1.6(–1.9) cm; anthers 3–4 mm.

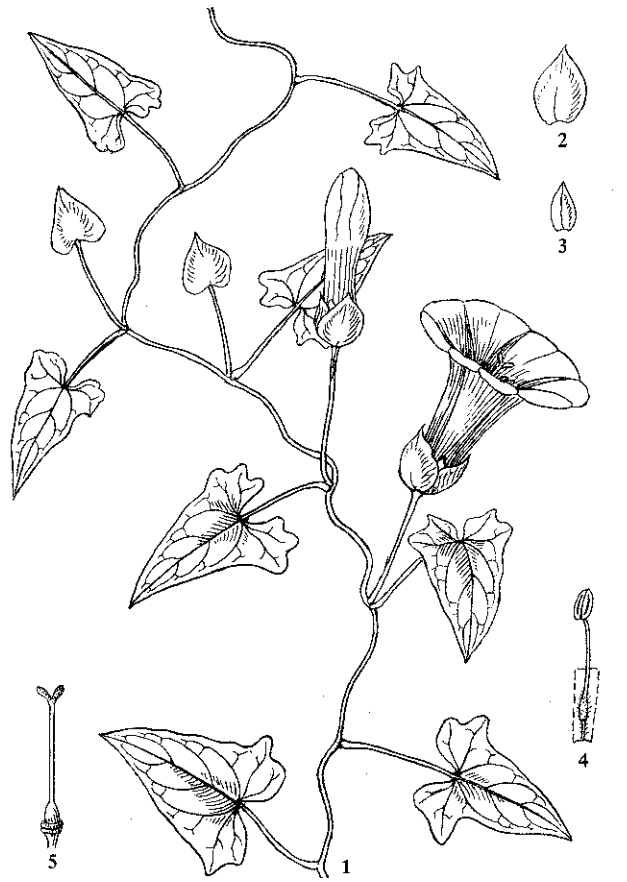


Figure 57. *Calystegia hederacea* Wall.
1. portion of plant; *2.* bract; *3.* sepal; *4.* one of stamens; *5.* pistil. (drawn by H. P. Yu)

Locality: New Territories. *Y. S. Lau 3022.*

Distribution: Widely distributed in China; Afghanistan, India, Japan, Korea, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Russia, Tajikistan, NE Africa, rarely introduced in N America.

Ecology: Wastelands and farmlands. Flowering: Mar.–Sep.; fruiting: Jun.–Sep.

Uses: Medicinal (folklore).

Notes: The species was reported as *Calystegia sepium* (L.) R. Br. previously (Check List HK Plants 222. 2002; 77. 2004).

5. **Hewittia** Wight & Arn. 猪菜藤屬

Twining or prostrate herbs. Leaves petiolate, base usually cordate, margin entire or lobed. Cymes axillary, 1–several-flowered; bracts 2, leaflike, persistent. Sepals 5; outer 3 larger, ovate, slightly enlarged in fruit; inner 2 much smaller. Corolla campanulate or funnelform; limb shallowly 5-lobed. Stamens inclusive; filaments dilated at base; pollen grains not spiny. Disk annular. Pistil inclusive; ovary hairy, 1-locular or imperfectly 2-locular apically, 4-ovuled. Style 1, filiform; stigmas 2, ovate-oblong, complanate. Capsule globose, 4-valved, pilose. Seeds 1–4, smooth.

One species distributed in tropical Africa and Asia; it also occurs in China and Hong Kong.

1. Hewittia malabarica (L.) Suresh
猪菜藤 **(Fig. 58; Photo 111)**

An Interpretation of Van Rheede's Hortus Malabaricus. 88. 1988; FOC 16: 285. 1995; FGD 4: 338, fig. 200. 2000.

Convolvulus malabaricus L., Sp. Pl. 1: 155. 1753.

Convolvulus bicolor Vahl, Symb. Bot. 3: 25. 1794.

Convolvulus bracteatus Vahl, Symb. Bot. 3: 25. 1794.

Convolvulus sublobatus L. f., Suppl. Pl. 135. 1781[1782].

Hewittia bicolor (Vahl) Wight & Arn., Madras J. Lit. Sci. 1(5): 22. 1837.

Hewittia sublobata (L. f.) Kuntze, Revis. Gen. Pl. 2: 441. 1891; FHN 3: 479, fig. 870. 1974; FRPS 64(1): 43, pl. 10: 1–2. 1979; Check List HK Plants 222. 2002; 77. 2004.

Shutereia sublobata (L. f.) House, Bull. Torrey Bot. Club 33: 318. 1906.

Perennial herbaceous herb. Stems twining or prostrate, ± pubescent. Petiole 1–6 cm; leaf blade ovate, 3–10 × 3–8 cm, base cordate, hastate, or truncate, margin entire or 3-lobed, apex acuminate, acute, or mucronate, appressed pilose or subglabrous on both surfaces; basal veins 5. Cymes often 1-flowered; peduncle 1.5–10 cm, pilose; bracts oblong-lanceolate, 0.5–1.5 cm, pubescent. Pedicel 2–4 mm. Sepals unequal, pubescent abaxially; outer 3 broadly ovate, ca. 1.5 cm; inner 2 oblong-lanceolate, smaller, ca. 1.1 cm. Corolla pale yellow or whitish, with a purple center, 2–2.5 cm, midpetaline bands densely pilose. Stamens ca. 9 mm. Ovary villous. Capsule enclosed by persistent calyx, depressed globose, 8–10 mm in diam., pilose, irregularly 4-valved.

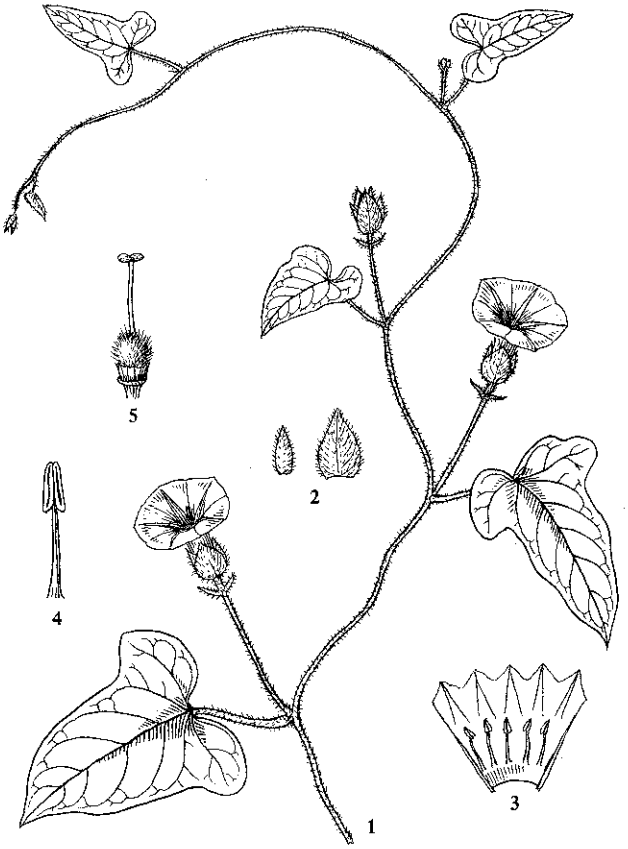


Figure 58. *Hewittia malabarica* (L.) Suresh
1. portion of plant; *2*. sepals; *3*.corolla opened up showing stamens; *4*. one of the stamens; *5*. pistil. (drawn by H. P. Yu)

Locality: Tai Mo Shan, Lantau Island, Cheung Chau, Tai A Chau. *Y. W. Lam 456, 1169, 1183.*

Distribution: Taiwan, Hainan, Guangdong, Guangxi, Yunnan; tropical Africa, tropical Asia.

Ecology: Sandy soil and thickets. Flowering & fruiting: All year round.

6. **Jacquemontia** Choisy 小牽牛屬

Herbs or woody vines, rarely erect, hairy, rarely glabrous. Leaves petiolate, base often cordate, margin entire, rarely dentate or lobed. Inflorescences axillary, often umbelliform or capitate cymes, or solitary flowers; bracts linear, subulate, or leaflike. Sepals equal or unequal. Corolla funnelform or campanulate, with 5 distinct midpetaline bands; limb 5-toothed or subentire. Stamens inclusive; pollen grains globose, not spiny. Disk small or absent. Pistil inclusive; ovary 2-locular; ovules 2 per locule. Style 1, filiform; stigmas 2, elliptic or oblong, flat. Capsule globose, 4- or 8-valved. Seeds 4 or fewer, smooth or minutely papillate, glabrous or velutinous, abaxial edges often with a narrow wing.

About 120 species mainly distributed in N & S America, a few species also in Africa and Asia; one species and one variety in China; one species in Hong Kong.

1. Jacquemontia paniculata (Burm. f.) Hallier f.
小牽牛 **(Fig. 59; Photos 112–113)**

Bot. Jahrb. Syst. 16: 541. 1893; FHN 3: 478, fig. 869. 1974; FTW 4: 380, pl. 1049. 1978; FRPS 64(1): 45, pl. 1: 5–6. 1979; FFJ 4: 485, fig. 387. 1989; FOC 16: 285. 1995; FTW ed. 2, 4: 374, pl. 168. 1998; FGD 4: 340, fig. 202. 2000.

Ipomoea paniculata Burm. f., Fl. Indica 50. 1768.

Convolvulus parviflorus Vahl, Symb. Bot. 3: 29. 1794; FKH 181. 1912.

Convolvulus violaceus Vahl, Symb. Bot. 3: 29. 1794.

Jacquemontia parviflora (Vahl) Roberty, Candollea 14: 32. 1952.

Jacquemontia violacea (Vahl) Choisy, Mém. Soc. Phys. Genève 8(1): 61. 1838; FHK 239. 1861.

Twining herb. Stems slender, terete, stellate-pubescent when young, glabrescent. Petiole 1–5 cm, stellate-pubescent; leaf blade ovate or ovate-oblong, 3.5–7 cm, base cordate to truncate, apex acuminate, mucronulate, rarely acute or obtuse, ± stellate-pubescent or subglabrous on both surfaces. Inflorescences umbelliform-cymose, loose to dense, several–many-flowered; peduncle 1–6 cm; bracts subulate, ca. 2 mm. Pedicel 3–6 mm, pubescent. Sepals unequal, stellate-pubescent on both surfaces; outer 3 ovate to ovate-lanceolate, ca. 6 mm; inner 2 smaller, ovate. Corolla pale purple or red, funnelform, 1–1.2 cm; limb shallowly 5-lobed. Ovary glabrous. Style filiform, ca. 8 mm; stigmas 2, oblong. Capsule globose, 3–4 mm in diam., 8-valved, glabrous. Seeds 1.5–2 mm, minutely tuberculate, glabrous, edges narrowly winged.

Locality: Common in Hong Kong. *Y. S. Lau 758, 2961; Y. W. Lam 1131.*

Distribution: Guangdong, Guangxi, Yunnan, Taiwan; tropical Asia, tropical E Africa, Madagascar, Australia.

Ecology: Thickets, roadsides, often dry soils. Flowering & fruiting: Feb.–Dec.

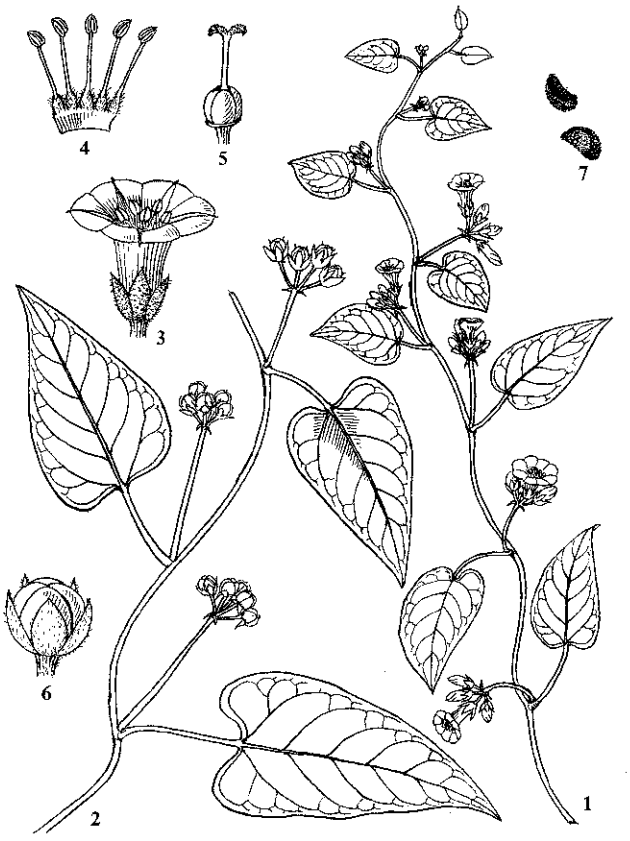


Figure 59. *Jacquemontia paniculata* (Burm. f.) Hallier f.
1. flowering branch; *2.* fruiting branch; *3.* flower; *4.* stamens; *5.* pistil; *6.* fruit; *7.* seed. (drawn by H. P. Yu)

7. Argyreia Lour. 銀背藤屬

Vines or scandent shrubs. Stems herbaceous or woody at base. Leaves petiolate, variable in shape, entire, sometimes silvery sericeous abaxially. Inflorescences several–many-flowered, axillary, rarely terminal, in loose or compact cymes; bracts small or large, persistent or caducous. Sepals persistent, herbaceous or ± leathery, variable in shape and size, pubescent abaxially, ± enlarged and reflexed in fruit. Corolla purple, red, pink, or white, campanulate, funnelform, or tubular; limb subentire to deeply 5-lobed, with 5 distinct, mostly pubescent midpetaline bands. Stamens inserted near base of corolla, inclusive or exserted; filaments filiform, dilated at base; pollen grains globose, spiny. Disk annular or cupular, entire or shallowly 5-lobed. Ovary 2- or 4-locular, 4-ovuled, pubescent or glabrous. Style 1, filiform, inclusive or exserted; stigma capitate, 2-lobed or 2-globular. Berry red or orange, globose or ellipsoidal; pericarp fleshy or leathery. Seeds 4 or fewer, glabrous, rarely pilose at hilum.

About 90 species mainly distributed in tropical Asia, few species in Pacific islands; 22 species in China; three native and one cultivated species in Hong Kong.

1a. Corolla deeply 5-lobed; stamens exserted; leaf blade usually silvery sericeous abaxially ..... 1. *A. acuta*
1b. Corolla entire or shallowly lobed; stamens inclusive; leaf blade pubescent or pilose abaxially.
2a. Bracts persistent; leaves and inflorescences hirsute ..... 2. *A. capitiformis*
2b. Bracts early deciduous; leaves and inflorescences pubescent or pilose.
3a. Leaf blade densely pale yellow pubescent abaxially; peduncle 2.5–3.5 cm; corolla 4–5 cm ..... 3. *A. mollis*
3b. Leaf blade densely white or greyish white pilose; peduncle to 20 cm; corolla ca. 6 cm ..... 4. *A. nervosa*

1. Argyreia acuta Lour. 白鶴藤 **(Fig. 60)**

Fl. Cochinch. 135. 1790; FGZ 588. 1956; FHN 3: 494, fig. 878. 1974; FRPS 64(1): 135. 1979; FOC 16: 320. 1995; FGD 4: 342, fig. 203. 2000.

Lettsomia chalmersii Hance, J. Bot. 16(188): 230. 1878.

Twining vine. Stems terete, densely silvery sericeous when young, later yellowish or glabrescent. Petiole 3–4(–6) cm; leaf blade elliptic, ovate or suborbicular, 5–12 × 3–8(–11) cm, base rounded, slightly cordate, or truncate, adaxially glabrous, abaxially firmly

appressed silvery sericeous. Cymes many-flowered, axillary or terminal; peduncle 3.5–7 cm, silvery sericeous; bracts elliptic or obovate, 0.8–2.2 cm, silvery sericeous abaxially, deciduous. Pedicel ca. 5 mm. Sepals ovate-oblong, unequal; outer ones 9–12 mm; inner ones 6–7 mm, silvery apex obtuse, sericeous abaxially. Corolla white, funnelform, ca. 2.8 cm, silvery sericeous abaxially; limb deeply 5-lobed; lobes oblong, 1.5 mm, apex emarginate, midpetaline bands slivery sericeous. Stamens exserted; filaments hairy at base. Pistil exserted; ovary glabrous, 2-locular. Berry enclosed by enlarged calyx, red, globose, ca. 8 mm in diam. Fruiting sepals leathery, red inside. Seeds 2–4, brown, ovoid-trigonous, ca. 5 mm.

Locality: Victoria Peak. *HK sheet 33906.*

Distribution: Hainan, Guangdong, Guangxi; India, Vietnam, Laos.

Ecology: Thin forests and thickets. Flowering: Aug.–Oct.; fruiting: Oct.–Jan. of the following year.

Uses: Medicinal (folklore).



Figure 60. *Argyreia acuta* Lour.
1. fruiting branch; *2.* flower; *3.* one of the stamens; *4.* pistil. (drawn by H. P. Yu)

2. Argyreia capitiformis (Poir.) Ooststr. 頭花銀背藤

Fl. Malesiana, ser. 1. 6(6): 941. 1972; FOC 16: 317. 1995.

Convolvulus capitiformis Poir., Encycl. Suppl. 3: 469. 1814.

Convolvulus capitatus Vahl, Symb. Bot. 3: 28. 1794

Argyreia capitata (Vahl) Choisy, Mém. Soc. Phys. Genève 6: 423. 1833; FHN 3: 494. 1974; FRPS 64(1): 129. 1979; FGD 4: 342. 2000; Check List HK Plants 221. 2002; 77. 2004.

Argyreia verrucosohispida Y. Y. Qian, Guihaia 11(3): 211, fig. 2. 1991.

Ipomoea capitata (Vahl) Roem. & Schult., Syst. Veg. 4: 238. 1819

Lettsomia capitata (Vahl) Benth. & Hook. f., Gen. Pl. 2(2): 870. 1876.

Lettsomia capitiformis (Poir.) Kerr, Fl. Siam. 3(2): 30. 1954.

Lettsomia strigosa Roxb., Fl. Ind., ed. 1832, 1: 491. 1832; FKH 178. 1912.

Scandent shrub, 10–15 m tall. Stems spreading brown hirsute. Petiole 3–10 cm; leaf blade papery, ovate to suborbicular, rarely oblong, 7–18 × 4–13 cm, base cordate, apex acute or acuminate, dull yellow hirsute on both surfaces. Cymes capitate, dense, many-flowered; peduncle 6–15 cm, spreading hirsute; bracts persistent, elliptic to lanceolate, 1.5–4 cm, both ends acute, hirsute abaxially. Pedicel short or absent. Sepals long-ovate to broadly lanceolate, apex acuminate, densely hirsute abaxially, outer 3 sepals ca. 1.5 cm, inner 2 sepals 1–1.2 cm. Corolla pink to reddish purple, funnelform, 4–5 cm, hirsute abaxially; limb shallowly lobed or subentire. Stamens and pistil inclusive; filaments ca. 1.5 cm, glandular pilose basally. Ovary ovoid, glabrous, 2-locular. Berries orange-red, globose, ca. 8 mm in diam. Seeds 4 or fewer, ovoid-trigonous, ca. 7 mm.

Locality: Castle Peak, Shek Kong, Lam Tsuen. *L. Gibbs 7651; Y. S. Lau 2409, 3076.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan; India, Myanmar, Thailand, Vietnam, Laos, Cambodia, to Malay Peninsula, Indonesia.

Ecology: Forests or thickets. Flowering: Sep.–Dec.; fruiting: Feb.

Uses: Medicinal (folklore).

3. Argyreia mollis (Burm. f.) Choisy 銀背藤 **(Photos 114–115)**

Mém. Soc. Phys. Genève. 6: 421. 1833; FOC 16: 315. 1995.

Convolvulus mollis Burm. f., Fl. Indica 44, t. 17. 1768.

Argyreia championii Benth., FHK 236. 1861.

Argyreia obtecta (Choisy) C. B. Clarke, Fl. Brit. India 4(10): 186. 1883.

Lettsomia championii (Benth.) Benth. & Hook. f., Gen. Pl. 2: 879. 1876; FKH 178. 1912.

Argyreia obtusifolia auct. non Lour.: FHN 3: 494. 1974; FRPS 64(1): 120. 1979; FGD 4: 341. 2000; Check List HK Plants 221. 2002; 77. 2004.

Large twining vine, to 10 m tall. Stems densely pubescent when young. Petiole 1.5–4 cm, pubescent; leaf blade elliptic to oblong, 7–11 × 2.5–7 cm, base broadly cuneate or rotund, apex shortly acuminate, acute or obtuse, adaxially sparsely strigose or glabrous, abaxially densely pale yellow pubescent. Cymes (1–)5–7-flowered. Peduncle 2.5–3.5 cm, densely pale yellow pubescent; bracts caducous, ovate, ca. 5 mm. Pedicel 0.5–1.5 cm. Sepals unequal, densely firmly appressed pubescent abaxially, enlarged in fruit; outer 2 broadly elliptic, 8–10 mm; inner 3 oblong, slightly shorter. Corolla pale red or pale purple, broadly campanulate, 4–5 cm, midpetaline

bands appressed pubescent abaxially; limb ± entire or slightly lobed. Stamens and pistil inclusive; filaments pilose at base. Ovary glabrous, 4-locular. Berry red or orange-red, subglobose, 0.8–1 cm in diam. Seeds 4 or fewer, black, ca. 5 mm.

Locality: Glenealy, Victoria Peak, Castle Peak, Plover Cove, Lantau Island. *S. T. Dunn 5147; H. C. Tang 2158; Y. S. Lau 1310.*

Distribution: Hainan, Guangdong; Vietnam, Laos, Cambodia, Thailand, Myanmar, Malay Peninsula.

Ecology: Dense forests. Flowering & fruiting: Sep.–Feb. of the following year.

Uses: Medicinal (folklore).

Notes: *Convolvulus sericeus* L. (Mant. Pl. 43. 1767) was included in the synonymy of this species. If *Convolvulus sericeus* L. is conspecific with this species, a new combination should be made.

4. Argyreia nervosa (Burm. f.) Bojer 美麗銀背藤 **(Photo 116)**

Hortus Maurit. 224. 1837; FRPS 64(1): 123, pl. 29: 2–3. 1979; FGD 4: 341. 2000.

Convolvulus nervosus Burm. f., Fl. Indica 48, pl. 20, fig. 1. 1768.

Argyreia speciosa (L. f.) Sweet, Hort. Brit. 289. 1827; FKH 178. 1912.

Lettsomia nervosa (Burm. f.) Roxb., Fl. Ind., ed. 1820, 2: 78. 1824.

Rivea nervosa (Burm. f.) Hallier f., Bull. Herb. Boissier 5: 381. 1897.

Vine. Stems densely white pubescent when young, glabrescent. Petiole shorter than or as long as leaves, tomentose; leaf blade ovate to orbicular, 10–30 × 8–25 cm, base cordate, apex acute or obtuse, glabrous adaxially, white or greyish white pubescent abaxially. Cymes many-flowered. Peduncle to 20 cm or longer, tomentose. Bracts large, ovate to elliptic, caducous. Pedicels short, angular. Sepals subequal, ovate to broadly ovate, 1.5–2 cm, apex obtuse or acute, tomentose abaxially. Corolla pink, tubular-funnelform, ca. 6 cm; limb shallowly lobed, midpetaline bands pubescent. Stamens and pistil inclusive; filaments pilose at base. Ovary glabrous, 4-locular. Berries subglobose, 1–1.5 cm.

Locality: Green Island (probably cultivated). *Y. W. Lam 1211; F. W. Xing 9491.*

Distribution: Guangdong; India, Bengaladesh, Indonesia, Malaysia.

Ecology: Flowering: Sep.; fruiting: Nov.

Uses: Ornamental.

8. Operculina Silva Manso 盒果藤屬

Twining herbs; stems, peduncles, and petioles often winged. Leaves petiolate, base often cordate. Cymes axillary, 1–several-flowered; bracts large, caducous. Sepals often enlarged in fruit, margin becoming irregularly lacerate. Corolla funnelform or campanulate, glabrous or midpetaline bands pubescent abaxially. Stamens inclusive; filaments filiform; anthers often spirally twisted at dehiscence; pollen not spiny. Disk annular. Ovary glabrous, 2-locular, 2 ovules per locule. Style filiform, inclusive; stigma 2-globose. Capsules compressed globose, circumscissile in or above middle, ± fleshy, separating from papery endocarp; pericarp split irregularly. Seeds 2–4, dull black, trigonous or globular, glabrous or angles pilose.

About 15 species distributed worldwide in the tropics; one species in China; it also occurs in Hong Kong.

1. Operculina turpethum (L.) Silva Manso 盒果藤 **(Fig. 61)**

Enum. Subst. Bras. 16. 1836; FHN 3: 484, fig. 873. 1974; FRPS 64(1): 80. 1979; FOC 16: 300. 1995; FGD 4: 344, fig. 205. 2000.

Convolvulus turpethum L., Sp. Pl. 1: 155. 1753.

Ipomoea turpethum (L.) R. Br., Prodr. 485. 1810; FKH 180. 1912.

Merremia turpethum (L.) Rendle, Fl. Trop. Afr. 4: 102. 1905.

Spiranthera turpethum (L.) Bojer, Hortus Maurit. 226. 1837.

Perennial herbaceous vine, to 4 m. Stems reddish, narrowly 3–5-winged, ± angular, sparsely pilose or glabrous. Petiole 2–10 cm, often winged; leaf blade papery, broadly ovate to ovate-oblong, 5–17 × 3.5–14 cm, base cordate, truncate or obtuse, apex acute or obtuse, mucronulate, margin entire or undulate, adaxially appressed pilose to glabrous, abaxially pubescent. Cymes often 2-flowered. Peduncles 3–5 cm or longer. Bracts 2, oblong to ovate-oblong, 1–2.5 cm, concave, pubescent. Pedicel 1.5–2 cm, striate-angular, clavate, to 4 cm in fruit, pubescent. Sepals ovate to broadly ovate, unequal; outer 2 sepals 1.5–2 cm, abaxially

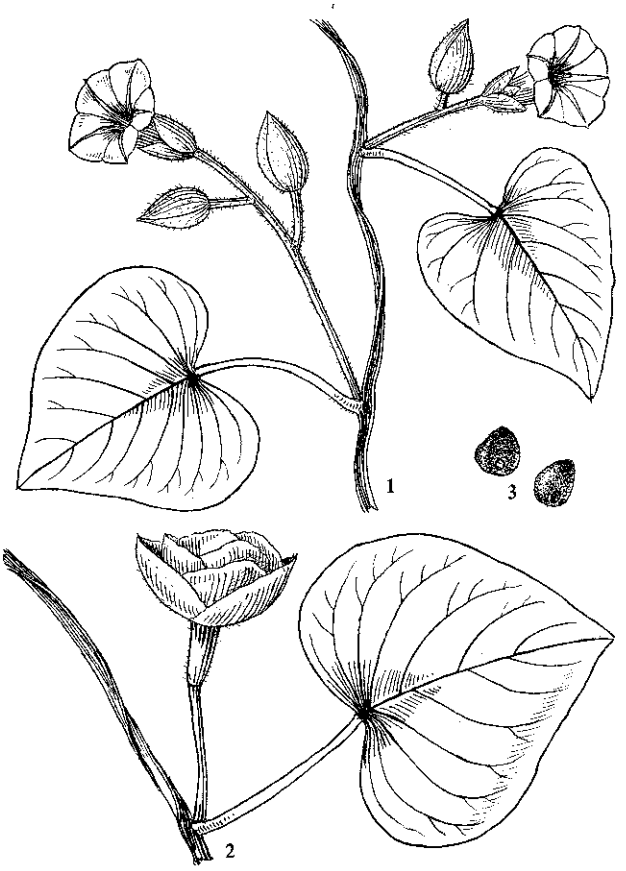


Figure 61. *Operculina turpethum* (L.) Silva Manso
1. flowering branch; *2.* fruiting branch; *3.* seeds. (drawn by H. P. Yu)

pubescent; inner 3 shorter, subglabrous. Corolla white, broadly funnelform, ca. 4.5 cm, glabrous; limb 5-lobed. Filaments pubescent at base. Fruit enclosed in cupular calyx, compressed globose, ca. 1.5 cm in diam. Seeds dull black, ovoid-trigonous, ca. 6 mm, glabrous.

Locality: Fung Yuen, Luk Keng, Ping Chau. *L. T. Lo 249; Y. S. Lau 2874; Y. W. Lam 1139.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Taiwan; tropical E Africa, Mascarene Islands, Seychelles, tropical Asia, tropical Australia, Polynesia, Antilles.

Ecology: Thickets, grassy fields, roadsides. Flowering & fruiting: All year round.

Uses: Medicinal (folklore).

9. Ipomoea L. 番薯屬

Herbs or shrubs, often twining, sometimes prostrate, erect, or floating. Leaves petiolate, entire, lobed, or divided. Inflorescences mostly axillary, cymose, 1–many-flowered, rarely paniculate. Bracts various. Flowers small to large. Sepals persistent, equal to unequal, ± enlarged in fruit. Corolla variously coloured, rarely yellow, funnelform, campanulate, or salverform; limb 5-lobed to entire, midpetaline bands well defined. Stamens inclusive or exserted; filaments filiform, usually unequal, dilated and pubescent at base; anthers ovate or linear, longitudinally dehiscent, not twisted; pollen grains globular, finely spiny. Disk annular. Ovary 2–4-locular, 4- or 6-ovuled. Style 1, filiform, inclusive or exserted; stigma capitate, or 2- or 3-globular. Capsule globose or ovoid, 4- or 6-valved. Seeds 4(–6) or fewer, glabrous or pubescent.

About 500 species widely distributed in tropical to warm temperate regions, especially of N & S America; 29 species in China; 17 species in Hong Kong.

In addition to the species described, *Ipomoea horsfalliae* Hook. (王子薯) and *I. coccinea* L. (橙紅蕊蘿) are occasionally cultivated in Hong Kong.

1a. Erect shrubs ..... 1. *I. carnea* subsp. *fistulosa*
1b. Twining or prostrate herbs.
  2a. Leaf blade pinnately parted ..... 2. *I. quamoclit*
  2b. Leaf blade entire, lobed or palmately parted.
    3a. Leaf blade palmately parted or divided.
      4a. Leaf blade palmately 5–7-parted to base ..... 3. *I. cairica*
      4b. Leaf blade usually palmately (3–)5–7(–9)-divided to or beyond middle, rarely entire or shallowly lobed ..... 4. *I. mauritiana*
    3b. Leaf blade entire or lobed.
      5a. Prostrate herbs.
        6a. Stems hollow ..... 5. *I. aquatica*
        6b. Stems not hollow.
          7a. Cultivated plants; root tuberous ..... 6. *I. batatas*
          7b. Wild plants on beaches; root not tuberous.
            8a. Leaf blade larger, ovate, elliptic, orbicular or reniform, 3.5–9 × 3–10 cm, margin entire, abaxially with two glands near midvein at base ..... 7. *I. pes-caprae*
            8b. Leaf blade smaller, variable in shape, often linear, lanceolate, oblong, or ovate, 1.5–3 × 0.8–2 cm, margin entire, undulate, or 3–5-lobed, abaxially without glands ..... 8. *I. imperati*
      5b. Twining herbs.
        9a. Stamens and styles exserted ..... 9. *I. alba*
        9b. Stamens and styles inclusive.
          10a. Ovary 3-locular.
            11a. Stems, leaf blade and sepals appressed pubescent ..... 10. *I. indica*
            11b. Stems, leaf blade and sepals retrorse hirsute or pubescent.
              12a. Leaf blade often 3-lobed; outer sepals narrowly lanceolate, 2–2.5 cm ..... 11. *I. nil*
              12b. Leaf blade often entire; outer sepals long elliptic, 1.1–1.6 cm ..... 12. *I. purpurea*
          10b. Ovary 2-locular.
            13a. Leaf blade auriculate or sagittate at base ..... 13. *I. fimbriosepala*
            13b. Leaf blade cordate at base.
              14a. Corolla white or pale yellow.
                15a. Leaf blade heart-shaped or triangular-heart-shaped, 3–9 × 2–7 cm, hirsute-villous on both surfaces ..... 14. *I. biflora*
                15b. Leaf blade broadly ovate to suborbicular, occasionally reniform, 2–8 × 1.5–8 cm, subglabrous, sometimes ciliolate ..... 15. *I. obscura*
              14b. Corolla pink or purple.
                16a. Stems slender, retrorse hispid-pilose; leaf blade entire, sparsely appressed pubescent. ..... 16. *I. pileata*
                16b. Stems glabrous or nodes sparsely pubescent; leaf blade coarsely dentate to deeply 3-lobed, or entire, glabrous or sparsely pilose ..... 17. *I. triloba*

1. Ipomoea carnea Jacq. subsp. **fistulosa** (Mart. ex Choisy) D. F. Austin 樹牽牛

Taxon 26(2–3): 237. 1977; FOC 16: 311. 1995; FTW ed. 2, 4: 361. 1998.

Ipomoea fistulosa Mart. ex Choisy, Prodr. 9: 349. 1845; FRPS 64(1): 101. 1979; FFJ 4: 494. 1989; FGD 4: 351. 2000; Check List HK Plants 223. 2002; 77. 2004.

Batatas crassicaulis Benth., Bot. Voy. Sulphur 134. 1845.

Ipomoea crassicaulis (Benth.) B. L. Rob., Proc. Amer. Acad. Arts 51(10): 530. 1916; FTW 4: 364. 1978.

Shrub, 1–3 m. Branches terete or angular, stout, solid or hollow, pubescent when young. Petiole 2.5–15 cm; leaf blade ovate or ovate-oblong, 6–25 × 4–18 cm, base cordate or truncate, apex acuminate, mucronulate, margin entire, adaxially subglabrous, pubescent abaxially; midvein 2-glandular abaxially at base. Cymes several-flowered. Peduncle stout, 5–10 cm. Bracts caducous, small, ovate. Pedicel 1–1.5 cm, pubescent. Sepals ovate, thinly leathery, equal or inner ones longer, 5–6 mm, abaxially puberulent, often with glands alternating to sepals at base. Corolla pink, darker inside, funnelform, 7–9 cm; tube and midpetaline bands pilose abaxially. Stamens inclusive; filaments unequal. Pistil inclusive; ovary puberulent. Style puberulent at base. Capsule pale brown, ovoid, 1.5–2 cm, 4-valved, apiculate. Seeds black, ca. 1 cm, brown sericeous-pubescent.

Locality: Cultivated. *L. T. Lo 284; Y. S. Lau 2770, 2844.*

Distribution: Taiwan, Fujian, Hainan, Guangdong, Guangxi; native to tropical America, widely cultivated in tropical regions of the world.

Ecology: Flowering: All year round.

Uses: Ornamental.

2. Ipomoea quamoclit L. 蔦蘿松 **(Fig. 62; Photo 117)**

Sp. Pl. 1: 159. 1753; FTW 4: 337. 1978; FTW ed. 2, 4: 371. 1998.

Convolvulus pennatus Desr., Encycl. 3: 567. 1791.

Quamoclit pennata (Lam.) Bojer, Hort. Maurit. 224. 1837; FHN 3: 492, fig. 876. 1974; FRPS 64(1): 110, pl. 23: 1. 1979; FFJ 4: 498, fig. 398. 1989; FGD 4: 359, fig. 211. 2000; Check List HK Plants 225. 2002; 78. 2004.

Annual twining slender herb, glabrous throughout. Petiole 1–4 cm; leaf blade ovate to oblong in outline, 2–10 cm, pinnately parted; segments 10–18 pairs, linear, basal one pair often 2-lobed. Cymes 1–several-flowered. Peduncle 1.5–10 cm. Bracts small, triangular, deciduous. Pedicel 1–2 cm, clavate in fruit. Sepals slightly unequal, elliptic, 4–6 cm, apex obtuse, apiculate. Corolla bright red, rarely white, salverform, ca. 3.5 cm; limb 5-lobed, lobes nearly triangular. Capsule ovoid, 6–7 mm, glabrous. Seeds elliptic, black.

Locality: Cultivated. *L. T. Lo 136.*

Distribution: Widely cultivated in China; native to S America, widely cultivated in tropical and temperate regions of the world.

Ecology: Flowering: Nearly all year round.

Uses: Ornamental.

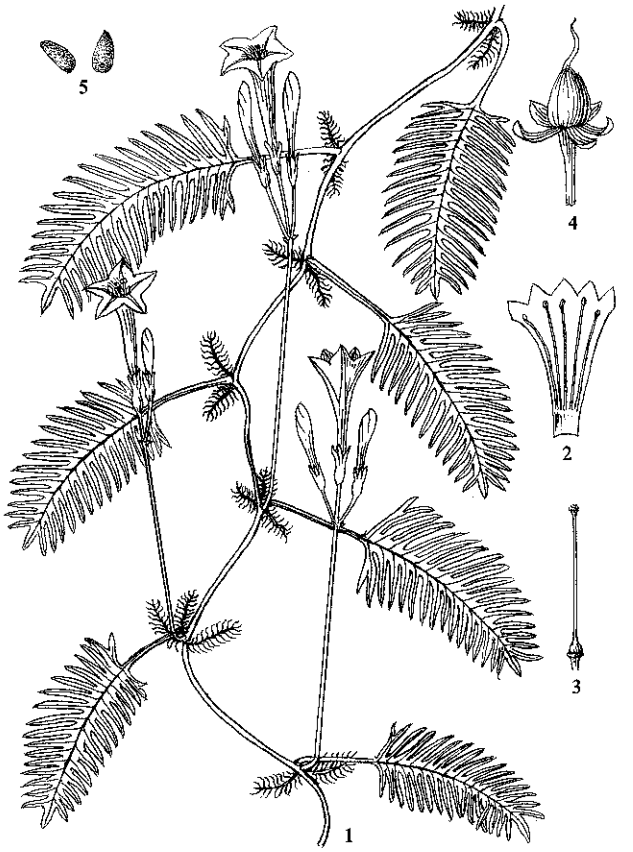


Figure 62. *Ipomoea quamoclit* L.
1. portion of plant; *2.* corolla opened up showing stamens; *3.* pistil; *4.* fruit; *5.* seeds. (drawn by H. P. Yu)

3. Ipomoea cairica (L.) Sweet 五爪金龍 **(Photo 118)**

Hort. Brit., ed. 1, 287. 1827; FGZ 586, fig. 312. 1956; FHN 3: 489, fig. 874. 1974; FTW 4: 364, pl. 1040. 1978; FRPS 64(1): 97. 1979; FFJ 4: 494, fig. 394. 1989; FOC 16: 309. 1995; FTW ed. 2, 4: 358, pl. 160, photos 209–210. 1998; FGD 4: 353, fig. 208. 2000.

Convolvulus cairicus L., Syst. Nat. (ed. 10) 2: 922. 1759.

Ipomoea palmata Forssk., Fl. Aegypt.-Arab. 43. 1775; FKH 181. 1912.

Perennial twining herb with a tuberous root, glabrous throughout. Stems often tuberculate. Petiole 2–8 cm, base with leafy pseudostipules; leaf blade palmately 5–7-parted to base; lobes ovate, ovate-lanceolate or elliptic, apex acute or obtuse, mucronulate, entire or minutely undulate, basal pair usually again lobed or parted; middle lobe larger, 3–9 cm. Cymes 1–several-flowered. Peduncle 1.5–2.5 cm. Bracts and bracteoles caducous, small. Pedicel 2.5–3 cm. Sepals equal or the outer ones slightly shorter, 6–7 mm, abaxially ± verruculose. Corolla pink, purple, or reddish purple, with a darker center, funnelform, 5–7 cm. Stamens inclusive, unequal. Capsule ± globose, ca. 1 cm. Seeds black, ca. 5 mm, densely tomentose, margin with longer hairs.

Locality: Common in Hong Kong. *Y. S. Lau 1592, 2388; L. T. Lo 188.*

Distribution: Taiwan, Fujian, Hainan, Guangdong, Guangxi, Yunnan; widely distributed in tropical regions of the world.

Ecology: Thickets, wastelands, sunny slopes. Flowering: Nearly all year round.

Uses: Medicinal (folklore), weed.

4. Ipomoea mauritiana Jacq. 七爪龍 **(Photo 119)**

Collectanea 4: 216. 1791; FOC 16: 310. 1995; FTW ed. 2, 4: 363, photo 215. 1998.

Ipomoea digitata auct. non L.: FKH 181. 1912; FGZ 587. 1956; FHN 3: 489. 1974; FTW 4: 366. 1978; FRPS 64(1): 99. 1979; FFJ 4: 489. 1989; FGD 4: 354. 2000.

Perennial twining herb with tuberous roots, glabrous throughout. Stems to 10 m, thinly angular. Petiole 3–11 cm; leaf blade orbicular in outline, usually palmately (3–)5–7(–9)-divided to or beyond middle, rarely entire or shallowly lobed, 5–18 cm, base cordate or truncate; segments lanceolate or elliptic, apex acuminate or acute, mucronulate, entire or irregularly undulate. Cymes several–many-flowered. Peduncle 3–10 cm. Bracts caducous, triangular, 3–6 mm. Pedicel 1–2.5 cm. Sepals broadly ovate, thinly leathery, equal or outer 2 shorter, 7–12 mm, glabrous, apex obtuse. Corolla pink or reddish purple, with a darker center, campanulate, 5–6 cm; limb 5–7 cm in diam., undulate. Stamens and styles inclusive. Capsule ovoid, 1.2–1.4 cm, 2-locular, 4-valved. Seeds dark brown, ca. 6 mm, densely woolly-sericeous.

Locality: Common in Hong Kong. *Y. S. Lau 1440, 2001; S. P. Lau 165.*

Distribution: Taiwan, Fujian, Hainan, Guangdong, Guangxi, Yunnan; tropical regions of the world.

Ecology: Thickets and wastelands. Flowering: May–Oct.

Uses: Medicinal (folklore), weed.

Notes: The species was reported as *Ipomoea digitata* L. previously (Check List HK Plants 223. 2002; 77. 2004), which is endemic to West Indies and does not occur in Asia.

5. Ipomoea aquatica Forssk. 蕹菜 **(Photo 120)**

Fl. Aegypt.-Arab. 44. 1775; FKH 180. 1912; FHN 3: 487. 1974; FTW 4: 363. 1978; FRPS 64(1): 94. 1979; FFJ 4: 492, fig. 393. 1989; FOC 16: 307. 1995; FTW ed. 2, 4: 357. 1998; FGD 4: 354. 2000.

Convolvulus repens Vahl, Symb. Bot. 1: 17. 1790.

Ipomoea repens Roth, Nov. Pl. Sp. 110. 1821.

Ipomoea reptans Poir., Encycl. Suppl. 3: 460. 1814; FGZ 587, fig. 313. 1956.

Annual terrestrial and repent or floating herb. Stems terete, thick, hollow, rooting at nodes, glabrous. Petiole 3–14 cm, glabrous; leaf blade variable in shape, ovate, ovate-lanceolate, oblong, or lanceolate, 3.5–17 × 0.9–8.5 cm, base cordate, sagittate or hastate, occasionally truncate, apex acute or acuminate, margin entire or undulate, glabrous or rarely pilose. Cymes 1–3(–5)-flowered. Peduncle 1.5–9 cm. Bracts squamiform, 1.5–2 mm. Pedicel 1.5–6 cm. Sepals subequal, ovate, ca. 9 mm, apex obtuse, glabrous. Corolla white, pink, or lilac, with a darker center, funnelform, 3.5–5 cm, glabrous. Stamens unequal, inclusive. Pistil inclusive; ovary conical, glabrous. Stigma 2-lobed. Capsule ovoid to globose, ca. 1 cm in diam., tardily dehiscent; pericarp soft leathery. Seeds densely yellowish brown pubescent, sometimes glabrous.

Locality: Cultivated. *Y. S. Lau 2956; L. T. Lo 579; Y. W. Lam 1162.*

Distribution: Widely cultivated in the tropics.

Ecology: Flowering & fruiting: Sep.–Feb. of the following year.

Uses: Vegetable.

Notes: Based on growing conditions (terrestrial vs. aquatic) and the colour of plant and flower (greenish plants with white flowers vs. purplish tinged plants with lilac flowers), several races without formal taxonomic designation are recognized.

6. Ipomoea batatas (L.) Lam. 番薯 **(Photo 121)**

Encycl. 2: 465. 1793; FKH 180. 1912; FHN 3: 486. 1974; FTW 4: 363. 1978; FRPS 64(1): 89. 1979; FFJ 4: 493. 1989; FOC 16: 306. 1995; FTW ed. 2, 4: 357. 1998; FGD 4: 353. 2000.

Convolvulus batatas L., Sp. Pl. 1: 154. 1753.

Batatas edulis (Thunb. ex Murray) Choisy, Convolv. Orient. 53. 1833.

Convolvulus candicans Sol. ex Sims, Bot. Mag. 39: pl. 1603. 1813.

Convolvulus edulis Thunb. ex Murray, Syst. Veg. (ed. 14) 203. 1784.

Ipomoea batatas var. *edulis* (Thunb. ex Murray) Makino, Fl. Japan 476. 1927.

Ipomoea edulis (Thunb. ex Murray) Makino, Somoku-Dzusetsu 4: pl. 25. 1903.

Ipomoea fastigiata (Roxb.) Sweet, Hort. Brit. 1: 288. 1826.

Annual herb with ellipsoidal, fusiform, or elongate subterranean tubers; sap milky. Stems prostrate or ascending, green or purplish, much branched, rooting at nodes, glabrous or pilose. Petiole 2.5–20 cm; leaf blade broadly ovate to orbicular, 4–13 × 3–13 cm, margin entire or palmately 3–5(–7)-lobed, herbaceous; lobes broadly ovate to linear-lanceolate, sparsely pilose or glabrous. Cymes (1–)3–7-flowered. Peduncle 2–10.5 cm, stout, angular. Bracts caducous, lanceolate, 2–4 mm. Pedicel 2–10 mm. Sepals ± unequal, oblong or elliptic, apex acute, mucronulate, margin ciliate, glabrous or pilose abaxially; outer 2 sepals 0.7–1 cm, inner 3 sepals 0.8–1.1 cm. Corolla pink, white, pale purple to purple, with a darker center, campanulate to funnelform, 3–4 cm, glabrous. Stamens inclusive. Pistil inclusive; ovary pubescent or glabrous.

Locality: Cultivated. *Y. S. Lau 2849; HK sheet 9363, 19756.*

Distribution: Widely cultivated in tropical and subtropical regions.

Ecology: Flowering: Oct.–Dec.

Uses: Food.

7. Ipomoea pes-caprae (L.) R. Br.
厚藤(海灘牽牛) **(Fig. 63; Photos 122–123)**

Narr. Exped. Zaire. 477. 1818; FHK 238. 1861; FHN 3: 488. 1974; FRPS 64(1): 96. 1979; FFJ 4: 495, fig. 395. 1989; FOC 16: 308. 1995; FGD 4: 352. 2000.

Convolvulus pescaprae L., Sp. Pl. 1: 159. 1753.

Convolvulus bilobatus Roxb., Fl. Ind., (ed. 1820) 2: 73. 1824.

Convolvulus brasiliensis L., Sp. Pl. 1: 159. 1753.

Convolvulus maritimus Desr., Encycl. 3(2): 550–551. 1792.

Ipomoea biloba Forssk., Fl. Aegypt.-Arab. 44. 1775; FKH 180. 1912.

Ipomoea maritima (Desr.) R. Br., Prodr. 486. 1810.

Ipomoea pes-caprae var. *emarginata* Hallier f., Bull. Soc. Roy. Bot. Belgique 37: 332. 1898.

Ipomoea pes-caprae subsp. *brasiliensis* (L.) Ooststr., Blumea 3(3): 533. 1940; FTW 4: 371, pl. 1043. 1978; FTW ed. 2, 4: 367, pl. 164, photo 218. 1998.

Perennial prostrate herb, with a thick tap root, glabrous throughout. Stems 5–30 m, pale red. Petiole 2–10 cm; leaf blade thickly papery, ovate, elliptic, orbicular or reniform, 3.5–9 × 3–10 cm, base broadly cuneate, truncate, or shallowly cordate, apex emarginate or deeply 2-lobed, mucronulate, margin entire, abaxially with two glands near midvein at base. Cymes 1–several-flowered. Peduncle stout, 4–15 cm. Bracts caducous, broadly deltate, 3–3.5 mm. Pedicel 2–2.5 cm. Sepals unequal, ± leathery, ovate, apex obtuse, glabrous, 3-veined; outer 2 ca. 1 cm; inner ones slightly longer. Corolla purple or reddish purple, with a darker center, funnelform, 4–5 cm. Stamens and styles inclusive. Capsule subglobose, ca. 1.7 cm in diam., glabrous, leathery. Seeds black, trigonous-globose, 7–8 mm, densely brownish tomentose.

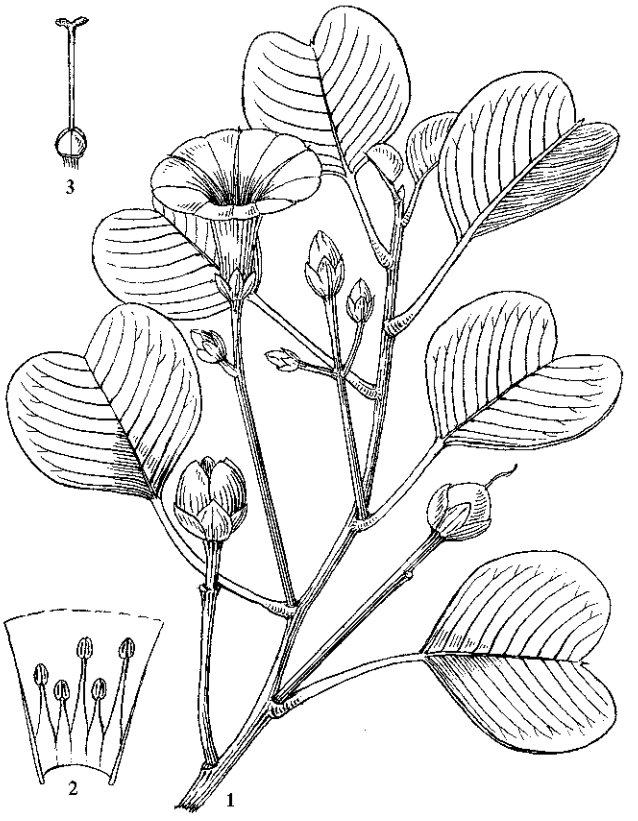


Figure 63. *Ipomoea pes-caprae* (L.) R. Br.
1. flowering and fruiting branches; *2*. corolla-tube opened; *3*. pistil. (drawn by H. P. Yu)

Locality: Common in Hong Kong. *P. May 11496; L. Gibbs 5382; Y. S. Lau 387.*

Distribution: Taiwan, Zhejiang, Fujian, Hainan, Guangdong, Guangxi; tropical regions of the world.

Ecology: Sandy beach. Flowering & fruiting: Nearly all year round.

Uses: Forage, medicinal (folklore).

8. Ipomoea imperati (Vahl) Griseb. 假厚藤 **(Photo 124)**

Cat. Pl. Cub. 203. 1866; FOC 16: 308. 1995; FTW ed. 2, 4: 361, pl. 161, photo 212. 1998.

Convolvulus imperati Vahl, Symb. Bot. 1: 17. 1790.

Convolvulus sinuatus Petagna, Inst. Bot. 2: 353. 1787.

Convolvulus stoloniferus Cirillo, Pl. Rar. Neapol. 1: 14, pl. 5. 1788, *nom. illeg. superfl.*

Ipomoea carnosa R. Br., Prodr. 485. 1810; FKH 181. 1912.

Ipomoea stolonifera (Cirillo) J. F. Gmel., Syst. Veg. 1: 345. 1796, *nom. illeg. superfl.*; FHN 3: 488. 1974; FTW 4: 375, pl. 1047. 1978; FRPS 64(1): 96, pl. 20: 2–3. 1979; FFJ 4: 496, fig. 396. 1989; FGD 4: 352. 2000.

Perennial prostrate herb, glabrous throughout. Stems to 5 m, rooting at nodes. Petiole 0.5–5 cm; leaf blade variable in shape, often linear, lanceolate, oblong, or ovate, 1.5–3 × 0.8–2 cm, base truncate or shallowly cordate, apex obtuse or emarginate to 2-lobed, margin entire, undulate, or 3–5-lobed; middle lobe ovate to oblong, lateral lobes smaller. Cymes 1(–3)-flowered. Peduncle ca. 2 cm. Bracts deltate, ca. 2 mm. Pedicel ca. 6 mm, stout. Sepals unequal, oblong, ± leathery, apex obtuse or acute, mucronulate; outer 2 ca. 0.7–1.1 mm; inner ones to 1.5 cm. Corolla white, with a pale yellow tube and a dark red center, funnelform, 3.5–4 cm. Stamens and styles inclusive. Capsule subglobose, ca. 1 cm, smooth. Seeds ca. 8 mm, tomentose, margin with longer hairs.

Locality: Tai Long Sai Wan, Tai Wan, Soko Islands, Fan Lau. *Y. S. Lau 2583; Y. W. Lam 459; HK sheet 39425.*

Distribution: Taiwan, Fujian, Hainan, Guangdong, Guangxi; widely distributed in tropical and subtropical regions.

Ecology: Sandy beach. Flowering: May–Dec.

Notes: It was reported as *Ipomoea stolonifera* previously (Check List HK Plants 223. 2002; 78. 2004), which is illegitimate, because it is based on the same type as the earlier *Convolvulus sinuatus* which is a later homonym of *I. sinuata* Ortega.

9. Ipomoea alba L. 月光花 **(Fig 64)**

Sp. Pl. 1: 161. 1753; FTW 4: 363. 1978; FOC 16: 309. 1995; FTW ed. 2, 4: 357. 1998.

Calonyction aculeatum (L.) House, Bull. Torrey Bot. Club 31(11): 590. 1904; FHN 3: 491, fig. 875. 1974; FRPS 64(1): 106. 1979; FFJ 4: 497, fig. 397. 1989. FGD 4: 358, fig. 210. 2000; Check List HK Plants 222. 2002; 77. 2004.

Calonyction aculeatum var. *lobatum* (Hallier f.) C. Y. Wu, Report on tropical and subtropical flora of Yunnan 1: 114. 1965; FRPS 64(1): 107. 1979.

Calonyction album (L.) House, Bull. Torrey Bot. Club 31(11): 591. 1904.

Calonyction bona-nox (L.) Bojer, Hortus Maurit. 228. 1837.

Calonyction speciosum Choisy, Convolv. Orient. 59. 1834.

Convolvulus aculeatus L., Sp. Pl. 1: 155. 1753.

Ipomoea aculeata (L.) Kuntze, Revis. Gen. Pl. 2: 442. 1891.

Ipomoea aculeata var. *bona-nox* (L.) Kuntze, Revis. Gen. Pl. 3(2): 212. 1898.

Ipomoea bona-nox L., Sp. Pl. ed. 2, 1: 228. 1762.

Annual or perennial twining herb, usually glabrous, rarely puberulent. Stems terete, smooth or with soft prickles, sap milky. Petiole 5–20 cm; leaf blade ovate, rarely ovate-oblong, 10–20 × 5–16 cm, base cordate, angular to 3-lobed, apex acuminate, mucronulate, margin entire, glabrous. Helicoid cymes 1–several-flowered. Peduncle stout, 5–20 cm, tuberculate. Bracts caducous, small. Pedicel 7–15 cm, clavate. Flowers nocturnal, fragrant. Sepals unequal, ± leathery, elliptic to ovate, glabrous; outer 3 sepals 5–12 mm, apex with a stout spreading 4–9 mm awn; inner 2 sepals 7–15 mm, mucronate. Corolla white, with greenish bands, salverform; tube 7–12 cm, ca. 5 mm in diam.; limb 7–12 cm in diam. Stamens exserted; filaments inserted in apical 1/2 of corolla tube. Pistil exserted; ovary narrowly conical, glabrous. Stigma 2-lobed. Capsule ovoid, 2.5–3 cm, apiculate. Seeds white, brown, or black, ca. 1 cm, glabrous.

Locality: Naturalized. *Y. S. Lau 2321; Y. W. Lam 880.*

Distribution: Taiwan, Fujian, Guangdong, Guangxi, Yunnan, Shaanxi, Jiangxi, Zhejiang, Jiangsu, Sichuan; native to tropical America, widely naturalized in tropical regions of the Old World.

Ecology: Flowering: Apr.–Nov.

Uses: Ornamental, medicinal (folklore).

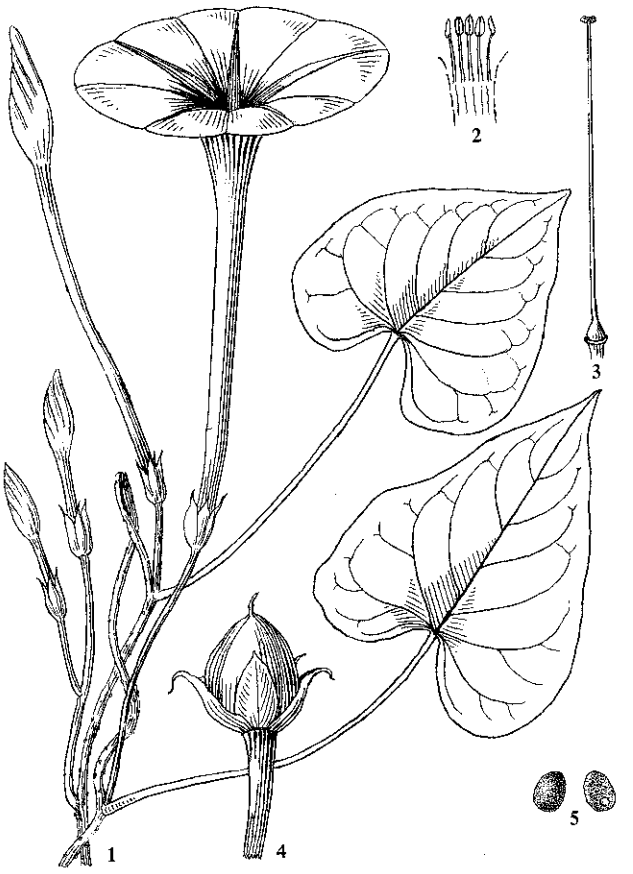


Figure 64. *Ipomoea alba* L.
1. flowering branch; *2.* corolla-tube opened up showing stamens; *3.* pistil; *4.* fruit; *5.* seeds. (drawn by H. P. Yu)

(Photo 125)

10. Ipomoea indica (Burm.) Merr. 變色牽牛

Interpr. Herb. Amboin. 445. 1917; FOC 16: 305. 1995; FTW 4: 363, pl. 162, photo 213. 1998.

Convolvulus indicus Burm., Index Univ. Herb. Amb. 7: 6. 1755.

Convolvulus acuminatus Vahl, Symb. Bot. 3: 26. 1794.

Convolvulus congestus (R. Br.) Spreng., Syst. Veg. 1: 601. 1825.

Convolvulus mutabilis (Ker Gawl.) Spreng., Syst. Veg. 1: 593. 1825.

Ipomoea acuminata (Vahl) Roem. & Schult., Symb. Bot. 4: 228. 1819, non Ruiz & Pav. 1799; FTW 4: 347. 1978.

Ipomoea congesta R. Br., Prodr. 485. 1810.

Ipomoea insularis (Choisy) Steud., Nomencl. Bot. ed. 2, 1: 817. 1840.

Ipomoea learii Knight ex Paxton, Paxton's Mag. Bot. 6: 267. 1839; FKH 181. 1912.

Ipomoea mutabilis Ker Gawl., Bot. Reg. 1: 39. 1813; FGZ 586. 1956.

Parasitipomoea formosana Hayata, Icon. Pl. Formosan. 6: 33. 1916.

Pharbitis indica (Burm.) R. C. Fang, FRPS 64(1): 105. 1979; Check List HK Plants 225. 2002; 78. 2004.

Pharbitis insularis Choisy, Mém. Soc. Phys. Genève 6: 439. 1833.

Pharbitis learii (Knight ex Paxton) Lindl., Edwards's Bot. Reg. 27: pl. 56. 1841.

Annual herbaceous herb. Stems twining or sometimes prostrate, 3–6 m, sometimes rooting at nodes, ± densely retrorse pilose. Petiole 2–18 cm; leaf blade ovate or orbicular, 5–15 × 3.5–14 cm, base cordate, apex acuminate or abruptly acuminate, margin entire or 3-lobed, adaxially sparsely pubescent, abaxially densely short, soft, pubescent. Cymes dense, umbellate, several-flowered. Peduncle 4–20 cm. Bracts linear, sometimes lanceolate. Pedicel short. Sepals subequal, broadly lanceolate, 2–2.5 cm, glabrous to appressed pilose. Corolla bright blue or bluish purple, funnelform, 5–8 cm, glabrous. Stamens and styles inclusive. Ovary glabrous. Stigma 3-lobed. Capsule subglobose, 1–1.3 cm in diam. Seeds 4–6, ca. 5 mm, brown, glabrous.

Locality: Naturalized in Hong Kong. *L. T. Lo 608; Y. W. Lam 1029, 1161.*

Distribution: Taiwan, Hainan (Tong Sha Islands), Guangdong; native to S America, widely cultivated and naturalized in the tropics.

Ecology: Forests near seashore. Flowering: Jan.–Oct.

Uses: Ornamental.

red, with a darker center, funnelform, ca. 3.5 cm, glabrous; limb lobed, lobes slightly triangular. Stamens inclusive; filaments pilose below middle. Ovary conical, glabrous. Style filiform, ca. 5 mm; stigma capitate, 2-lobed. Capsule ovoid to globose, pale brown outside, whitish inside, ca. 1.2 cm. Seeds blackish brown, densely tomentellous.

Locality: Sai Kung. *HK sheet 35671.*

Distribution: Guangdong, Fujian, Zhejiang; New Guinea, Africa, Mexico, Pacific islands, S America.

Ecology: Grasslands. Flowering & fruiting: Sep.–Dec.

14. Ipomoea biflora (L.) Pers.

心萼薯 **(Fig. 66; Photos 127–128)**

Syn. Pl. 1: 183. 1805; FOC 16: 304. 1995; FTW ed. 2, 4: 358, pl. 159, photo 208. 1998.

Convolvulus biflorus L. Sp. Pl., ed. 2, 1668. 1763, non Forssk. 1775.

Aniseia biflora (L.) Choisy, Mém. Soc. Phys. Genève 6: 483. 1833; FRPS 64(1): 41, pl. 10: 3. 1979; FFJ 4: 481, fig. 384. 1989; Check List HK Plants 221. 2002; 77. 2004.

Convolvulus sinensis Desr., Encycl. 3(2): 557. 1789.

Ipomoea sinensis (Desr.) Choisy, Mém. Soc. Phys. Genève 6: 459. 1834; FGZ 588. 1956; FTW 4: 373, pl. 1046. 1978; FGD 4: 350. 2000.

Annual, scandent or twining herb. Stems slender, finely striate, greyish white hirsute. Petiole slender, 1.5–9 cm, hairy; leaf blade papery, heart-shaped or triangular-heart-shaped, 3–9 × 2–7 cm, base cordate, apex acuminate, margin entire, rarely slightly 3-lobed, hirsute-villous on both surfaces; lateral veins 4–5 pairs. Cymes (1–)2(–3)-flowered, shorter than petiole. Peduncle 0.3–1.5 cm. Outer 3 bracts linear-lanceolate, small. Pedicel 0.8–1.5 cm. Sepals slightly enlarged in fruit; outer 3 deltate-lanceolate, 0.8–1 × 0.4–0.5 cm, greyish white hirsute abaxially, ciliate, subglabrous adaxially, base auriculate; inner 2 linear-lanceolate, ca. as long as outer ones or slightly longer. Corolla white, narrowly campanulate, 1–1.5 cm; limbs 5-lobed, midpetaline bands pubescent. Stamens ca. 3 mm; anthers ovoid-deltoid, base sagittate. Ovary conical, glabrous. Style clavate. Stigma capitates, 2-lobed. Capsule subglobose, 0.8–1 cm in diam., glabrous. Seeds ovoid-trigonous, ca. 4 mm, black, puberulent to tomentellous, margin sometimes white woolly.

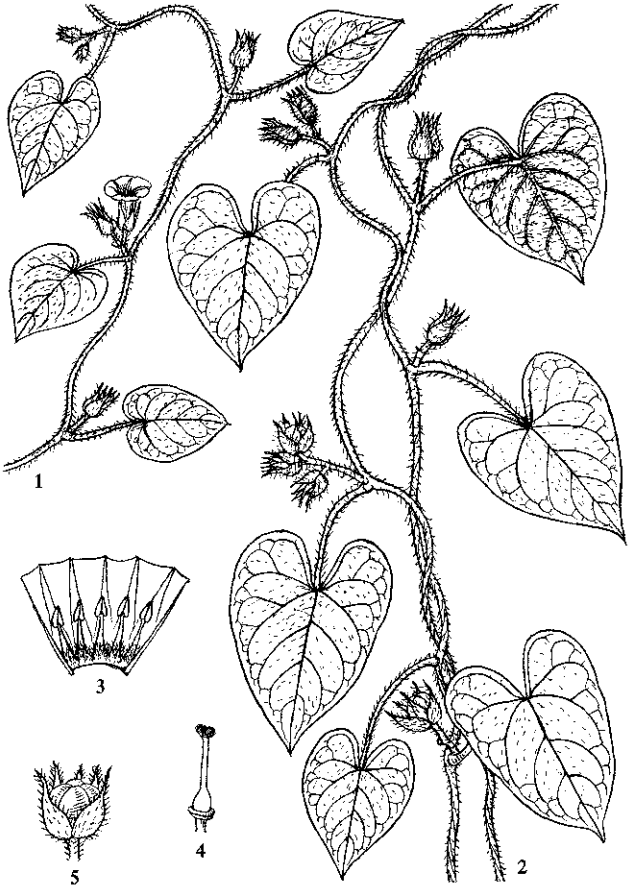


Figure 66. *Ipomoea biflora* (L.) Pers.
1. flowering branch; *2.* fruiting branch; *3.* corolla opened up showing stamens; *4.* pistil; *5.* fruit. (drawn by H. P. Yu)

Locality: Common in Hong Kong. *Y. S. Lau 2415, 2779; Y. W. Lam 1141.*

Distribution: Taiwan, Fujian, Jiangxi, Hunan, Guangdong, Guangxi, Guizhou, Yunnan; India, Indonesia, Japan (Ryukyu Islands), Myanmar, Vietnam, E Africa, N Australia.

Ecology: Hillslopes, valleys, thickets and forests. Flowering & fruiting: Jul.–Jan. of the following year.

Uses: Medicinal (folklore).

15. Ipomoea obscura (L.) Ker Gawl. 小心葉薯 **(Photo 129)**

Bot. Reg. 3: t. 239. 1817; FKH 181. 1912; FHN 3: 487. 1974; FTW 4: 369. 1978; FRPS 64(1): 92, pl. 12: 1. 1979; FOC 16: 307. 1995; FTW ed. 2, 4: 366, photo 217. 1998; FGD 4: 352. 2000.

Convolvulus obscurus L., Sp. Pl. ed. 2, 2: 220. 1762.

Twining herb. Stems slender, 1–2 m, sparsely villose or glabrous. Petiole 1.5–3.5 cm; leaf blade broadly ovate to suborbicular, occasionally reniform, 2–8 × 1.5–8 cm, base cordate, apex attenuate, acute, margin entire or minutely undulate, subglabrous, sometimes ciliolate; lateral veins 3 pairs. Cymes 1–3-flowered. Peduncle almost filiform, 1.5–6 cm. Bracts subulate, ca. 1.5 mm. Pedicel 1–2 cm, subglabrous, thickened and recurved in fruit distally. Sepals subequal, reflexed in fruit, elliptic-ovate, 4–5 mm, glabrous or ± pubescent, mucronulate. Corolla white or pale yellow, with darker midpetaline bands and a purple center, funnelform, 2–2.5 cm. Stamens and styles inclusive. Capsule ovoid, 0.8–1 cm in diam., apiculate. Seeds black-brown, 4–5 mm, densely greyish brown tomentellous.

Locality: Common in Hong Kong. *L. T. Lo 70; Y. S. Lau 2477; HK sheet 35850.*

Distribution: Taiwan, Hainan, Guangdong, Yunnan; tropical Africa, tropical Asia, N Australia.

Ecology: Sandy beach, thin forests or thickets. Flowering & fruiting: Apr.–Dec.

Uses: Ornamental.

16. Ipomoea pileata Roxb. 帽苞薯藤

Fl. Ind. 2: 94. 1824; FHN 3: 485. 1974; FRPS 64(1): 88, pl. 18: 4. 1978; FOC 16: 306. 1995.

Convolvulus pileatus (Roxb.) Spreng., Syst. Veg. 4(Cur. Post): 61. 1827.

Annual twining herb. Stems slender, retrorse hispid-pilose. Petiole 1.5–6 cm; leaf blade ovate or broadly ovate, 3.5–8 × 2.5–7 cm, base cordate, apex acuminate or attenuate, margin entire, sparsely appressed pubescent. Cymes capitate, several-flowered. Peduncle 1.5–7 cm. Involucral bracts navicular, 3–5.5 cm, tapered at both ends, long hirtellous adaxially, densely pubescent abaxially; bracteoles oblong-spatulate, much smaller, villous. Sepals subequal, 0.8–1 cm; outer 3 elliptic-spatulate; inner 2 narrower, lanceolate, villous, apex obtuse. Corolla pink or purple, salverform, 2.5–3 cm; tube cylindric; limb with deltate lobes, midpetaline bands pilose. Stamens inserted near middle of corolla tube, inclusive. Ovary glabrous. Capsule subglobose, 5–6 mm in diam., glabrous. Seeds dark brown, 3–4 mm, glabrous or short pubescent.

Locality: Tai Wai, Tai Lam Chung, Lantau Island. *W. J. Tutcher 4813; H. C. Tang 1890; HK sheet 34505.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; tropical Asia, tropical E Africa, Mascarene Islands.

Ecology: Margins of forests, sunny grassy hillslopes. Flowering: Aug.–Dec.

17. Ipomoea triloba L. 三裂葉薯 **(Photo 130)**

Sp. Pl. 1: 161. 1753; FTW 4: 378, pl. 1048. 1978; FRPS 64(1): 90, pl. 19: 4. 1979; FOC 16: 307. 1995; FTW ed. 2, 4: 371, pl. 167, photo. 219. 1998; FGD 4: 352. 2000.

Batatas triloba (L.) Choisy, Mém. Soc. Phys. Genève 8: 49. 1838.

Convolvulus trilobus (L.) Desr., Encycl. 3(2): 564. 1792.

Annual twining or prostrate herb. Stems glabrous or nodes sparsely pubescent. Petiole 2.5–6 cm, glabrous, sometimes tuberculate; leaf blade broadly ovate to orbicular in outline, 3–7 × 2–6 cm, base cordate, margin coarsely dentate to deeply 3-lobed, or entire, glabrous or sparsely pilose. Cymes dense, umbellate, 1–several-flowered. Peduncle 2.5–9 cm, glabrous, angular, verruculose at upper part. Bracts triangular, minute, ca. 3 mm. Pedicel 5–8 mm, glabrous, verruculose. Sepals subequal, oblong, 5–9 mm, apex obtuse or acute, mucronulate, margin ciliate. Corolla pink or pale purple, funnelform, 1.5–2 cm, glabrous; limb obtusely 5-lobed. Stamens and styles inclusive. Ovary pubescent. Capsule subglobose, 5–8 mm, pilose. Seeds dark brown, ca. 3.5 mm, glabrous.

Locality: Naturalized in Hong Kong. *L. T. Lo 215, 535; Y. W. Lam 397.*

Distribution: Anhui, Guangdong, S Shaanxi, Taiwan, Zhejiang; native to the tropical West Indies, now a circumtropical weed.

Ecology: Thickets and grassy hillslopes, roadsides. Flowering & fruiting: Aug.–Jan. of the following year.

10. Xenostegia D. F. Austin & Staples 地旋花屬

Perennial prostrate herbs. Leaves petiolate, linear, oblong-linear, lanceolate-elliptic, or oblanceolate to spatulate, base ± hastate; basal lobes ± amplexicaul, dentate or entire, apex acute to emarginate, mucronate, or tridentate. Cymes axillary, 1(–3)-flowered. Sepals oblong or oblong-ovate, ± equal to unequal, acute or obtuse, enlarged in fruit; inner 3 narrower. Corolla pale yellowish or whitish, often with a purplish center, broadly funnelform or campanulate. Anthers not twisted at dehiscence; pollen grains globose, not spiny. Pistil inclusive; ovary 2-locular, 4-ovuled. Style 1, filiform; stigmas 2-globular. Capsule 4-valved, glabrous or pubescent apically. Seeds 1–4, brownish to black, ovoid-trigonous.

Two species distributed in tropical regions of Asia, Africa, and Australia; one species in China and in Hong Kong.

1. Xenostegia tridentata (L.) D. F. Austin & Staples 地旋花

Brittonia. 32: 533. 1980; FOC 16: 300. 1995; FTW ed. 2, 4: 383, pl. 170, photo 224. 1998.

Convolvulus tridentatus L., Sp. Pl. 1: 157. 1753.

Evolvulus tridentatus (L.) L., Sp. Pl. ed. 2, 392. 1762.

Ipomoea tridentata (L.) Roth, Arch. Bot. (Leipzig) 1(2): 38. 1798.

Merremia hastata Hallier f., Bot. Jahrb. Syst. 16(4–5): 552. in obs. 1893.

Merremia tridentata (L.) Hallier f., Bot. Jahrb. Syst. 16(4–5): 552, in obs. 1893.

Merremia tridentata subsp. *hastata* (Hallier f.) Ooststr., Blumea 3(2): 317, fig. 2: o. 1939; FHN 3: 482. 1974; FTW 4: 349. 1978; FRPS 64(1): 66, pl. 14: 1. 1979; FFJ 4: 486, fig. 388. 1989; FGD 4: 349. 2000; Check List HK Plants 224. 2002; 78. 2004.

Ipomoea angustifolia auct. non Jacq.: FKH 180. 1912.

Ipomoea filicaulis auct. non Blume: FHK 238. 1861.

Prostrate or twining herb, with a stout root. Stems ± angular to narrowly winged, glabrous. Petiole 1–3 mm or absent; leaf blade narrowly oblong, linear-oblong, to linear, dilated toward base, 2–8 cm × 0.3–1.5 mm, base hastate, ± amplexicaul, basal lobes dentate, apex acute or obtuse, mucronulate, subglabrous. Cymes 1–3-flowered; peduncle (1–)5–6 cm, slender, pubescent at base, glabrescent distally; bracts minute, subulate. Pedicel 6–8 mm. Sepals ovate-lanceolate, subequal or outer 2 shorter, 6–8 mm, glabrous, apex attenuate-acuminate forming a sharp point. Corolla pale yellowish or white, with or without a maroon to brown center, funnelform, ca. 1.6 cm, glabrous abaxially. Stamens inclusive, subequal; filaments sparsely pubescent at base. Ovary glabrous. Capsule globose or ovoid, papery. Seeds blackish, 3–4 mm, glabrous, apex acute.

Locality: Stanley, Tai Po, Lam Tei, Pui O, Po Toi Islands, Soko Islands. *P. S. Choi 25; Y. W. Lam 1048, 1177.*

Distribution: Taiwan, Hainan, Guangdong, Guangxi, Yunnan; tropical E Africa, S & SE Asia, tropical Australia.

Ecology: Sandy grounds, thin forests. Flowering & fruiting: All year round.

11. Merremia Dennst. ex Endl. 魚黃草屬

Herbs or shrubs. Stems often twining, sometimes prostrate or erect. Leaves large or small, usually petiolate, rarely sessile, margin entire, 3-lobed or palmately lobed. Flowers axillary, solitary or in several–many-flowered cymes; bracts usually small. Sepals variable in shape, subequal or outer 2 smaller, persistent, often enlarged in fruit. Corolla often yellow or white, funnelform or campanulate, midpetaline bands 5-veined; limb entire or ± 5-angled. Stamens inclusive, often unequal; filaments dilated basally, filiform distally; anthers often spirally twisted; pollen grains globose, not spiny. Disc annular. Pistil inclusive; ovary 2–4-locular, 4-ovuled. Style 1, filiform; stigmas 2-globular. Capsule 1–4-locular, usually 4-valved or ± irregularly dehiscing. Seeds 1–4, glabrous or hairy.

About 80 species distributed in tropical regions of Africa, Asia, Australia, N & S America; 19 species in China; six species in Hong Kong (one introduced).

1a. Leaf blade palmately compound or divided.
  2a. Leaf blade palmately 5–7-divided; segments coarsely dentate to irregularly pinnately lobed ..... 1. *M. dissecta*
  2b. Leaf blade palmately compound; leaflets entire.
    3a. Stems yellow spreading hirsute; leaflets linear-lanceolate to narrowly oblong, 1.5–4 cm..... 2. *M. quinata*
    3b. Stems glabrous; leaflets lanceolate to elliptic, central one larger, 6–12 cm .....3. *M. tuberosa*
1b. Leaves entire, dentate or 3-lobed.
  4a. Corolla white; midpetaline bands hairy .....4. *M. umbellata* subsp. *orientalis*
  4b. Corolla yellow; midpetaline bands glabrous.
    5a. Leaf blade broadly cordate at base, subglabrous to sparsely puberulent .....5. *M. hederacea*
    5b. Leaf blade truncate or rounded at base, sparsely appressed hirsute or glabrous.....6. *M. hirta*

1. Merremia dissecta (Jacq.) Hallier f. 多裂魚黃草

Bot. Jahrb. Syst. 16: 552. 1893; FRPS 64(1): 68. 1979; FOC 16: 294. 1995.

Convolvulus dissectus Jacq., Observ. Bot. 2: 4. 1767.

Ipomoea dissecta Willd., Phytogr. 5, t. 2. 1794; FKH 181. 1912.

Ipomoea sinuata Ortega, Nov. Pl. Descr. Dec. 7: 84. 1798

Operculina dissecta (Jacq.) House, Bull. Torrey Bot. Club 33: 500. 1906.

Semi-woody vine. Stems woody basally, tuberculate, ± yellowish spreading hirsute, glabrescent. Petiole 2.5–7 cm; leaf blade palmately 5–7-divided nearly to base; segments lanceolate, middle 2.5–10 × 0.5–3 cm, lateral ones smaller, apex mucronulate, margin coarsely dentate to irregularly pinnately lobed, glabrous or pubescent along veins abaxially. Cymes 1–several-flowered. Peduncle 5–10 cm. Pedicel 1.5–2 cm, thicker distally, minutely tuberculate, glabrous. Sepals subequal, ovate-lanceolate, 2–2.5 cm, enlarged and leathery in fruit, glabrous. Corolla white, with purple-red throat, funnelform, midpetaline bands distinct. Ovary glabrous. Capsule globose, glabrous. Seeds black, glabrous.

Locality: Stubbs Rd., Tai Hang. *Y. S. Lau 215; H. C. Tang 1895.*

Distribution: Coastal Islands of Guangdong; India, Indonesia, Myanmar, Pakistan, Sri Lanka, Thailand; native in N & S America.

Ecology: Wastelands, roadsides. Flowering: Nov.

2. Merremia quinata (R. Br.) Ooststr. 指葉山豬菜

J. Arnold Arbor. 29: 417. 1948; FHN 3: 482. 1974; FRPS 64(1): 66, pl. 1. 1979; FTW 4: 384. 1978; FFJ 4: 489, fig. 390. 1989; FOC 16: 294. 1995; FTW ed. 2, 4: 379. 1998; FGD 4: 346. 2000.

Ipomoea quinata R. Br., Prodr. 486. 1810; FHK 237. 1861; FKH 181. 1912.

Convolvulus quinatus (R. Br.) Spreng., Syst. Veg. 1: 590. 1825.

Ipomoea pentadactylis Choisy, Mém. Soc. Phys. Genève 6: 471. 1833.

Perennial twining herb. Stems slender, yellow spreading hirsute. Petiole 1–2.5 cm; leaf blade palmately compound; leaflets 5, linear-lanceolate to narrowly oblong, 1.5–4 × 0.5–1 cm, base attenuate, apex obtuse and mucronulate, entire, margin entire, often glabrous on both surfaces, sometimes hirsute along midvein and margin abaxially. Cymes 1(–2)-flowered. Peduncle nearly as long as petiole, glabrous or hirsute at base. Pedicel 5–6 mm. Bracts ovate-triangular, 2–4 mm. Sepals thickly papery, unequal, elliptic to ovate-oblong, glabrous; outer 2 sepals 8–10 mm; inner ones ca. 1.1–1.5 cm. Corolla white or pale yellow, campanulate or funnelform, ca. 3–4 cm, midpetaline bands 5-veined, glabrous. Ovary glabrous. Capsule ovoid, 1–1.3 cm. Seeds oblong, 4–6 mm, pale yellow pubescent at apex.

Locality: Deep Water Bay. *W. J. Tutcher 11726.*

Distribution: Taiwan, Hainan, Guangdong, Guangxi, Yunnan; SE Asia, N Australia.

Ecology: Sunny places of hillslopes. Flowering & fruiting: Sep.–Dec.

3. Merremia tuberosa (L.) Rendle 木玫瑰 **(Photo 131)**

Fl. Trop. Afr. 4(2): 104. 1905; FTW ed. 2, 4: 379. 1998; FGD 4: 346. 2000.

Ipomoea tuberosa L., Sp. Pl. 1: 160. 1753.

Woody vine. Stems glabrous. Petiole glabrous; leaf blade palmately compound; leaflets 5, lanceolate to elliptic, central one larger, 6–12 cm, apex acuminate, entire, glabrous on both surfaces. Cymes axillary, (1–)several-flowered. Peduncles 3–10 cm, glabrous. Pedicels ca. 1 cm, gradually thickened upward, glabrous. Sepals unequal, oblong, glabrous, outer ones 2.5 cm, apex obtuse; inner ones ca. 3 cm. Corolla yellow, campanulate, ca. 5 cm, midpetaline bands glabrous. Stamens inclusive. Capsules subglobose, ca. 3 cm in diam., irregularly dehiscing. Seeds black, tomentellus.

Locality: Cultivated and naturalized. *Y. S. Lau 205, 809.*

Distribution: Native to tropical Africa, cultivated in the tropics.

Ecology: Flowering & fruiting: Oct.–Dec.

Uses: Ornamental.

4. Merremia umbellata (L.) Hallier f. subsp. **orientalis** (Hallier f.) Ooststr. 山猪菜 **(Photo 132)**

Fl. Malesiana, ser. 1, Spermatoph. 4(4): 449. 1953; FHN 3: 483, fig. 872. 1974; FRPS 64(1): 72, pl. 16: 3–5. 1979; FFJ 4: 488. 1989; FOC 16: 297. 1995; FGD 4: 347. 2000.

Merremia umbellata (L.) Hallier f. var. *orientalis* Hallier f., Verslag Staat Lands Plantentuin Buitenzorg 132. 1895 (1896).

Ipomoea cymosa auct. non Roem. & Schult.: FHK 238. 1861; FKH 180. 1912.

Ipomoea fulvicoma Hance, Hooker's J. Bot. Kew Gard. Misc. 1: 176. 1849.

Twining herb. Stems densely pubescent or subglabrous. Petiole 1–10 cm, pubescent; leaf blade variable in shape, ovate, ovate-oblong, or oblong-lanceolate, 4–14 × 1.5–10 cm, base cordate, rarely hastate, apex emarginate, acute to acuminate, margin entire, sparsely puberulent or subglabrous adaxially, pale greyish pubescent abaxially. Cymes umbelliform, several–many-flowered. Peduncle 1–6 cm, densely pubescent. Bracts caducous, lanceolate, minute, 2–3 mm. Pedicel 0.5–2 cm. Sepals slightly unequal, thinly leathery, strongly concave; outer 2 broadly elliptic or nearly circular, 0.8–1.4 cm, rounded or emarginate, abaxially pubescent; inner ones usually slightly longer. Corolla white, sometimes yellow, funnelform, 2.5–5.5 cm, midpetaline bands inconspicuously 5-veined, with a strip of whitish pubescence at apex; limb slightly lobed. Stamens inclusive; anthers not twisted. Ovary glabrous or sparsely pubescent apically. Capsule conical-ovoid, ca. 1 cm; pericarp glabrous. Seeds ca. 5 mm, densely spreading villous.

Locality: Common in Hong Kong. *H. C. Tang 1457; L. T. Lo 418; Y. S. Lau 3273.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Taiwan; tropical E Africa, N Australia, Pacific islands.

Ecology: Thin forests, thickets or roadsides. Flowering: Sep.–Jan. of the following year.

Uses: Medicinal (folklore).

5. Merremia hederacea (Burm. f.) Hallier f.

魚黃草 **(Fig. 67; Photo 133)**

Bot. Jahrb. Syst. 18: 118. 1894; FGZ 584. 1956; FHN 3: 480. 1974; FTW 4: 383. 1978; FRPS 64(1): 61. 1979; FFJ 4: 487, fig. 389. 1989; FTW ed. 2, 4: 378. 1998; FGD 4: 347. 2000.

Evolvulus hederaceus Burm. f., Fl. Indica 77, t. 30, fig. 2. 1768.

Convolvulus chryseides (Ker-Gawl.) Spreng., Syst. Veg. 1: 598. 1825.

Ipomoea chryseides Ker Gawl., Bot. Reg. 4: pl. 270. 1818; FHK 239. 1861; FKH 180. 1912.

Lepistemon glaber Hand.-Mazz., Sinensia 5(1–2): 7. 1934.

Merremia chryseides (Ker Gawl.) Hallier f., Bot. Jahrb. Syst. 16(4–5): 552. in obs. 1893.

Merremia convolvulacea Dennst. ex Hallier f., Bot. Jahrb. Syst. 16(4–5): 552. in obs. 1893.

Twining or prostrate herb. Stems often minutely tuberculate, glabrous or sparsely hirsute. Petiole 1–5 cm, glabrous or pubescent; leaf blade ovate, 1.5–6 × 1.5–4 cm, base cordate or broadly cordate, irregularly crenate, or 3-lobed, margin entire, subglabrous to sparsely puberulent on both surfaces. Cymes (1–)several–many-flowered, umbelliform. Peduncle slender, 1–7 cm, thicker than petiole. Bracts caducous, minute, narrowly obovate. Pedicel 2–5 mm, glabrous or sometimes tuberculate. Sepals unequal, broadly obovate to spatulate or oblong, reflexed in fruit; outer 2 sepals 3.5–4 mm, apex emarginate, mucronate, glabrous, sometimes hairy along margin; inner 3 ca. 5 mm. Corolla yellow, campanulate, 6–10 mm, villous at base adaxially, glabrous abaxially, midpetaline bands 5-veined, glabrous. Filaments dilated and sparsely villous at base. Ovary globose, glabrous; stigma globose. Capsule compressed globose or broadly conical, 5–6 mm,

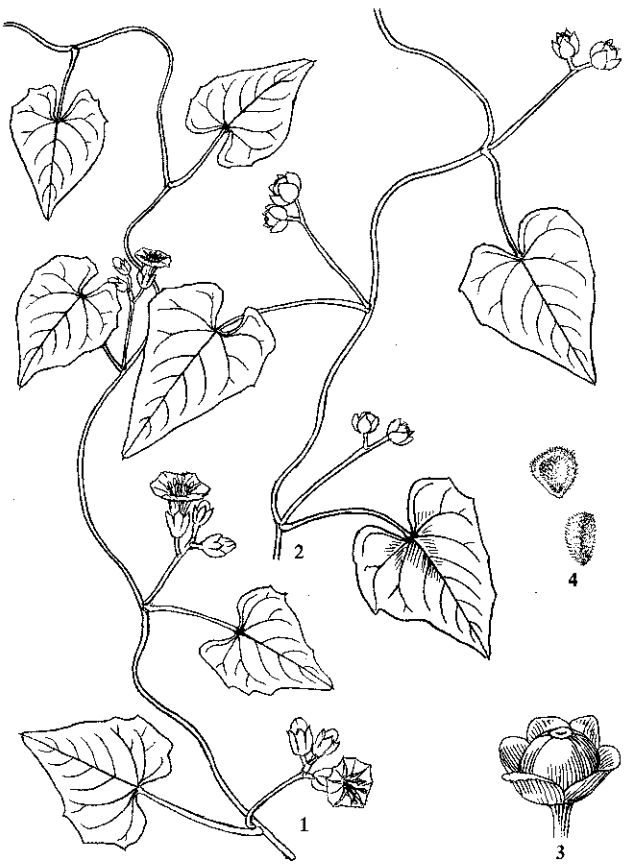


Figure 67. *Merremia hederacea* (Burm. f.) Hallier f.
1. flowering plant; *2.* fruiting plant; *3.* fruit; *4.* seeds. (drawn by H. P. Yu)

reticulate or wrinkled when dry. Seeds trigonous-globose, 2.5–3.5 mm, puberulent, woolly along angles and at hilum.

Locality: Wah Fu Tsuen, Sai Kung, Sha Tin, Tai Po, Tai Wai, Ta Kwu Ling, Sham Tseng. *L. T. Lo 528; P. S. Choi 425; Y. W. Lam 396.*

Distribution: Taiwan, Fujian, Hainan, Guangdong, Guangxi, Jiangxi, Yunnan; tropical Asia, tropical Africa, Mascarene Islands, N Australia, Pacific islands.

Ecology: Thickets, roadsides. Flowering & fruiting: Sep.–Apr. of the following year.

Uses: Medicinal (folklore).

6. Merremia hirta (L.) Merr. 毛山猪菜

Philipp. J. Sci. 7: 224. 1912; FGZ 584. 1956; FHN 3: 481. 1974; FTW 4: 384. 1978; FRPS 64(1): 63, pl. 14: 2–4. 1979; FOC 16: 294. 1995; FTW ed. 2, 4: 378. 1998; FGD 4: 348. 2000.

Convolvulus hirtus L., Sp. Pl. 1: 159. 1753.

Ipomoea linifolia Blume, Bijdr. Fl. Ned. Ind. 13: 721. 1825; FKH 181. 1912.

Lepistemon decurrens Hand.-Mazz., Sinensia 5(1–2): 6. 1934.

Merremia decurrens (Hand.-Mazz.) H. S. Kiu, FHN 3: 586. 1974.

Twining or prostrate herb. Stems rooting at nodes or internodes, spreading yellow hirsute to glabrous. Petiole 1–1.5 cm; leaf blade variable in shape, linear, oblong-lanceolate, ovate-oblong, or ovate, 1.5–5 × 0.5–2.5 cm, base truncate, rounded, ± auriculate to hastate, apex obtuse, acute or slightly emarginate and mucronulate, margin entire, sparsely appressed hirsute or glabrous. Cymes 1–4(–8)-flowered. Peduncle slender, 1–2.5 cm, sparsely pubescent at base. Bracts persistent, ovate, 1–2 mm, glabrous. Pedicel 3–10 mm, glabrous. Sepals unequal, elliptic or elliptic-oblong; outer 2 sepals 3–5 mm; inner 3 ca. 6 mm, apex obtuse. Corolla pale yellow or whitish, campanulate, 1–2 cm, midpetaline bands 5-veined, glabrous abaxially. Stamens inclusive; filaments dilated and pubescent at base. Ovary glabrous. Capsule broadly ovoid to globose, 6–7 mm; pericarp thinly papery, glabrous. Seeds brownish black, trigonous-ellipsoidal, ca. 3 mm, glabrous or sparsely floccose at margin and hilum.

Locality: Tai Po. *Aubrey 11571.*

Distribution: Taiwan, Guangdong, Guangxi, Yunnan; India, Sikkim, Thailand, Malaysia, N Australia.

Ecology: Grasslands and margins of forests.

Uses: Medicinal (folklore).

284. CUSCUTACEAE 菟絲子科

XIA Nian-he 夏念和

Parasitic herbs without roots. Stems twining, filiform, obtaining nourishment from hosts by haustoria, yellow or reddish, glabrous. Leaves reduced to minute scales. Flowers sessile or short pedicellate, mostly in spicate, racemose, or cymose clusters, 4–5-merous. Bracts minute or absent. Sepals ± connate base. Corolla white, pinkish, or cream coloured, urceolate, tubular, globose or campanulate, inside with fimbriate or crenulate, membranous, infrastaminal scales at base of tube. Stamens as many as corolla lobes, inserted on corolla above scales, alternating with corolla lobes. Pollen smooth. Ovary 2-loculed; ovules 2 per locule. Styles 1 or 2; stigmas 2, subglobose or elongate, sometimes united. Capsule ovoid or globose, dry or sometimes fleshy, circumscissile or opening irregularly. Seeds 1–4, glabrous; embryo acotyledonous, filiform spiral-curved.

One genus and about 170 species mainly distributed in N & S America, several in Asia and Europe; 11 species in China; four species in Hong Kong.

1. Cuscuta L. 菟絲子屬

Morphological characters and geographical distribution are the same as those of the family.

1a. Style 1; inflorescences in spikes, racemes or panicles ..... 1. *C. japonica*

1b. Styles 2; inflorescences in compact cymose glomerules.

2a. Capsule nearly completely enclosed by persistent corolla, circumscissile; corolla lobes keeled ..... 2. *C. chinensis*

2b. Capsule subtended by withered corolla, irregularly dehiscent; corolla lobes flat.

3a. Corolla lobes ovate or oblong, apex obtuse to rounded, often erect; corolla scales less than 1/2 of corolla tube, deeply 2-cleft ..... 3. *C. australis*

3b. Corolla lobes broadly triangular, apex acute or obtuse, often reflexed; corolla scales ca. as long as corolla tube, deeply fimbriate ..... 4. *C. campestris*

1. Cuscuta japonica Choisy 金燈藤 **(Photo 134)**

Syst. Verz. 2: 130. 1854; FHK 241. 1861; FKH 182. 1912; FRPS 64(1): 147, pl. 31: 8–11. 1979; FFJ 4: 475. 1989; FGD 4: 331. 2000; FOC 16: 323. 1995.

Cuscuta reflexa Roxb. var. *densiflora* Benth., Hooker's J. Bot. Kew Gard. Misc. 5: 57. 1853; Check List HK Plants 226. 2002; 79. 2004.

Annual herb. Stems yellow or often with purplish spots, slightly stout, 1–2 mm in diam., multibranched. Inflorescences spicate or paniculate, 1–3 cm. Bracts and bracteoles scale-like, broadly ovate, ca. 2 mm. Flowers subsessile. Sepals 5, ca. 2 mm, semi-orbicular, purplish tuberculate abaxially. Corolla pink or greenish white, campanulate to tubular, 3–5 mm, shallowly 5-lobed; lobes erect or reflexed, ovate-triangular, much shorter than tube, apex obtuse. Stamens inserted at throat; filaments very short or absent; scales oblong, fimbriate. Ovary globose, smooth. Style 1, longer than or as long as ovary; stigma elongate, 2-lobed, lobes tongue-shaped. Capsule ovoid, ca. 5 mm, circumscissile near base. Seeds 1–3, brown, 2–2.5 mm, smooth.

Locality: Cape D'Aguilar, Aberdeen, Victoria Peak, High West, Shek O, Po Toi Island. *P. S. Choi 336; HK sheet 39388, 40810.*

Distribution: Widely distributed in China; Japan, Korea, Russia, Vietnam.

Ecology: On herbs or shrubs. Flowering & fruiting: Oct.–Mar. of the following year.

Uses: Medicinal (folklore).

Notes: The type specimen of *Cuscuta reflexa* var. *densiflora* (*J.G. Champion s.n.*, K) was collected from Hong Kong between 1847 and 1850.

2. Cuscuta chinensis Lam. 菟絲子

Encycl. 2: 229. 1786; FKH 182. 1912; FRPS 64(1): 145, pl. 31: 4–7. 1979; FFJ 4: 473, fig. 378. 1989; FOC 16: 323. 1995; FTW ed. 2, 4: 347. 1998; FGD 4: 330. 2000.

Annual herb. Stems yellow, thin, ca. 1 mm in diam. Inflorescences lateral, compact cymose glomerules, several–many-flowered, subsessile. Bracts and bracteoles scale-like. Pedicel ca. 1 mm. Sepals 5, triangular, ca. 1.5 mm, apex obtuse, connate at lower half. Corolla white, urceolate, ca. 3 mm; lobes persistent triangular-ovate, apex acute or obtuse, reflexed. Stamens inserted at throat; scales oblong, long fimbriate. Ovary subglobose. Styles 2, ca. 1 mm; stigma capitate. Capsule nearly completely enclosed by persistent corolla, subglobose, ca. 3 mm in diam., circumscissile. Seeds 2–4, pale brown, ovoid, ca. 1 mm, scabrous.

Locality: Sha Tin. *L. T. Lo 12, 364.*

Distribution: Widely distributed in China; W, E & S Asia, Madagascar, Australia.

Ecology: Fields, open mountain slopes, thickets, sandy beaches, parasitic often on plants of Leguminosae and Compositae. Flowering & fruiting: Jul.–Nov.

Uses: Medicinal (folklore).

3. Cuscuta australis R. Br. 南方菟絲子 **(Fig. 68; Photo 135)**

Prodr. 491. 1810; FTW 4: 351, pl. 1034. 1978; FRPS 64(1): 144, pl. 32: 1–3. 1979; FFJ 4: 474, fig. 379. 1989; FOC 16: 322. 1995; FTW ed. 2, 4: 344, pl. 154, photo 202. 1998; FGD 4: 330. 2000.

Cuscuta hygrophilae H. Pearson, Icon. Pl. 28, pl. 2704. 1901.

Cuscuta kawakamii Hayata, Icon. Pl. Formosan. 5: 125. 1915.

Cuscuta millettii Hook. & Arn., Bot. Beechey Voy. 201. 1837.

Cuscuta obtusiflora Kunth var. *australis* (R. Br.) Engelm., Trans. Acad. Sci. St. Louis 1: 492. 1859.

Cuscuta chinensis auct. non Lam.: FGZ 581. 1956.

Annual herb. Stems golden, thin, ca. 1 mm in diam. Inflorescences lateral, compact cymose glomerules, several–many-flowered, subsessile. Bracts scale-like. Pedicel 1–2.5 mm. Calyx nearly as long as corolla tube; sepals (3–)4–5, often unequal, oblong or orbicular, ca. 1.5 mm. Corolla white or creamy white, cupular, ca. 3 mm; lobes persistent, erect, ovate or oblong, as long as tube. Stamens inserted at sinus, shorter than lobes; scales shorter than tube, deeply 2-cleft, fimbrillate. Ovary compressed globose. Styles 2, ca. 1 mm; stigmas capitate. Capsule enclosed by persistent corolla at lower half, subglobose, 3–4 mm in diam., irregularly opening, not circumscissile. Seeds 4, brownish, ovoid, ca. 1.5 mm, scabrous.

Locality: Common in Hong Kong. *Y. S. Lau 774, 1052; HK sheet 19970.*

Distribution: Widely distributed in China; tropical Asia, Australia.

Ecology: Parasitic on plants of Leguminosae, Compositae or Verbenaceae. Flowering & fruiting: Apr.–Oct.

Uses: Medicinal (folklore).

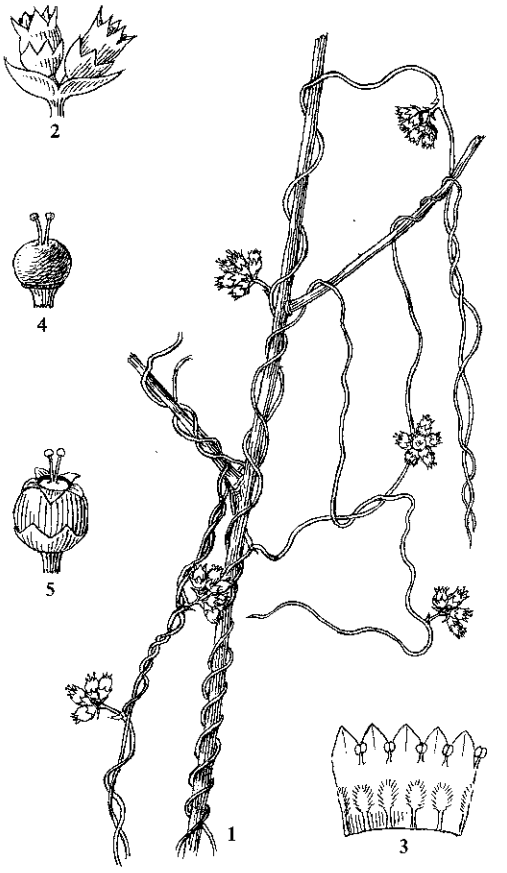


Figure 68. *Cuscuta australis* R. Br.

1. portion of plant; *2*. inflorescence; *3*. corolla opened up showing stamens; *4*. pistil; *5*. capsule enclosed by persistent corolla. (drawn by H. P. Yu)

4. Cuscuta campestris Yunck. 田野菟絲子 **(Photo 136)**

Mem. Torrey Bot. Club. 18: 138. 1932; FOC 16: 323. 1995.

Cuscuta arvensis Beyr. ex Engelm., Manual ed. 2, 336. 1856.

Annual herb. Stems yellowish green to yellow or orange, 0.5–0.8 mm in diam., smooth. Inflorescences lateral, usually compact globular clusters, 4–18-flowered, subsessile. Pedicel ca. 1 mm. Calyx enclosing corolla tube, ca. 1.5 mm; sepals 5, oval or orbicular, sometimes wider than long. Corolla white, short campanulate, ca. 2.5 mm, 4- or 5-lobed; lobes broadly triangular, apex acute or obtuse, often reflexed. Stamens shorter to longer than corolla lobes; anthers ovate, shorter than filaments; scales distinct, ovate, ca. as long as corolla tube, fimbrillate. Ovary globose. Styles 2; stigma capitate. Capsule compressed globose, ca. 3 mm in diam., ca. 2 mm high, with persistent corolla at base, irregularly opening. Seeds 1–4, often 3 or 4, dull yellow, ovoid.

Locality: Common in Hong Kong. *HK sheet 37677, 41647, 41859.*

Distribution: Fujian, Xinjiang, Guangdong (cultivated for biocontrol of *Mikania micrantha* Kunth); Africa, Asia, Australia, Europe, N & S America, Pacific islands.

Ecology: Roadsides, fields, margins of beaches, parasitic on *Mikania micrantha, Spinifex littoreus, Urena lobata*, etc. Flowering & fruiting: Dec.–Jul. of the following year.

286. MENYANTHACEAE 荇菜科

XIA Nian-he 夏念和

Perennial or annual herbs, aquatic or nearly so. Leaves alternate, rarely opposite, simple or 3-foliolate, estipulate. Flowers (4–)5-merous, bisexual, rarely polygamous, actinomorphic. Calyx lobes free or united. Corolla rotate or campanulate, lobes united, valvate in bud. Stamens 5, free, alternate with petals, anthers 2-celled, divaricate, dehiscing by longitudinal slits. Pollen grains bilaterally compressed, ± triquetrous, with 3 apertures. Nectaries often present. Ovary superior, 1-locular, placentation parietal, ovules many; style 1, stigmas 2-lobed. Fruit a capsule, dehiscent or indehiscent. Seeds few–many, sometimes winged; endosperm abundant.

About five genera and 60 species distributed in temperate and tropical regions worldwide; two genera and seven species in China; one genus and two species in Hong Kong.

1. Nymphoides Ség. 荇菜属

Perennial herbs, aquatic. Leaves alternate, rarely apparently opposite; leaf blade floating, ovate or suborbicular, base cordate, veins palmate. Flowers often clustered at nodes, rarely solitary. Calyx lobed to near base. Corolla often campanulate or rotate, deeply lobed, throat with 5 bundles of long fimbriae. Stamens inserted on corolla tube, alternate to corolla-lobes; filaments short or absent. Nectaries 5, often opposite to corolla-lobes. Style linear, attached at ovary base. Capsules ovoid or ellipsoidal, indehiscent, few seeded. Seeds compressed or globose, smooth or ornamented.

About 40 species distributed in temperate and tropical regions of the world; six species in China; two species in Hong Kong.

1a. Leaves apparently opposite at stem apex, alternate at stem node; petiole base amplexicaul; corolla yellow, 2.5–3 cm in diam..... 1. *N. peltatum*

1b. Leaves clustered or alternate; petiole base not amplexicaul; corolla white with a yellow base, 4–8 mm in diam.... 2. *N. cristatum*

1. Nymphoides peltatum (S. G. Gmel.) Kuntze 荇菜

Revis. Gen. Pl. 2: 429. 1891; FRPS 62: 415, pl. 67: 4–6. 1988; FFJ 4: 407, fig. 335. 1989; FOC 16: 141. 1995.

Limnanthemum peltatum S. G. Gmel., Novi Comment. Acad. Sci. Imp. Petrop. 14(1): 527. 1770.

Menyanthes nymphoides L., Sp. Pl. 1: 145. 1753.

Perennial herb, glabrous throughout. Stem unbranched, terete, sometimes rooting from nodes. Leaves alternate at stem base but opposite at apex; petiole 5–10 cm, base amplexicaul; leaf blade subleathery, ovate-orbicular to orbicular, 1.5–8 × 1.5–8 cm, base cordate, margin entire, adaxially glabrous, abaxially purple-brown and densely glandular, veins indistinct. Flowers usually densely clustered at nodes, 5-merous. Pedicel 3–7 cm. Calyx 7–9 mm, lobes elliptic-lanceolate to elliptic, apex obtuse. Corolla golden yellow, 2.5–3 cm, rotate, lobed to near base; lobes obovate, margin broadly membranous and irregularly laciniate, apex rounded to emarginate. Filaments sparsely pilose, 1–2 mm; anthers 2–3.5 mm. Ovary 0.7–1.7 cm; style to 1 cm; stigma large, 2-lobed, suborbicular. Glands golden yellow. Capsules elliptic, 1.7–2.5 × 0.8–1.1 cm. Seeds brown, compressed, elliptic, 4–5 mm, densely ciliate.

Locality: Cultivated. *Y. S. Lau 1000.*

Distribution: Widely distributed in China except Hainan, Qinghai, Xizang; Japan, Korea, Mongolia, Russia, C & SW Asia, Europe.

Ecology: Ponds. Flowering & fruiting: Apr.–Oct.

Uses: Ornamental.

2. Nymphoides cristatum (Roxb.) Kuntze
水皮蓮 **(Fig. 69; Photos 137–138)**

Revis. Gen. Pl. 2: 429. 1891; FRPS 62: 417. 1988; FFJ 4: 407. 1989; FOC 16: 141. 1995; FGD 4: 327. 2000.

Menyanthes cristata Roxb., Pl. Coromandel 2: 3, pl. 105. 1798.

Limnanthemum cristatum (Roxb.) Griseb., Gen. Sp. Gent. 342. 1839[1838]; FKH 175. 1912.

Villarsia cristata (Roxb.) Spreng., Syst. Veg. 1: 582. 1825[1824].

Stems unbranched, with a terminal leaf. Petiole 1–3 cm; leaf blade subleathery, ovate-orbicular to suborbicular, 3–10 cm, base cordate, margin entire, abaxially densely glandular, veins inconspicuous. Flowers many, grouped on nodes, 5-merous. Pedicel slender, 3–4.5 cm. Calyx 3–5.5 mm, lobes ovate-elliptic to ovate, apex obtuse. Corolla white with a yellow base, 4–8 mm; lobes ovate with a keeled fold from base to apex, apex obtuse. Filaments linear, 1–2 mm; anthers 0.8–1 mm. Ovary sessile. Style short; stigma lobes triangular. Capsules subglobose, 3–5 mm in diam., few seeded. Seeds light brown, globose, 1.3–1.5 mm in diam.; seed coat smooth or scabrous.

Locality: Sha Tin, Fanling, Yuen Long. *W. J. Tutcher 8154, 8390, 9983.*

Distribution: Fujian, Guangdong, Hainan, Hubei, Hunan, Jiangsu, Sichuan, Taiwan; E India.

Ecology: Ponds. Flowering & fruiting: Sep.–Oct.

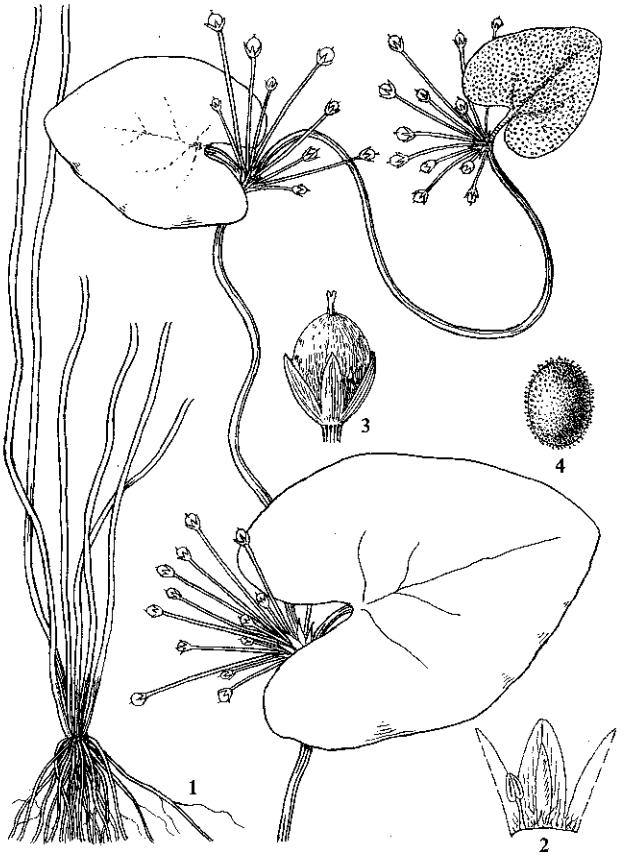


Figure 69. *Nymphoides cristatum* (Roxb.) Kuntze
1. portion of plant; *2.* corolla opened (partial); *3.* fruit; *4.* seed. (drawn by H. P. Yu)

290. BORAGINACEAE 紫草科

XIA Nian-he 夏念和

Herbs, shrubs, or trees, rarely lianas, usually bristly or scabrous-pubescent. Leaves simple, alternate, rarely opposite, exstipulate. Inflorescences often double scorpioid cymes, rarely solitary; bracts present or absent. Flowers bisexual, actinomorphic, rarely zygomorphic. Calyx usually 5-parted or lobed, mostly persistent. Corolla tubular, campanulate, rotate, funnelform, or salverform; tube appendages 5, rarely more; limb (4–)5(–8)-parted; lobes overlapping, rarely twisted in bud. Stamens 5, inserted on corolla tube or rarely at throat, alternate with corolla-lobe; anthers introrse, 2-celled, dehiscence longitudinal. Disk present or absent. Ovary superior, 2- or 4-locular; ovules 1 or 2 per locule. Style terminal or gynobasic, branched or not. Fruit 1–4-seeded drupes or nutlets (mericarps). Seeds vertical or oblique, coat membranous; embryo straight, less often curved; cotyledons flat, fleshy.

About 156 genera and 2500 species distributed in temperate and tropical regions; 47 genera and 294 species in China; six genera and seven species in Hong Kong.

Borago officinalis L. (玻璃苣) is occasionally cultivated as an ornamental.

1a. Herbs.
  2a. Nutlets tuberculate ..... 1. *Bothriospermum*
  2b. Nutlets smooth ..... 2. *Heliotropium*
1b. Trees or shrubs.
  3a. Stems climbing ..... 3. *Tournefortia*
  3b. Stems erect.
    4a. Styles twice 2-cleft; stigmas 4 ..... 4. *Cordia*
    4b. Style 2-cleft; stigmas 2.
      5a. Style 2-cleft to below middle; endocarp undivided, ovoid; leaf blade densely white-spotted adaxially ..... 5. *Carmona*
      5b. Style 2-cleft to above middle; endocarp divided into two 2-seeded, rarely four 1-seeded pyrenes; leaf blade not white-spotted adaxially ..... 6. *Ehretia*

1. Bothriospermum Bunge 斑種草屬

Annual or biennial herbs, multibranched, hispid and appressed pubescent. Leaves alternate. Racemes bracteates, terminal or axillary. Bracts leaf-like. Flowers small, pedicellate. Calyx 5-parted, not enlarged or slightly enlarged in fruit. Corolla rotate, blue or white; tube short; throat appendages 5, scale-like; lobes 5, overlapping in bud, apex obtuse. Stamens 5, inserted in corolla tube, inclusive; filaments extremely short; anthers ovoid, obtuse. Ovary 4-parted, valves distinct. Style short, not surpassing valves; stigma capitate. Gynobase flat. Nutlets 4, tuberculate, with an oblong, elliptic, or orbicular ring-like aperture. Seeds usually not curved.

About five species distributed in tropical and NE Asia; all five in China; one species in Hong Kong.

1. Bothriospermum zeylanicum (J. Jacq.) Druce
柔弱斑種草 **(Fig. 70; Photo 139)**

Bot. Exch. Club Brit. Isles. 4: 610. 1917; FOC 16: 420. 1995; FTW ed. 2, 4: 388. 1998.

Anchusa zeylanica J. Jacq., Ecl. Pl. Rar. 1: 47, t. 29. 1812.

Anchusa tenella Hornem., Hort. Bot. Hafn. 1: 176. 1815.

Bothriospermum tenellum (Hornem.) Fisch. & C. A. Mey., Index Sem. (St. Petersburg) 1: 24. 1835; FHK 235. 1861; FKH 177. 1912; FGZ 569, fig. 304. 1956; FTW 4: 393. 1978; FRPS 64(2): 218. 1990; FFJ 4: 514, fig. 408. 1989; Check List HK Plants 227. 2002; 79. 2004.

Annual herb, 15–30 cm tall. Stems slender, crowded, erect or prostrate, multibranched, appressed hispid. Leaf blade elliptic to narrowly elliptic, 1–2.5 cm × 5–10 mm, base broadly cuneate, apex obtuse, mucronulate, sparsely short appressed bristly or strigose. Racemes numerous, to 12 cm; lower bracts several, lanceolate, 1.5–5 mm, apex acute; upper ones very small. Pedicel 1–2 mm, not elongate or somewhat elongate in fruit. Calyx 1–1.5 mm, to 3 mm in fruit, with short ascending white bristles. Corolla blue or pale blue, 1.5–1.8 mm, base ca. 1 mm wide, slightly longer than calyx; throat appendages ca. 0.2 mm; limb 2.5–3 mm wide; lobes orbicular, ca. 1 mm. Style terete, ca. 0.5 mm. Nutlets grey, reniform, 1–1.2 mm.

Locality: South Bay Rd., Fanling, Sheung Shui, Lam Tsuen, Peng Shan. *Y. S. Lau 2673, 3059; Y. W. Lam 2267.*

Distribution: S, SW, E, N & NE China; Korea, Japan, Russia, Kazakhstan, Kyrgyzstan, Afghanistan, Tajikistan, Turkmenistan, Uzbekistan, Pakistan, Pakistan, India, Vietnam, Indonesia (Java, naturalized).

Ecology: Grasslands along roadsides. Flowering & fruiting: Jan.–Oct.



Figure 70. *Bothriospermum zeylanicum* (J. Jacq.) Druce
1. whole plant; *2.* flower; *3.* pistil; *4.* fruit. (drawn by H. P. Yu)

2. Heliotropium L. 天芥菜屬

Annual or perennial herbs, rarely subshrubs, pubescent or strigose, rarely scabrous. Leaves alternate, less often opposite, sessile or petiolate. Cymes terminal, rarely axillary, unilateral, scorpioid, bracteate or not. Calyx 5-parted. Corolla white or light bluish purple, less often yellow, cylindric or funnelform, strigose outside, glabrous and rarely appressed pubescent inside; throat frequently pubescent; limb 5-parted. Filaments extremely short; anthers inclusive. Ovary completely or incompletely divided into 4 lobes; ovules 4. Style terminal; stigma conical or ring-like. Fruit nutlet-like dry drupes, without evident mesocarp at maturity,

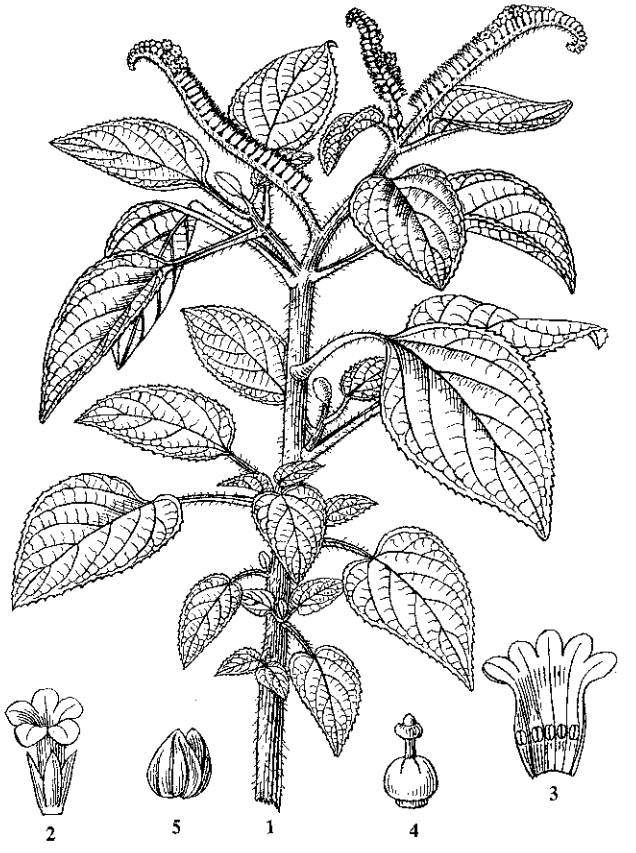


Figure 71. *Heliotropium indicum* L.
1. flowering branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* pistil; *5.* fruit. (drawn by H. P. Yu)

endocarp bony, dividing into four 1-seeded or two 2-seeded mericarps. Seeds straight or curved, endosperm thin or absent.

About 250 species distributed in tropical and temperate regions; ten species in China; one species in Hong Kong.

1. Heliotropium indicum L. 大尾摇 **(Fig. 71; Photo 140)**

Sp. Pl. 1: 130. 1753; FHK 235. 1861; FKH 177. 1912; FGZ 568, fig. 303; 1956; FHN 3: 457, fig. 855. 1974; FTW 4: 403. 1978; FRPS 64(2): 29. 1990; FFJ 4: 509, fig. 405. 1989; FOC 16: 341. 1995; FTW ed. 2, 4: 396. 1998.

Annual herb, 20–50 cm tall. Stems erect, stout, multibranched, spreading strigose. Leaves alternate or subopposite; petiole 2–5 cm; leaf blade ovate, 3–9 × 2–4 cm, base rounded or truncate, decurrent to petiole, apex acute, margin undulate, pubescent or strigose on both surfaces; lateral veins 5–7 pairs, impressed adaxially, spreading hirsute or strigose. Cymes solitary, scorpioid, unbranched, 5–15 cm, ebracteate. Flowers sessile, crowded. Calyx lobes lanceolate, 1.5–2 mm, strigose. Corolla light blue or blue-purple, salverform, 3–4 mm, ca. 1 mm wide at base; throat evidently contracted; limb 2–2.5 mm wide; lobes suborbicular, ca. 1 mm wide, margin crispate. Anthers narrowly ovoid, ca. 0.5 mm, inserted ca. 1 mm above base. Ovary glabrous. Style ca. 0.5 mm; stigma conical, pubescent. Fruit glabrous or nearly so, ribbed, 3–3.5 mm, deeply 2-cleft into mericarps, each mericarp divided into two 1-seeded pyrenes.

Locality: Lai Chi Wo, Butterfly Beach, Wu Kau Tang, Lantau Island, Cheung Chau. *Y. W. Lam 1544, 1549; HK sheet 41517.*

Distribution: Yunnan, Hainan, Guangdong, Fujian, Taiwan; tropical and subtropical regions of the world.

Ecology: Hills, river banks, open wastelands. Flowering & fruiting: May–Aug.

Uses: Medicinal (folklore).

Notes: *Heliotropium strigosum* Willd. (細葉天芥菜) was previously recorded from Lantau Island (FKH 177. 1912) and differs in its leaf blade being small and linear-lanceolate.

3. Tournefortia L. 紫丹屬

Scandent shrubs, rarely trees. Leaves alternate, petiolate, entire. Cymes terminal or axillary, corymbose, ebracteate. Calyx 4–5-parted; lobes linear, lanceolate or lanceolate-ovate, imbricate. Corolla white or pale green, usually funnelform; tube usually exceeding calyx, pubescent abaxially; throat without appendage; lobes 4 or 5, overlapping or valvate in bud. Stamens 4 or 5, inclusive; filaments short, inserted on corolla tube; anthers ovoid to ellipsoidal, mucronate or obtuse at apex. Disk slightly convex or sometimes nearly cupular. Ovary 4-locular; ovules 1 per locule, pendulous. Style terminal; stigma entire or slightly 2-cleft, base fleshy, ring-like, inflated. Drupes with watery, sticky, or corky mesocarp, endocarp divided into two 2-seeded or four 1-seeded mericarps at maturity. Seeds pendulous or oblique, straight or incurved; endosperm fleshy, copious or thin; cotyledons ovate or elliptic.

About 150 species distributed in tropical and subtropical regions; four species in China; one species in Hong Kong.

1. Tournefortia montana Lour. 紫丹 **(Fig. 72; Photo 141)**

Fl. Cochinch. 1: 122. 1790; FKH 177. 1912; FGZ 568, fig. 302. 1956; FHN 3: 458, fig. 856. 1974; FRPS 64(2): 31. 1990; FOC 16: 341. 1995.

Tournefortia brachyantha Merr. & Chun, Sunyatsenia 2(3–4): 314, fig. 43. 1935.

Tournefortia sampsonii Hance, J. Bot. 6(71): 330. 1868.

Scandent shrub, 1–2 m tall; branchlets pubescent. Petiole 5–10 mm; leaf blade lanceolate to ovate-lanceolate, 8–14 × 1.5–4 cm, base cuneate to rounded, apex acuminate to caudate-acute, sparsely strigose on both surfaces, black when dry. Cymes scorpioid, terminating leafy branches, sparsely branched, 2–15 cm, strigose. Flowers unilateral, sessile. Calyx parted to middle or slightly below, ca. 2 mm, strigose; lobes lanceolate to triangular-lanceolate. Corolla white, urceolate; limb 5-lobed. Stamens sessile. Stigma sessile at apex of globose ovary. Fruit subglobose, ca. 5 mm in diam.; endocarp divided at maturity into two 2-seeded mericarps.

Locality: Castle Peak. *K. L. Yip 4154; HK sheet 39588, 39667.*

Distribution: Yunnan, Hainan, Guangdong; Vietnam.

Ecology: Thickets. Flowering & fruiting: Spring to summer.

Notes: Listed in *Rare and Precious Plants of Hong Kong.*



Figure 72. *Tournefortia montana* Lour.
1. fruiting branch; *2*. flower; *3*. pistil. (drawn by H. P. Yu)

4. Cordia L. 破布木屬

Trees or shrubs. Leaves alternate, rarely opposite, usually evidently petiolate, margin entire or serrate, rarely lobed. Cymes mostly corymbose, ebracteate. Flowers bisexual, often heterostylic or ± functionally unisexual. Calyx tubular or campanulate, enlarged after anthesis, persistent. Corolla white, yellow, or orange-red, campanulate to funnelform, usually (4–)5(–8)-lobed; lobes antrorse or recurved. Stamens usually well developed; filaments often pubescent at base. Ovary 4-locular, glabrous; ovule 1 per locule. Style twice 2-cleft, each branch with a spatulate or capitate stigma. Drupes ovoid, globose, or ellipsoidal, often with watery or sticky fleshy mesocarp and bony endocarp, rarely with corky mesocarp or nut-like without fleshy mesocarp. Seeds 1–4, endosperm lacking; cotyledons plicate.

About 325 species mostly distributed in tropics of N & S America, poorly represented in Africa and Asia; five species in China; one species in Hong Kong.

1. Cordia dichotoma G. Forst. 破布木 **(Fig. 73; Photo 142)**

Fl. Ins. Austr. 18. 1786; FGZ 566. 1956; FHN 3: 452, fig. 852. 1974; FTW 4: 395. 1978; FRPS 64(2): 9, pl. 1: 8–12. 1990; FFJ 4: 505, fig. 402. 1989; FOC 16: 333. 1995; FTW ed. 2, 4: 390, photo 226. 1998.

Varronia sinensis Lour., Fl. Cochinch. 1: 138. 1790.

Cordia myxa auct. non L.: FKH 176. 1912.

Tree, 3–8 m tall. Branches sparsely pilose when young, glabrescent. Petiole 2–5 cm; leaf blade thinly leathery, ovate to broadly ovate or elliptic, 6–13 × 4–9 cm, base rounded to broadly cuneate, apex obtuse to mucronate, margin usually subundulate to undulate dentate, rarely entire, sparsely pubescent or glabrous. Inflorescences terminating leafy lateral branches, dichotomously branched into corymbose cymes, widely spaced, 5–8 cm wide. Flowers dimorphic, sessile. Calyx campanulate, 5–6 mm, 5-lobed; lobes unequal, triangular. Corolla white, nearly as long as calyx; lobes shorter than tube. Filaments of male flowers ca. 3.5 mm, filaments of bisexual flowers 1–2 mm. Rudimentary pistil globose. Style united portion 1–1.5 mm, first branches ca. 1 mm, second branches 2–3 mm; stigma spatulate. Drupes yellow or reddish, subglobose, 1–1.5 cm in diam., with sticky mesocarp, surrounded by persistent calyx.

Locality: Stanley, Garden Rd., Lai Chi Kok, Tai Po, Lam Tsuen, Ma On Shan, Tai Mo Shan, Sai Kung (Tai Long), Sha Tau Kok, Lantau Island. *Y. S. Lau 878, 1390; P. S. Choi 344.*

Distribution: Xizang, Yunnan, Guizhou, Guangxi, Hainan, Guangdong, Fujian, Taiwan; Kashmir, Myanmar, Pakistan, N India, Japan (Ryukyu Islands), Cambodia, Laos, Malaysia, Thailand, Vietnam, Indonesia, NE Australia, Pacific islands

Ecology: Forests. Flowering: Apr.–Jun.; fruiting: Jun.–Sep.

Uses: Oil, medicinal (folklore), timber.

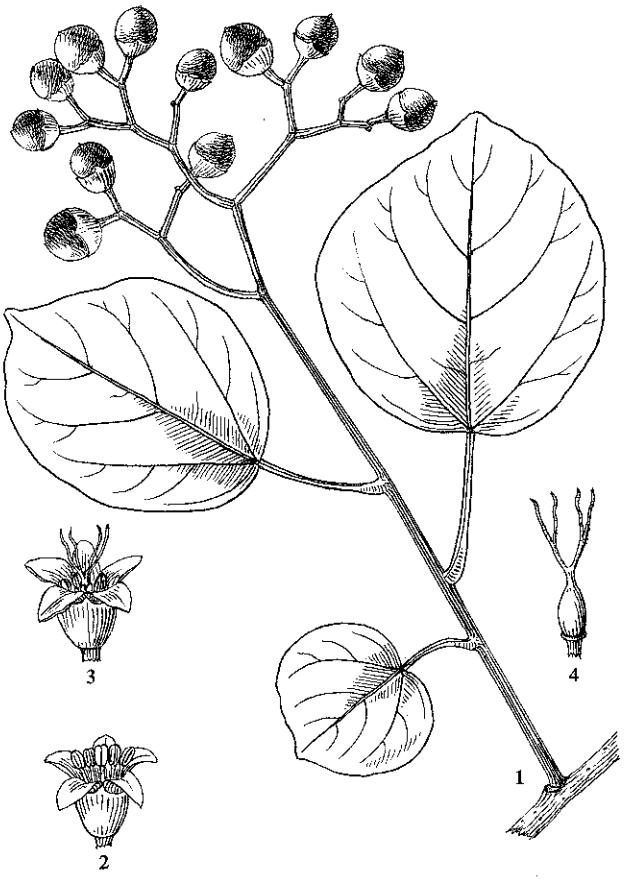


Figure 73. *Cordia dichotoma* G. Forst.
1. fruiting branch; *2.* male flower; *3.* bisexual flower; *4.* pistil. (drawn by H. P. Yu)

5. Carmona Cav. 基及樹屬

Shrubs or small trees. Leaves small, petiolate, alternate on annual twigs, fasciculate on brachyblasts, scabrous, adaxially white spotted, margin coarsely dentate. Inflorescences axillary, usually 2–6-flowered in sparse glomerules. Calyx 5-parted; lobes spreading. Corolla white; tube short; throat without appendage; lobes spreading. Stamens exserted. Style terminal on ovary, 2-cleft nearly to base, nearly as long as corolla, persistent, beaked in fruit; stigmas 2, capitate. Drupes red or yellow, subglobose; endocarp bony, entire at maturity, 4-seeded.

One species distributed in China, Japan, Indonesia, Australia; it also occurs in Hong Kong.

1. Carmona microphylla (Lam.) G. Don 基及樹(福建茶) **(Fig. 74; Photo 143)**

Gen. Hist. 4: 391. 1837; FHN 3: 453. 1974; FRPS 64(2): 21. 1990; FOC 16: 337. 1995; FTW ed. 2, 4: 388. 1998.

Ehretia microphylla Lam., Encycl. Meth. 1: 425. 1783; FTW 4: 400. 1978; FFJ 4: 506, fig. 403. 1989.

Carmona heterophylla Cav., Icon. 5: 22, pl. 23. 1799.

Ehretia buxifolia Roxb., Pl. Coromandel 1: 42, pl. 57. 1795.

Ehretia dentata Courchet, Fl. Indo-Chine 4: 206. 1914.

Shrub, 1–4 m tall, multibranched; bark brown; branches slender, sparsely hirtellous when young. Petiole 1–5 mm; leaf blade leathery, obovate to spatulate, 0.8–4 × 0.5–2 cm, base attenuate, apex rounded to acute, margin coarsely crenate, adaxially hirtellous or spotted, abaxially subglabrous. Glomerules spreading, 0.5–1.5 cm wide. Peduncle slender, 1–1.5 cm, pubescent. Pedicel 1–1.5 mm, or ± obsolete. Calyx 4–6 mm, parted nearly to base; lobes linear or linear-oblanceolate, 0.5–0.8 mm, spreading hirtellous, densely appressed pubescent inside. Corolla white or slightly reddish, campanulate, 4–6 mm; lobes spreading, oblong, longer than tube. Filaments 2.5–4 mm, inserted near base of corolla; anthers ellipsoidal, 1.5–1.8 mm. Style 4–6 mm, glabrous. Drupes 3–4 mm in diam.; endocarp globose, reticulate-wrinkled, 2–3 mm in diam., apex short beaked.

Locality: Cultivated. *Y. S. Lau 2312.*

Distribution: Hainan, S Guangdong, Taiwan, widely cultivated in S China; S & E Asia, New Guinea, Solomon Islands, Australia.

Ecology: Flowering: Aug.

Uses: Ornamental.

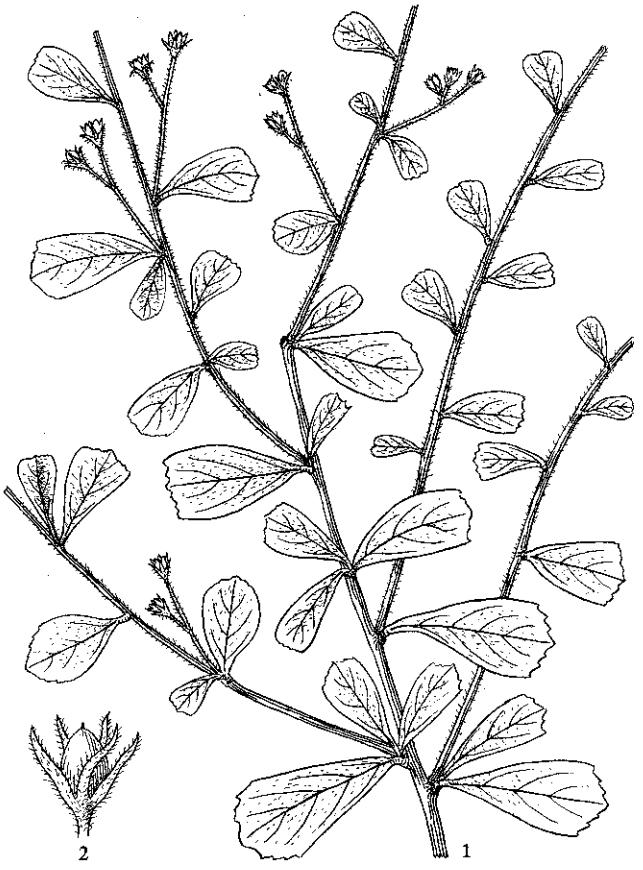


Figure 74. *Carmona microphylla* (Lam.) G. Don
1. flowering branch; *2.* fruit. (drawn by H. P. Yu)

6. Ehretia P. Browne 厚殼樹屬

Trees or shrubs. Leaves petiolate, entire or serrate at margin. Inflorescences corymbose or paniculate-cymose. Calyx 5-lobed. Corolla white or pale yellow, tubular or tubular-campanulate, rarely funnelform, 5-lobed; lobes spreading or reflexed. Filaments slender, usually exserted; anthers ovoid to ellipsoidal. Ovary globose, 2-locular, ovules 2 per locule. Style terminal, 2-cleft; stigmas 2, capitate or elongate. Drupes yellow, orange, or pale red, subglobose, glabrous, endocarp divided into two 2-seeded or four 1-seeded pyrenes at maturity.

About 50 species mostly distributed in Africa and S Asia, few in N America and the Caribbean; 14 species in China, mainly S of the Changjiang; two species in Hong Kong.

1a. Leaves entire ..... 1. *E. longiflora*
1b. Leaves serrate ..... 2. *E. acuminata*

1. Ehretia longiflora Champ. ex Benth. 長花厚殼樹 **(Photos 144–145)**

Hooker's J. Bot. Kew Gard. Misc. 5: 58. 1853; FHK 234. 1861; FKH 176. 1912; FTW 4: 400. 1978; FRPS 64(2): 18. 1990; FFJ 4: 507. 1989; FOC 16: 336. 1995; FTW ed. 2, 4: 395, photo 230. 1998.

Ehretia glaucescens Hayata, Icon. Pl. Formosan. 3: 153. 1913.

Deciduous tree, 5–15 m tall; bark dark grey to dark brown, scaly; branchlets glabrous. Petiole 1–2 cm, glabrous; leaf blade papery, elliptic to oblong or oblong-oblanceolate, 8–15 × 4–8 cm, base broadly cuneate, rarely rounded, apex acute, margin entire, glabrous; lateral veins 4–7 pairs. Cymes corymbose, terminating lateral branches, glabrous or sparsely pubescent, ebracteate. Flowers sessile or short pedicellate. Calyx 1.5–2 mm, glabrous; lobes semiorbicular, inconspicuously ciliate. Corolla white, tubular-campanulate, 0.7–1 cm, glabrous; throat 4–5 mm wide; lobes slightly recurved, ovate to elliptic-ovate, 2–3 mm, shorter than tube. Filaments 0.8–1 cm; anthers ca. 1 mm. Ovary glabrous. Style 0.7–1.5 cm. Drupes pale yellow or red, globose, 0.8–1.5 cm in diam.; endocarp ribbed, divided into four 1-seeded pyrenes at maturity.

Locality: Hong Kong Island, Ma On Shan, Ng Tung Chai, Bride's Pool, Castle Peak, Lantau Island. *Y. S. Lau 140, 2393; HK sheet 40351.*

Distribution: Guangxi, Hainan, Guangdong, Fujian, Taiwan; Vietnam.

Ecology: Forests. Flowering & fruiting: Jan.–Sep.

Notes: The type specimen (*J. G. Champion s.n.*, K) was collected from Happy Valley woods between 1847 and 1850.

2. Ehretia acuminata R. Br.

厚殼樹 **(Fig. 75; Photos 146–147)**

Prodr. 147. 1810; FKH 177. 1912; FOC 16: 334. 1995; FTW ed. 2, 4: 393, photo 228. 1998.

Cordia thyrsiflora Siebold & Zucc., Fl. Jap. 2: 26. 1846. (Abh. Bayer. Akad. Wiss. Math. Phys. Cl. 4(3): 150, pl. 3. 1846.)

Ehretia acuminata var. *obovata* (Lindl.) I. M. Johnst., J. Arnold Arbor. 32(1): 21. 1951; FHN 3: 454. 1974.

Ehretia taiwaniana Nakai, J. Arnold Arbor. 5(1): 38. 1924; FGZ 567. 1956.

Ehretia thyrsiflora (Siebold & Zucc.) Nakai, Trees & Shrubs Japan Proper, ed. 1, 327. 1922; FRPS 64(2): 12. 1990; FFJ 4: 507. 1989.

Tree to 15 m tall, glabrous except young parts; bark black-grey, laciniate; branchlets brown, conspicuously lenticellate. Petiole 1.5–3.5 cm; leaf blade elliptic to obovate or oblong-obovate, 5–15 × 4–6 cm, base broadly cuneate, apex acute or apiculate, margin serrulate with teeth curved upward, glabrous or sparsely puberulent. Inflorescences paniculate, terminal, 8–15 cm. Flowers small, crowded, fragrant. Calyx 1.5–2 mm; lobes ovate, ciliate. Corolla white, campanulate, 3–4 mm; lobes spreading, oblong, longer than tube. Filaments 2–3 mm, inserted on 0.5–1 mm from the base of tube; anthers ovoid, ca. 1 mm. Style 1.5–2.5 mm. Drupes yellow or orange, 3–4 mm in diam.; endocarp wrinkled, divided into two 2-seeded pyrenes at maturity.

Locality: Deep Water Bay, Tai Wai, Sha Tin, Kam Tin, Lantau Island. *L. T. Lo 531; P. S. Choi 214; HK sheet 39744.*

Distribution: S, SW, C & E China; Bhutan, India, Indonesia, Japan, Vietnam, Australia.

Ecology: Forests. Flowering & fruiting: Apr.–Sep.

Uses: Timber, medicinal (folklore), dye, ornamental.

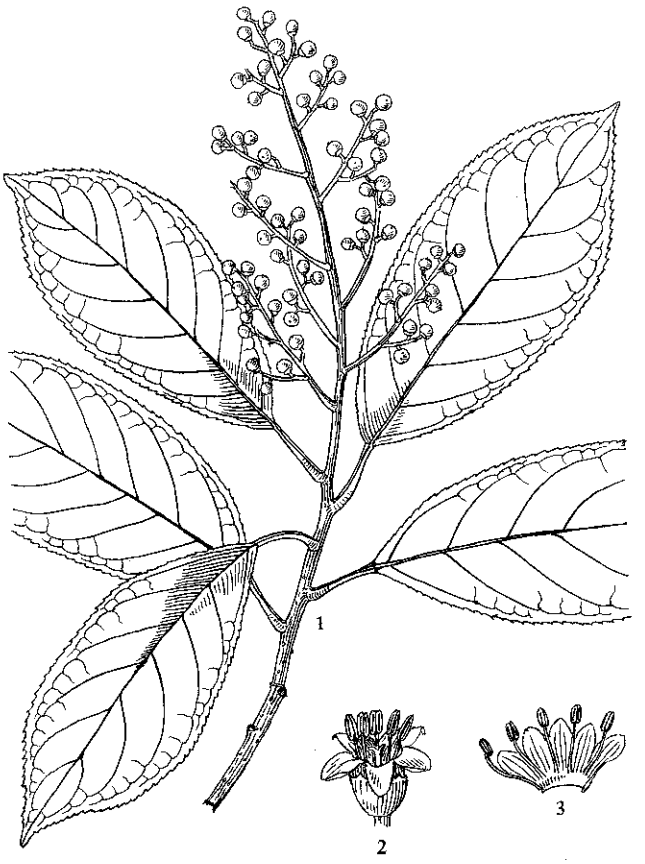


Figure 75. *Ehretia acuminata* R. Br.
1, fruiting branch; *2*, flower; *3*, corolla opened up showing stamens. (drawn by H. P. Yu)

291. VERBENACEAE 馬鞭草科

XIA Nian-he 夏念和

Shrubs or trees, sometimes climbing shrubs, rarely herbs. Indumentum of simple, stellate, and/or other complex hairs. Leaves opposite or rarely whorled, without stipules, simple or 3-foliolate, less often palmately (or pinnately) compound. Inflorescences terminal or axillary, racemose, cymose, spicate, or thyrses. Flowers bisexual or polygamous by abortion, zygomorphic or rarely actinomorphic. Calyx persistent. Corolla 4- or 5- or more lobed; lobes usually spreading, aestivation overlapping. Fertile stamens inserted on corolla tube, alternate with lobes; filaments free; anthers dorsifixed, 1- or 2-locular, dehiscing by longitudinal slits or sometimes a circular pore. Ovary entire or 4-grooved, 2–8-locular; ovules 1 or 2 per locule, erect or pendulous. Style terminal, simple, entire or 2-cleft. Fruit a drupe or indehiscent capsule, sometimes breaking up into nutlets. Seeds (1 or)2–4, endosperm usually absent, seed coat thin; embryo straight, as long as seed; radicle short, inferior.

About 91 genera and ca. 2000 species distributed in tropical and subtropical regions of the world; 20 genera and 182 species in China; 14 genera, 35 species and one variety in Hong Kong.

1a. Herbs.
  2a. Flowers pedicellate, solitary ..... 1. *Caryopteris*
  2b. Flowers sessile, in spikes.
    3a. Stems prostrate; inflorescences ovoid, ellipsoidal or cylindric ..... 2. *Phyla*
    3b. Stems erect; inflorescences linear, often rather long.
      4a. Fertile stamens 4; inflorescence rachis not excavated; basal leaves often 3-lobed, lobe margin irregularly coarse-toothed ..... 3. *Verbena*
      4b. Fertile stamens 2; inflorescence rachis excavated; basal leaves unlobed, margin irregularly serrate ..... 4. *Stachytarpheta*
1b. Shrubs or trees, sometimes woody vines.
  5a. Mangrove trees, growing along sea coast in tidal mud ..... 5. *Avicennia*
  5b. Lianas, shrubs, herbs, or trees, growing inland or on sandy beaches at sea coast.
    6a. Inflorescences dense capitates; flowers in the same inflorescence in different colour ..... 6. *Lantana*
    6b. Inflorescences not as above; flowers in the same inflorescence not in different colour.

7a. Flowers actinomorphic; stamens 4–6, subequal.
8a. Flowers 4-merous; inflorescences often axillary, cymose; calyx not enlarged in fruit ..... 7. *Callicarpa*
8b. Flowers 5–6-merous; inflorescences terminal, paniculate; calyx enlarged in fruit ..... 8. *Tectona*
7b. Flowers ± zygomorphic; stamens 4, unequal.
9a. Inflorescences racemose ..... 9. *Duranta*
9b. Inflorescences not as above.
10a. Calyx evidently enlarged in fruit, colourful.
11a. Calyx campanulate; corolla-tube not curved ..... 10. *Clerodendrum*
11b. Calyx salverform; corolla-tube curved ..... 11. *Holmskioldia*
10b. Calyx not or slightly enlarged in fruit, green.
12a. Leaves palmately compound (except *Vitex rotundifolia*); central lobe of lower corolla lip evidently larger ..... 12. *Vitex*
12b. Leaves simple; central lobe of lower corolla lip slightly larger.
13a. Flowers large, showy; leaf base with large glands ..... 13. *Gmelina*
13b. Flowers small; leaf base without large glands ..... 14. *Premna*

1. Caryopteris Bunge 豬屬

Herbs, subshrubs, or shrubs, erect or climbing. Leaves opposite, simple, entire or dentate, usually with yellow glands. Cymes axillary or terminal, solitary or aggregate into thyrses, rarely flower solitary. Calyx campanulate, limb (4–)5(–6)-dentate or -lobed, lobes often triangular or lanceolate, slightly enlarged in fruit. Corolla short-tubed, slightly 2-lipped, upper lip 2-lobed, lower lip 3-lobed, central lobe larger, margin entire or dentate. Stamens 4, unequal or subequal, often strongly exserted, inserted on apical part of corolla tube. Ovary 4-locular; ovule 1 per locule, pendulous or laterally attached. Stigma 2-cleft. Fruit dry, globose, usually dividing into four nutlets; nutlet winged or not.

About 16 species distributed in C & E Asia; 14 species in China; one species in Hong Kong.

1. Caryopteris incana (Thunb. ex Houtt.) Miq. 蘭香草 **(Fig. 76; Photos 148–149)**

Ann. Mus. Bot. Lugduno-Batavum 2: 97. 1866; FGZ 634. 1956; FTW 4: 418. 1978; FRPS 65(1): 198. 1982; FFJ 4: 551, fig. 431. 1989; FOC 17: 45. 1994; FGD 3: 384. 1995; FTW ed. 2, 4: 414, photo. 178. 1998.

Nepeta incana Thunb. ex Houtt., Nat. Hist. 2(9): 307. 1778.

Barbula sinensis Lour., Fl. Cochchin. 367. 1790.

Caryopteris mastacantnus Schauer, Prodr. 11: 625. 1847; FHK 268. 1861; FKH 205. 1912.

Caryopteris ovata Miq., J. Bot. Neerl. 1: 144. 1861.

Caryopteris sinensis (Lour.) Dippel, Handb. Laubholzkunde 1: 59, fig. 24. 1889.

Perennial herb, 20–60 cm or taller, aromatic, with woody base. Branchlets terete, often slightly purple, greyish white pubescent, glabrescent. Petiole 0.3–1.7 mm; leaf blade thickly papery, oblong, ovate or lanceolate, 1.5–7(–9) × 0.4–4 cm, base cuneate, subrounded, or truncate, apex obtuse to acute, margin coarsely serrate to rarely subentire, greyish white pubescent and yellow glandular on both surfaces. Inflorescences dense corymbose cymes. Bracts and bracteoles absent. Calyx cupular, ca. 2 mm, pubescent and glandular abaxially, 5-lobed, lobes oblong-lanceolate, longer than tube. Corolla purplish to bluish, tube ca. 6 mm, throat with a ring of hairs, lower lobe fringed, pubescent and glandular on both surfaces. Stamens and style exserted. Ovary pubescent. Fruiting calyx 4–5 mm. Fruit ca. 2.5 mm in diam., hirsute, nutlets with winged edges.

Locality: Hong Kong Island, Lamma Island, Tai A Chau, Lantau Island. *Y. S. Lau 1296; P. S. Choi 517; Y. W. Lam 1181.*

Distribution: Guangdong, Guangxi, Hunan, Fujian, Jiangxi, Zhejiang, Anhui, Jiangsu; Japan, Korea.

Ecology: Hillslopes. Flowering & fruiting: Jun.–Oct.

Uses: Medicinal (folklore).

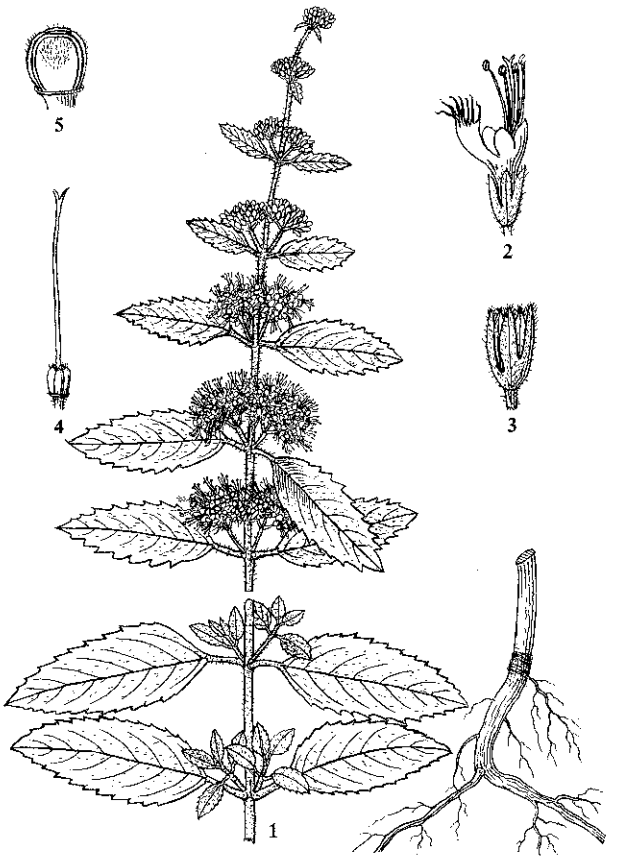


Figure 76. *Caryopteris incana* (Thunb. ex. Houtt.) Miq.
1. portion of plant; *2.* flower; *3.* calyx; *4.* pistil; *5.* fruit. (drawn by H. P. Yu)

2. Phyla Lour. 過江藤屬

Prostrate herbs. Stems herbaceous, usually acutely 4-angled, sometimes woody at base, often spiny, hirsute, glandular, rooting

at node. Leaves simple, opposite. Inflorescences terminal, spicate or capitate, ± elongate in fruit. Bracts obovate. Flowers small, sessile or subsessile. Calyx small, membranous, ± 2-lipped, 4-lobed. Corolla sometimes 2-lipped; upper lip smaller, entire or 2-lobed, lower lip larger, 3-lobed. Stamens 4, didynamous, inserted on distal part of corolla tube, inclusive. Ovary 2-locular; ovule 1 per locule. Style short; stigma capitate. Fruit small, dry, splitting into two 1-seeded nutlets.

About ten species distributed in Africa, America, and Asia; one species in China; it also occurs in Hong Kong.

1. Phyla nodiflora (L.) Greene 過江藤 **(Fig. 77; Photo 150)**

Pittonia 4(20E): 46. 1899; FTW 4: 427. 1978; FRPS 65(1): 19, fig. 5. 1982; FFJ 4: 520, fig. 413. 1989; FOC 17: 3. 1994; FGD 3: 344, fig. 225. 1995; FTW ed. 2, 4: 421, photo. 252. 1998.

Verbena nodiflora L., Sp. Pl. 1: 20. 1753.

Lippia nodiflora (L.) Michx., Fl. Bor.-Amer. 2: 15. 1803; FKH 201. 1912; FGZ 623. 1956; FHN 4: 4, fig. 945. 1977.

Phyla chinensis Lour., Fl. Cochinch. 66. 1790.

Perennial herb, multibranched. Branches many, creeping, rooting at distal nodes, minutely strigose. Leaves subsessile; leaf blade papery, spatulate, obovate to oblanceolate, 1–3 × 0.5–1.5 cm, base narrowly cuneate, apex obtuse, margin distally sharply serrate, pubescent. Spikes cylindric to ovoid, 0.5–3 × 0.6 cm. Peduncle 1–7 cm. Bracts broadly ovate, ca. 3 mm wide. Calyx ca. 2 mm. Corolla pinkish purple or white, glabrous. Stamens inclusive. Ovary glabrous. Capsules pale yellow, ca. 1.5 mm in diam., enclosed by persistent calyx.

Locality: Shek O, Mount Kellet, Tai Mo Shan, Tai Long Sai Wan, Lantau Island. *Y. S. Lau 658, 2582; Y. W. Lam 777.*

Distribution: Fujian, Guangdong, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan; widely distributed in tropical and subtropical regions.

Ecology: Grasslands, along streams. Flowering & fruiting: Jun.–Oct.

Uses: Medicinal (folklore).

3. Verbena L. 馬鞭草屬

Herbs or subshrubs. Stems erect or prostrate, glabrous or hairy. Leaves opposite, rarely whorled or alternate, sessile, dentate, lobed, or pinnatifid, rarely entire. Spikes usually terminal, simple or branched, rachis not excavated. Bracts small. Flowers alternate, nearly zygomorphic. Calyx membranous, tubular, 5-dentate. Corolla-tube erect or curved; lobes 5, unequal, spreading, oblong, apex obtuse, rounded or slightly emarginate, imbricate in buds. Stamens 4, fertile, didynamous, inserted at middle of corolla tube, inclusive; anthers ovoid, thecae parallel or slightly divergent. Ovary 4-locular; ovules erect, 1 per locule. Fruit dry, enclosed in persistent calyx, dehiscing into four 1-seeded pyrenes. Seeds without endosperm.

About 250 species mainly distributed in tropical America; one species in China; it also occurs in Hong Kong.

Additional species (*V.* × *hybrida* Voss 鋪地馬鞭草, *V. rigida* Spreng. 顯脈馬鞭草 and *V. tenuisecta* Briq.) are occasionally cultivated as ornamentals. Native to S America, the pantropical weed *V. bonariensis* L. (南美馬鞭草) was also recorded.

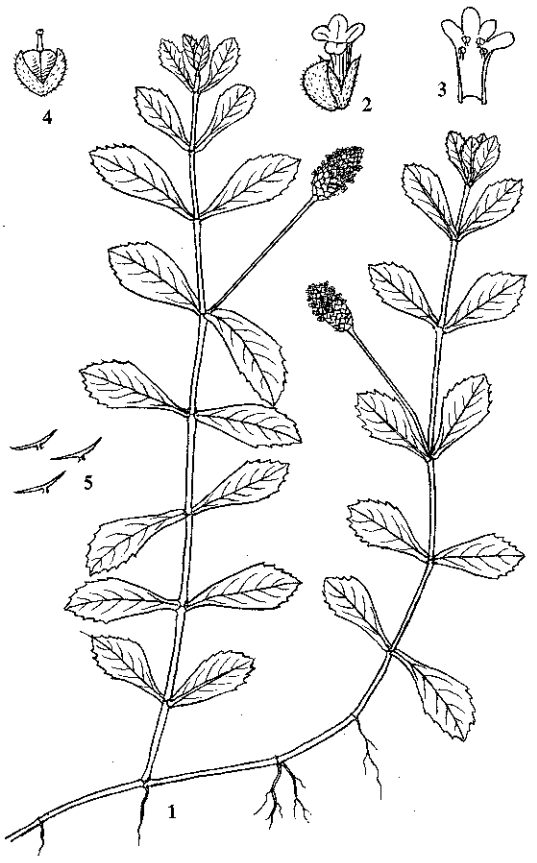


Figure 77. *Phyla nodiflora* (L.) Greene
1. portion of plant; *2.* flower with bract; *3.* corolla opened up showing stamens; *4.* pistil; *5.* amplification of hairs. (drawn by H. P. Yu)

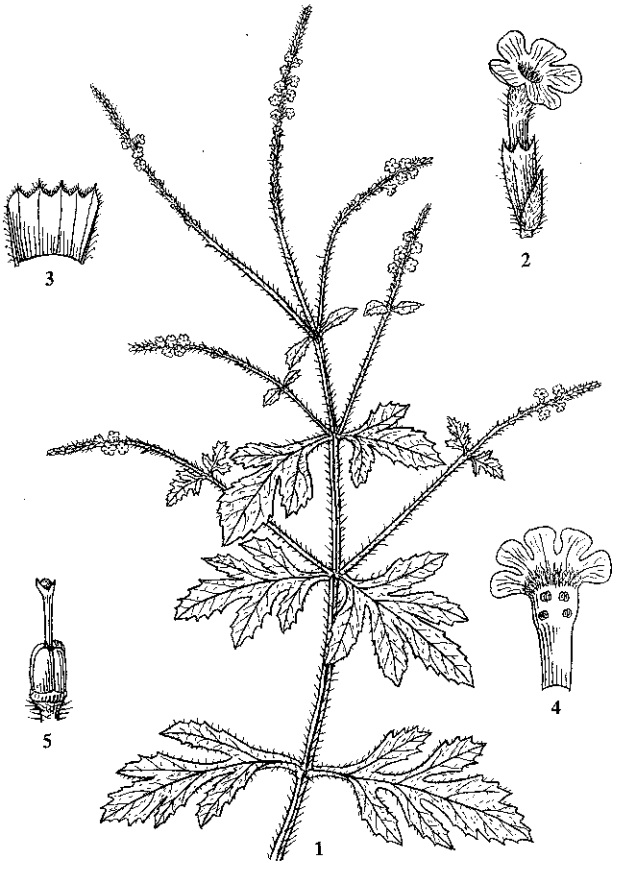


Figure 78. *Verbena officinalis* L.
1. flowering branch; *2.* flower; *3.* calyx opened; *4.* corolla opened up showing stamens; *5.* pistil. (drawn by H. P. Yu)

1. Avicennia marina (Forssk.) Vierh.
海欖雌(白骨壤) **(Fig. 80; Photos 153–154)**

Denkschr. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl. 71: 435. 1907; FHN 4: 6. 1977; FTW 4: 410. 1978; FRPS 65(1): 5. 1982; FFJ 4: 517, fig. 410. 1989; FOC 17: 49. 1994; FGD 3: 340, fig. 223. 1995; FTW ed. 2, 4: 404, pl. 175, photo 238–239. 1998.

Sceura marina Forssk., Fl. Aegypt.-Arab. 37. 1775.

Avicennia officinalis auct. non L.: FKH 205. 1912.

Shrub 1.5–6 m tall. Branchlets ridged when young. Leaves subsessile; leaf blade elliptic to ovate, 2–7 × 1–3.5 cm, base acuminate, apex obtuse, adaxially glabrous and shiny, abaxially pubescent; midvein conspicuous, lateral veins 4–6 pairs. Cymes dense, capitates. Peduncle 1–2.5 cm. Bracts 5, ca. 2.5 × 3 mm, in 2 whorls, outer ones densely tomentose, inner ones smooth, blackish brown. Flowers ca. 5 mm in diam. Calyx-lobe ca. 3 × 2–3 mm, tomentose abaxially. Corolla yellow, tube short, limb 4-lobed, lobes ca. 2 mm, tomentose abaxially. Stamens slightly exserted. Ovary densely tomentose distally. Fruit subglobose, ca. 1.5 cm in diam., hairy.

Locality: Lan Nai Wan, Tai Po, Nam Chung, Luk Keng, Mai Po, Sheung Pak Nai, Ha Pak Nai, Kei Ling Ha, Yung Shue O, Chek Keng, Lantau Island. *Y. S. Lau 1496, 2793; Y. W. Lam 795.*

Distribution: Guangdong, Hainan, Fujian, Taiwan; SE Asia, E Africa, N Australia.

Ecology: Mangrove. Flowering & fruiting: Jul.–Oct.

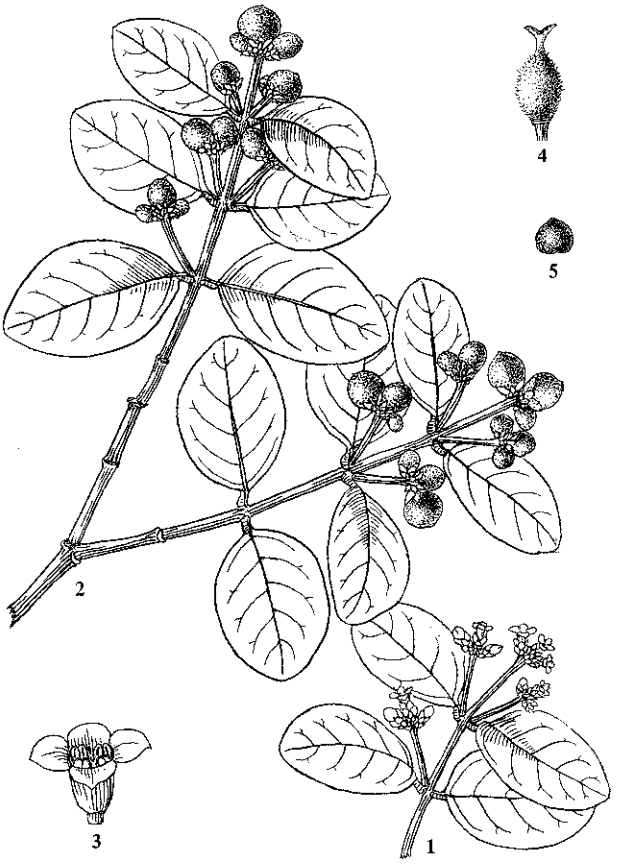


Figure 80. *Avicennia marina* (Forssk.) Vierh.
1. flowering branch; *2.* fruiting branch; *3.* flower; *4.* pistil; *5.* seed. (drawn by H. P. Yu)

6. Lantana L. 馬纓丹屬

Erect or scandent shrubs, aromatic, pubescent or glabrous. Branches tetragonal, sometimes prickly. Leaves simple, opposite, crenate, often rugose. Inflorescences terminal or axillary, capitate, pedunculate. Bracts large, wider at base; bracteoles tiny. Calyx small, membranous, limb truncate or sinuate dentate. Corolla with different colours in the same capitula, nearly actinomorphic or slightly 2-lipped, tube slender; lobes 4 or 5, spreading. Stamens 4, didynamous, inclusive, anthers ovoid, thecae parallel. Ovary 2-locular. Style inclusive; stigma obliquely subcapitate. Drupes baccate, with two 1-seeded pyrenes.

About 150 species distributed in tropical and subtropical America, one species naturalized in China; it also occurs in Hong Kong.

L. montevidensis (Spreng.) Briq. (小葉馬纓丹; Photo 155) and *L. trifolia* L. (三葉臭金鳳) are cultivated as ornamentals.

1. Lantana camara L. 馬纓丹(如意草) **(Fig. 81; Photo 156)**

Sp. Pl. 2: 627. 1753; FHK 268. 1861; FKH 201. 1912; FRPS 65(1): 17, fig. 4. 1982; FFJ 4: 520, fig. 412. 1989; FOC 17: 2. 1994; FGD 3: 343. 1995.

Erect shrub 1–2 m or taller. Stems and branches tetragonal, armed with stout recurved prickles, pubescent. Petiole 1–2 cm, pubescent; leaf blade papery, wrinkled, very rough, with short stiff hairs, aromatic when crushed, ovate to oblong, 3–8.5 × 1.5–5 cm, base rounded to subcordate, apex acute or acuminate, margin crenate; lateral veins 5 pairs, elevated. Capitula terminal, 1.5–2.5 cm across. Peduncle robust, longer than petiole. Bracts lanceolate, 3 times as long as calyx, hirsute abaxially. Calyx tubular, membranous, ca. 1.5 mm, limb very short dentate. Corolla yellow or orange, often turning deep red soon after opening, tube ca. 1 cm, 4–6 mm in diam., pubescent on both surfaces; limb 4–5-lobed, spreading. Ovary glabrous. Drupes globose, ca. 4 mm in diam., purplish black.



Figure 81. *Lantana camara* L.
1. flowering and fruiting branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* pistil. (drawn by H. P. Yu)

Locality: Naturalized in Hong Kong. *Y. S. Lau 579, 2536; L. T. Lo 487.*

Distribution: Naturalized in S China; native to America, widely naturalized in the tropical and subtropical regions of the world.

Ecology: Thickets and open fields. Flowering & fruiting: Nearly all year round.

Uses: Medicinal (folklore), ornamental.

Notes: A very wide range of flower colours has been developed within cultivars of this species. *Lantana camara* 'Snow White' (雪白馬纓丹) is also cultivated for ornamental uses.

7. Callicarpa L. 紫珠屬

Shrubs or trees, erect or rarely scandent. Branchlets terete or tetragonal, covered with stellate, verticillately branched, dendritic, mealy tomentose, or rarely simple and hooked hairs. Leaves simple, opposite or whorled, petiolate or subsessile, margin serrate, rarely entire, usually hairy and glandular. Cymes axillary, sessile or pedunculate. Bracts small, linear, rarely leafy. Flowers small, often actinomorphic. Calyx cupular or campanulate, rarely tubular, truncate or minutely 4-dentate, persistent in fruit. Corolla purple, red or white, campanulate or tubular, lobes 4. Stamens 4, inserted on the base of corolla tube; filaments slender, often exserted; anthers ovoid or ellipsoidal, dehiscing by longitudinal slits or apical pores. Ovary superior, imperfectly 2-locular; ovules 1 per locule. Style usually longer than stamens; stigma usually dilated. Fruit a small globose drupe, endocarp bony, mesocarp fleshy, exocarp thin, splitting into 4 pyrenes when mature. Seeds small, ellipsoidal; seed coat membranous; endosperm wanting; cotyledons fleshy.

About 140 species mainly distributed in tropical and subtropical Asia, few in tropical America and Africa, and very few in temperate Asia and N America; 48 species in China; 11 species in Hong Kong.

1a. Leaves eglandular.
- 2a. Leaf blade entire ..... 1. *C. integerrima*
- 2b. Leaf blade not entire.
  - 3a. Bracts large, leafy; calyx and corolla hairy abaxially ..... 2. *C. longibracteata*
  - 3b. Bracts small, linear; calyx and corolla glabrous ..... 3. *C. nudiflora*

1b. Leaves ± glandular.
- 4a. Leaf blade densely red glandular on both surfaces ..... 4. *C. cathayana*
- 4b. Leaf blade ± yellow glandular.
  - 5a. Calyx glabrous or subglabrous.
    - 6a. Stamens nearly as long as corolla ..... 5. *C. brevipes*
    - 6b. Stamens twice as long as corolla.
      - 7a. Branchlets terete, with stellate hairs; leaf blade obovate, margin coarsely serrate apically .. 6. *C. dichotoma*
      - 7b. Branchlets tetragonal, with unbranched hairs; leaf blades lanceolate, entire or serrulate ..... 7. *C. longissima*
  - 5b. Calyx hairy.
    - 8a. Calyx tubular, limb deeply 4-lobed, lobes narrow, longer than tube; fruit nearly completely enclosed by persistent calyx ..... 8. *C. kochiana*
    - 8b. Calyx cupular or campanulate, limb 4-lobed or subtruncate, lobes not longer than tube; fruit not completely enclosed by persistent calyx.
      - 9a. Leaf base cordate ..... 9. *C. rubella*
      - 9b. Leaf base cuneate, obtuse or rounded.
        - 10a. Leaf blade elliptic to ovate-elliptic, 6–15 × 3–8 cm, base obtuse to rounded, adaxially slightly rough, minutely hispid ..... 10. *C. formosana*
        - 10b. Leaf blade oblong-lanceolate, narrowly elliptic, or ovate-elliptic, 10–23 × 5–11 cm, adaxially pubescent especially on veins ..... 11. *C. macrophylla*

1. Callicarpa integerrima Champ. 全緣葉紫珠 **(Photo 157)**

Hooker's J. Bot. Kew Gard. Misc. 5: 135. 1853; FHK 270. 1861; FKH 202. 1912; FRPS 65(1): 34, fig. 9. 1982; FFJ 4: 525. 1989; FOC 17: 6. 1994; FGD 3: 350. 1995.

Callicarpa integrifolia Forbes & Hemsl., J. Linn. Soc., Bot. 26: 253. 1890.

Scandent shrub. Branchlets terete, brown; young branchlets, petioles, and inflorescences densely yellowish brown tomentose, hairs branched to densely dendritic. Petiole ca. 2 cm; leaf blade broadly ovate, ovate or elliptic, 7–17 × 4–9 cm, base cuneate to rounded, apex acuminate to acute, margin entire, adaxially yellow-brown stellate tomentose, abaxially densely greyish yellow tomentose; lateral veins 7–9 pairs. Cymes large, 6–11 cm across. Peduncle 2–5 cm. Pedicel and calyx densely stellate tomentose. Calyx-limb subtruncate. Corolla purple, ca. 2–2.5 mm, glabrous. Stamens 2 times as long as corolla; anthers longitudinally dehiscing. Ovary stellate tomentose. Fruit subglobose, purple, ca. 2 mm in diam., stellate tomentose when young, glabrescent.

Locality: Bowen Rd., Cheung Sheung, Luk Keng, Nam Chung, Tung Chung. *H. C. Tang 2210; Y. S. Lau 2072; HK sheet 4319.*

Distribution: Guangdong, Guangxi, Jiangxi, Fujian, Zhejiang.

Ecology: Forests on hillslopes or in valleys. Flowering: Jun.–Jul.; fruiting: Aug.–Nov.

Uses: Medicinal (folklore).

Notes: The type specimen was collected by J. G. Champion from Hong Kong Island between 1847 and 1850.

2. Callicarpa longibracteata H. T. Chang 長苞紫珠

Acta Phytotax. Sin. 1(3–4): 277. 1951; FRPS 65(1): 37, fig. 11. 1982; FOC 17: 7. 1994; FGD 3: 350. 1995.

Shrub to 3 m tall. Young branches yellow stellate tomentose. Petiole ca. 2 cm, yellow stellate tomentose; leaf blade oblong-elliptic to elliptic-lanceolate, 15–20 × 5–8 cm, base obtuse to rounded and oblique, margin entire or serrulate above to middle, adaxially glabrous but stellate tomentose along midvein when young, abaxially densely yellow-grey stellate tomentose; lateral veins 14 pairs, prominent abaxially. Cymes 6–9 cm across. Peduncle 3–5 cm. Bracts lanceolate, 3–4 × 1 cm. Calyx campanulate, stellate tomentose; teeth linear, ca. 1 mm. Corolla pink, ca. 2 mm, puberulent. Filaments ca. 5 mm; anthers ca. 0.6 mm, longitudinally dehiscing. Ovary glabrous. Style 6–7 mm. Fruit globose, ca. 1.5 mm in diam.

Locality: Luk Keng, Lantau Island. *S. C. Ng 2858; Y. W. Lam 1705.*

Distribution: Endemic to Hong Kong.

Ecology: Forests. Flowering & fruiting: Aug.

Notes: The type specimen (*W. Y. Chun 5121,* IBSC) was collected from mixed forests of altitude 100–300 m in Hong Kong in Aug. 1926.

3. Callicarpa nudiflora Hook. & Arn. 裸花紫珠 **(Photo 158)**

Bot. Beechey Voy. 206, pl. 46. 1837; FGZ 630. 1956; FRPS 65(1): 37. 1982; FFJ 4: 526. 1989; FOC 17: 7. 1994; FGD 3: 351. 1995.

Callicarpa acuminata Roxb., Fl. Ind., ed. 1820, 1: 408. 1820, *nom. illeg.*

Callicarpa acuminata var. *angustifolia* F. P. Metcalf, Lingnan Sci. J. 11(3): 407. 1932.

Callicarpa macrophylla Vahl var. *sinensis* C. B. Clarke, Fl. Brit. India 4(12): 568. 1885.

Callicarpa reevesii Wall. ex Schauer, Prodr. 11: 641. 1847; FHK 270. 1861; FKH 202. 1912.

Shrub or small tree, 3–4(–7) m. Old branches glabrous, evidently lenticellate. Young branchlets, petioles, abaxial leaf surfaces, and inflorescences unevenly greyish brown stellate tomentose. Petiole 1–2 cm; leaf blade ovate-elliptic to lanceolate, 12–22 × 4–7 cm, base obtuse to subrounded, apex acute or acuminate, margin serrate, slightly undulate, or subentire, adaxially dark green and subglabrous except for stellate tomentose veins, abaxially densely greyish brown unevenly stellate tomentose; lateral veins 14–18 pairs. Cymes 8–13 cm across. Peduncle 3–8 cm. Bracts linear-lanceolate. Pedicel ca. 1 mm. Calyx cupular, usually glabrous, truncate to obscurely 4-dentate. Corolla purple to pink, ca. 2 mm, glabrous. Stamens 2–3 times as long as corolla; anthers ellipsoidal, dehiscing by longitudinal slits. Ovary glabrous. Fruit subglobose, ca. 2 mm in diam., red, turning black when dry.

Locality: Common in Hong Kong. *H. C. Tang 1138, 1896; Y. S. Lau 365.*

Distribution: Guangdong, Guangxi, Hainan; Bangladesh, India, Malaysia, Myanmar, Singapore, Sri Lanka, Vietnam.

Ecology: Forests. Flowering: Jun.–Aug.; fruiting: Aug.–Dec.

4. Callicarpa cathayana H. T. Chang 華紫珠 **(Photo 159)**

Acta Phytotax. Sin. 1(3–4): 305. 1951; FYN 1: 412, pl. 98: 16–18. 1977; FRPS 65(1): 65, fig. 30. 1982; FFJ 4: 533. 1989; FOC 17: 13. 1994; FGD 3: 357. 1995.

Shrub, 1.5–3 m tall. Branchlets slender, slightly stellate tomentose when young, glabrescent. Petiole less than 1 mm; leaf blade elliptic, elliptic-ovate or ovate, 4–8 × 1.5–3 cm, base narrowly cuneate, apex acuminate, margin serrulate, subglabrous and red glandular on both surfaces; lateral veins 5–7 pairs, slightly prominent on both surfaces. Cymes slender, 1–1.5 cm across, sparsely stellate tomentose. Peduncle and pedicels slenlder, ± stellate hairy and red glandular. Bracts small. Calyx cupular, truncate to minutely 4-dentate, teeth obtusely triangular, stellate tomentose, red glandular. Corolla purple, sparsely stellate tomentose and red glandular abaxially. Filaments equal or slightly longer than corolla. Ovary glabrous. Style slightly longer than stamens. Fruit globose, purple, ca. 2 mm in diam.

Locality: Tai Po, Fanling, Tai Mo Shan. *Y. S. Lau 732; L. T. Lo 126; HK sheet 40823.*

Distribution: Guangdong, Guangxi, Yunnan, Hubei, Anhui, Jiangxi, Fujian, Zhejiang, Jiangsu.

Ecology: Mixed forests on hillslopes or in valleys. Flowering: May–Jul.; fruiting: Aug.–Nov.

5. Callicarpa brevipes (Benth.) Hance 短柄紫珠(短序紫珠) **(Photos 160–161)**

Ann. Sci. Nat. Bot., ser. 5, 5(5): 233. 1886; FKH 203. 1912; FRPS 65(1): 69. 1982; FFJ 4: 533. 1989; FOC 17: 14. 1994; FGD 3: 359. 1995.

Callicarpa longifolia Lam. var. *brevipes* Benth., FHK 270. 1861.

Callicarpa longifolia auct. non Lam.: FKH 202. 1912, *p.p.*

Shrub 1–2.5 m tall. Branchlets obscurely tetragonal, yellow-brown stellate pubescent when young, glabrescent. Petiole ca. 5 mm; leaf blade papery, narrowly lanceolate to lanceolate, 9–24 × 1.5–4 cm, base obtuse, rarely cuneate or slightly cordate, apex acuminate, margin subentire to sparsely serrulate along apical part, adaxially glabrous, abaxially stellate pubescent on veins and yellow glandular; lateral veins 9–12 pairs. Cymes ca. 1.5 cm across. Peduncle slender, subequal to slightly longer than petioles. Calyx cup-shaped, yellow glandular, subglabrous, subtruncate to minutely 4-dentate. Corolla white, ca. 3.5 mm, glabrous. Filaments nearly as long as corolla; anthers ellipsoidal, densely yellow glandular, dehiscing by apical pores. Ovary glabrous, glandular. Style slightly longer than stamens. Fruit subglobose, red to purple, 3–4 mm in diam.

Locality: Common in Hong Kong. *Y. S. Lau 3134; HK sheet 39931, 40464.*

Distribution: Guangdong, Hainan, Guangxi, Hunan, S Zhejiang; Vietnam.

Ecology: Forests on hillslopes. Flowering: Apr.–Jun.; fruiting: Jul.–Oct.

Notes: The syntypes (*Champion s.n., Wright s.n.* and *Wilford s.n.*) were collected from Hong Kong in 1850. The species was reported as *Callicarpa longifolia* Lam. previously (Check List HK Plants 59. 1993).

6. Callicarpa dichotoma (Lour.) K. Koch 白棠子樹

Dendrologie 2: 336. 1872; FGZ 631. 1956; FRPS 65(1): 54, fig. 23. 1982; FFJ 4: 531, fig. 421. 1989; FOC 17: 11. 1994; FGD 3: 355. 1995.

Porphyra dichotoma Lour., Fl. Cochinch. 1: 70. 1790.

Callicarpa purpurea auct. non Juss.: FKH 202. 1912.

Shrub 1–1.5(–3) m tall, multibranched. Branchlets slender, with stellate hairs when young. Leaves sessile or subsessile; leaf blade papery, lanceolate to obovate, 2–6(–10) × 1–3 cm, base cuneate, apex usually very short acuminate with an obtuse tip, margin coarsely dentate along apical part, adaxially glabrous and subscabrous, abaxially densely yellow-glandular and with glandular stellate hairs; veins 4–6 pairs. Cymes 1–2.5 cm across. Peduncle and pedicels slender, stellate hairy at first, glabrescent in fruit. Bracts linear. Calyx cupular, less than 1 mm, subtruncate or obscurely dentate, glabrous, ± glandular abaxially. Corolla purple, tube twice as long as calyx tube, glabrous. Stamens exserted; filaments twice as long as corolla tube, glabrous. Ovary glabrous, sparsely yellow glandular. Fruit subglobose, 1–2 mm in diam., ± glandular.

Locality: New Territories. *W. J. Tutcher 8141.*

Distribution: Guangdong, Guangxi, Guizhou, Hunan, Hubei, Anhui, Fujian, Jiangxi, Zhejiang, Jiangsu, Shandong, Henan, Hebei; Japan, Korea, Vietnam.

Ecology: Forests. Flowering: May–Jun.; fruiting: Jul.–Nov.

7. Callicarpa longissima (Hemsl.) Merr 尖尾楓 **(Photo 162)**

Philipp. J. Sci. 12(2): 108. 1917; FGZ 631. 1956; FTW 4: 416. 1978, *excl. syn. C. taiwaniana*; FRPS 65(1): 52. 1982; FFJ 4: 531. 1989; FOC 17: 10. 1994; FGD 3: 354. 1995; FTW ed. 2, 4: 411. 1998.

Callicarpa longifolia Lam. var. *longissima* Hemsl., J. Linn. Soc., Bot. 26: 253. 1890.

Callicarpa longifolia auct. non Lam.: FKH 202. 1912, *p.p.*

Shrub or small tree, 1–3.5(–7) m tall. Branchlets purplish brown, tetragonal, with a ring of hair at node, stellate hairy when young. Petiole 1–1.5 cm; leaf blade papery, lanceolate to oblong-lanceolate, 13–25 × 2–7 cm, base cuneate, apex acute, margin subentire to obscurely serrulate, adaxially subglabrous except long villous pubescence mainly along veins, abaxially glabrous, yellow glandular when fresh; veins 12–20 pairs, elevated on both surfaces. Cymes hairy, 3–6 cm across. Peduncle 1.5–3 cm. Calyx subtruncate to obscurely dentate, glabrous, glandular, limb inconspicuously 4-dentate or truncate. Corolla pale purple, ca. 2.5 mm, glabrous. Stamens ca. twice as long as corolla tube. Ovary glabrous. Fruit oblique globose, 1–1.5 mm in diam., glabrous, glandular.

Locality: Tai Po Kau, Nam Hang, Fung Yuen, Ha Hang, Luk Keng, Lantau Island. *H. C. Tang 2275, Y. S. Lau 1314, 2960.*

Distribution: Hainan, Guangdong, Guangxi, Sichuan, Jiangxi, Fujian, Taiwan; Japan, Vietnam.

Ecology: Forests on hillslopes and open fields. Flowering: Jul.–Sep.; fruiting: Aug.–Dec.

Notes: It was reported as *Callicarpa longifolia* var. *lanceolaria* (Roxb.) C. B. Clarke previously (Check List HK Plants 59. 1993).

8. Callicarpa kochiana Makino 枇杷葉紫珠 **(Photo 163)**

Bot. Mag. (Tokyo) 28(331): 181–182. 1914; FRPS 65(1): 30. 1982; FFJ 4: 524, fig. 415. 1989; FOC 17: 6. 1994; FGD 3: 349, fig. 229. 1995.

Callicarpa longiloba Merr., Philipp. J. Sc. 13(3): 156. 1918.

Callicarpa loureiri Hook. & Arn., Bot. Beechey Voy. 205. 1837; FGZ 629. 1956.

Callicarpa tomentosa auct. non Willd.: FHK 269. 1861.

Shrub 1–4 m tall. Branchlets, petioles, and inflorescences densely yellowish brown branched stellate tomentose. Petiole 1–3 cm; leaf blade oblong-lanceolate, elliptic, or ovate-elliptic, 12–22 × 4–8 cm, base cuneate, apex acuminate or acute, margin serrate, adaxially glabrous or slightly pilose especially on veins, abaxially densely yellowish brown stellate tomentose, obscurely yellow glandular on both surfaces; lateral veins 10–18 pairs, prominent abaxially. Cymes 3–6 cm across. Peduncle 1–2 cm. Flowers subsessile. Calyx tubular, 2–2.5 mm, tube tomentose, teeth acute. Corolla pink to purple, lobes densely tomentose. Stamens exserted; filaments ca. 3.5 mm; anthers ovoid, ca. 1 mm. Style longer than stamens. Stigmas enlarged. Fruit globose, ca. 1.5 mm in diam., nearly completely enclosed by persistent calyx.

Locality: Common in Hong Kong. *H. C. Tang 575, 1038; L. T. Lo 142.*

Distribution: Fujian, Guangdong, Hunan, Jiangxi, Henan, Zhejiang, Taiwan; Japan, Vietnam.

Ecology: Forest edges, forests in valleys. Flowering: Jul.–Aug.; fruiting: Sep.–Dec.

9. Callicarpa rubella Lindl. 紅紫珠 **(Fig. 82; Photo 164)**

Bot. Reg. 11: pl. 883. 1825; FHK 271. 1861; FKH 203. 1912; FYN 1: 410, pl. 98: 6–10. 1977; FRPS 65(1): 63. 1982; FFJ 4: 526, fig. 417. 1989; FOC 17: 13. 1994; FGD 3: 357. 1995.

Callicarpa dielsii (H. Lév.) C. P'ei, Mem. Sci. Soc. China 1(3): 37. 1932.

Callicarpa panduriformis H. Lév., Repert. Spec. Nov. Regni Veg. 9(222–226): 455. 1911.

Callicarpa rubella var. *dielsii* (H. Lév.) H. L. Li, J. Arnold Arbor. 25(4): 425. 1944.

Callicarpa rubella var. *hemsleyana* Diels, Bot. Jahrb. Syst. 29(3–4): 547–548. 1900.

Callicarpa tenuiflora Champ., Hooker's J. Bot. Kew Gard. Misc. 5: 135. 1853.

Viburnum dielsii H. Lév., Repert. Spec. Nov. Regni Veg. 9(222–226): 443. 1911.

Shrub, 1.5–2 m tall. Branchlets robust, with brown stellate and glandular hairs. Petiole very short to subsessile; leaf blade papery, obovate or obovate-elliptic, 10–15 × 4–8 cm, base cordate and sometimes oblique, apex acuminate to caudate, margin serrulate, irregularly serrate, or serrate, adaxially with glandular hairs, abaxially with stellate, simple, and glandular hairs and yellow glandular; lateral veins 6–10 pairs, midvein, lateral veins, and reticulate veins elevated on both surfaces. Cymes 2–4 cm across, covered with brown stellate and glandular hairs. Peduncle to 3 cm. Bracts small. Calyx subtruncate to slightly dentate with obtusely triangular teeth, with stellate hairs, glandular hairs, and yellow glands. Corolla purple, sometimes greenish, or white, ca. 3 mm, puberulent, yellow glandular. Stamens twice as long as corolla. Fruit subglobose, purple, ca. 2 mm in diam.

Locality: Tai Tam, Tsim Shan, Tai Mo Shan, Lantau Island. *U. A. On 5605; Y. S. Lau 1253; P. S. Choi 210.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Anhui, Jiangxi, Zhejiang; Indonesia, Malaysia, Myanmar, Thailand, Vietnam.

Ecology: Thickets. Flowering: May–Jul.; fruiting: Jul.–Nov.

Notes: The type specimen of *Callicarpa tenuiflora* was collected by J. G. Champion from "Saywan" (Chai Wan) between 1847 and 1850.

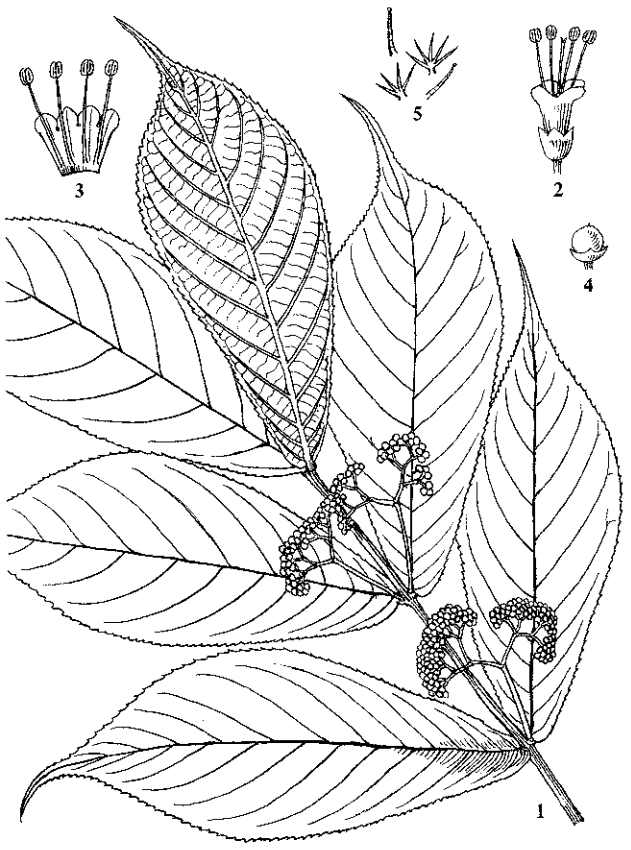


Figure 82. *Callicarpa rubella* Lindl.
1. fruiting branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* fruit; *5.* amplification of hairs. (drawn by H. P. Yu)

10. Callicarpa formosana Rolfe 杜虹花 **(Photo 165)**

J. Bot. 20(240): 358. 1882; FKH 203. 1912; FHN 4: 11. 1977; FYN 1: 406, pl. 97: 5–7. 1977; FTW 4: 413. 1978; FRPS 65(1): 43. 1982; FFJ 4: 529, fig. 419. 1989; FOC 17: 8. 1994; FGD 3: 353. 1995; FTW ed. 2, 4: 406, pl. 176. 1998.

Callicarpa aspera Hand.-Mazz., Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Cl., Abt. 1 59: 110. 1877.

Callicarpa integerrima Champ. var. *serrulata* H. L. Li, J. Arnold Arbor. 25(4): 425. 1944.

Callicarpa ningpoensis Mats., Bot. Mag. (Tokyo) 27: 273. 1913.

Callicarpa rubella Lindl. f. *robusta* C. P'ei, Mem. Sci. Soc. China 1(3): 39. 1932.

Shrub 1–3 m tall. Branchlets, petioles, cymes and calyx densely greyish yellow stellate tomentose. Petiole robust, 1–2.5 cm; leaf blade thin leathery, elliptic to ovate-elliptic, 6–15 × 3–8 cm, base obtuse to rounded, apex acuminate or nearly acute, margin serrate, adaxially slightly rough, minutely hispid, abaxially greyish yellow stellate tomentose and yellow glandular; lateral veins 8–12 pairs. Cymes dense, subglobose, 3–4 cm across. Peduncle 1.5–2.5 cm. Bracts small. Calyx cupular, greyish yellow stellate tomentose; teeth 4, triangular. Corolla purple to purplish, ca. 2.5 mm, glabrous, lobes ca. 1 mm, apex rounded. Stamens ca. 5 mm, 2 times as long as corolla or slightly longer. Ovary glabrous. Fruit subglobose, purple, ca. 2 mm in diam.

Locality: Deep Water Bay, Sai Kung, Tai Po Kau, Tai Mo Shan, Ng Tung Chai, Lantau Island. *Y. S. Lau 605, 1319; Y. W. Lam 1617.*

Distribution: Guangdong, Hainan, Guangxi, Yunnan, Jiangxi, Zhejiang, Fujian, Taiwan; Japan, Philippines.

Ecology: Forests. Flowering: May–Jul.; fruiting: Aug.–Nov.

Notes: The species was reported as *Callicarpa pedunculata* R. Br. previously (Check List HK Plants 59. 1993).

11. Callicarpa macrophylla Vahl 大葉紫珠 **(Fig. 83)**

Symb. Bot. 3: 13, pl. 53. 1794; FHK 270. 1861; FKH 202. 1912; FGZ 630, fig. 336. 1956; FYN 1: 403, pl. 96: 9–12. 1977; FRPS 65(1): 38. 1982; FOC 17: 7. 1994; FGD 3: 351. 1995.

Callicarpa dunniana H. Lév., Repert. Spec. Nov. Regni Veg. 9(222–226): 456. 1911.

Callicarpa macrophylla var. *kouytchensis* H. Lév., Fl. Kouy-Tchéou 440. 1915.

Shrub or small tree, 3–5 m. Branchlets nearly tetragonal, densely greyish mealy branched tomentose. Petiole robust, 1–3 cm, densely grey unevenly stellate tomentose; leaf blade oblong-lanceolate, narrowly elliptic, or ovate-elliptic, 10–23 × 5–11 cm, base cuneate to broadly obtuse, apex shortly acuminate, margin serrulate, adaxially pubescent especially on veins, abaxially densely unevenly grey stellate tomentose and glandular; lateral veins 8–11 pairs; veinlets slightly impressed adaxially. Cymes 4–8 cm across, densely

unevenly grey stellate tomentose. Peduncle robust, 2–3 cm. Bracts linear. Calyx cupular, ca. 1 mm, subtruncate, grey stellate tomentose, yellow glandular. Corolla purple, ca. 2.5 mm, sparsely stellate tomentose; filaments ca. 5 mm; anthers yellow glandular. Ovary puberulent. Fruit globose, ca. 1.5 mm in diam., puberulent, glandular.

Locality: Nam Chung, Luk Keng, Kau Yi Chau, Tai A Chau. *S. P. Lau 151; HK sheet 34818, 34907.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan; Bhutan, India, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam.

Ecology: Forests. Flowering & fruiting: Apr.–Dec.

8. Tectona L. f. 柚木屬

Deciduous tall trees. Branchlets stellate hairy. Leaves simple, large, opposite or whorled, entire, petiolate. Panicles terminal, with many dichotomous cymes. Bracts small, narrow, caducous. Calyx campanulate, tube short, lobes spreading, limb 5–6-lobed, enlarged in fruit. Corolla-tube short, limb 5–6-lobed, lobes revolute. Stamens 5 or 6, inserted on apical part of tube, exserted; anthers dehiscing by longitudinal slits. Ovary 4-locular; ovule 1 per locule. Stigma 2-cleft. Fruit enclosed in enlarged persistent calyx, endocarp bony, exocarp thin. Seeds ellipsoidal.

About three species distributed in India, Malaysia, Myanmar, and Philippines; one species introduced and sometimes naturalized in tropical and subtropical China; it is cultivated in Hong Kong.



Figure 83. *Callicarpa macrophylla* Vahl
1. flowering branch; *2.* flower; *3.* amplification of hairs. (drawn by H. P. Yu)

1. Tectona grandis L. f. 柚木

Suppl. Pl. 151. 1781 [1782]; FGZ 632. 1956; FHN 4: 25, fig. 956. 1977; FYN 1: 415, pl. 99: 3–4. 1977; FRPS 65(1): 80, fig. 41. 1982; FFJ 4: 534. 1989; FOC 17: 16. 1994; FGD 3: 361, fig. 235. 1995.

Tree to 40 m tall. Branchlets grey to greyish brown, tetragonal and sulcate, yellowish to greyish brown stellate tomentose. Petiole robust, 2–4 cm or longer; leaf blade papery, ovate-elliptic to ovate, 15–50 × 8–25 cm, base cuneate and decurrent, apex acuminate to obtuse, adaxially scabrous and puberulent along veins, abaxially densely greyish brown to yellowish brown minutely stellate tomentose; lateral veins 7–12 pairs, veinlets subparallel, evidently prominent abaxially. Panicles 25–40 × 30 cm. Flowers fragrant. Calyx-tube 2–3 mm, white stellate tomentose, limb slightly shorter than calyx-tube. Corolla white; tube 2.5–3 mm, abaxially puberulent and glandular; lobes ca. 2 mm, apex obtuse. Ovary strigose. Style 3–4 mm. Drupes globose, 1.2–1.8 cm in diam., minutely tomentose.

Locality: Cultivated. *Y. S. Lau 2934; K. C. Chau 3330; HK sheet 34486.*

Distribution: Guangdong, Guangxi, Yunnan, Fujian, Taiwan (cultivated or naturalized); native to India, Myanmar, Malaysia, Indonesia.

Ecology: Flowering: Aug.; fruiting: Oct.

Uses: Timber, medicinal (folklore).

9. Duranta L. 假連翹屬

Shrubs, spinose or not. Leaves simple, opposite or whorled, margin entire or serrate-dentate. Racemes axillary or terminal. Bracts small. Calyx 5-dentate, persistent, enlarged in fruit. Corolla-tube tubular, straight or curved; limb 2-lipped, lower lip 3-lobed and largest, upper lip 2-lobed. Stamens 4, short, inserted above middle of cylindric corolla tube, obscurely didynamous. Ovary 8-locular; ovules 1 per locule, pendulous. Style short, inclusive; stigma nearly oblique capitate. Drupes completely enclosed by persistent calyx, mesocarp fleshy, endocarp splitting into 4 pyrenes, pyrene 2-locular, seed 1 per locule.

About 30 species distributed in tropical America; one species introduced to China and sometimes naturalized; one species widely cultivated in Hong Kong.

1. Duranta erecta L. 假連翹 **(Fig. 84; Photo 166)**

Sp. Pl. 2: 637. 1753; FOC 17: 2. 1994.

Duranta repens L., Sp. Pl. 2: 637. 1753; FGZ 626. 1956; FHN 4: 5, fig. 947. 1977; FYN 1: 399, pl. 95: 3–4. 1977; FRPS 65(1): 22, fig. 7. 1982; FFJ 4: 522, fig. 414. 1989; FGD 3: 347, fig. 228. 1995.

Shrub, often scandent, 1.5–3 m. Branches spiny, pubescent when young. Leaves opposite, sometimes whorled. Petiole ca. 1 cm, pubescent; leaf blade papery, ovate to ovate-lanceolate, 2–6.5 × 1.5–3.5 cm, base cuneate, apex acute to obtuse, margin entire to crenate

distally, pubescent. Calyx-tube tubular, ca. 5 mm, 5-veined, pubescent on both surfaces. Corolla often bluish purple, ca. 8 mm, slightly irregular 5-lobed. Stamens inclusive. Ovary glabrous. Styles shorter than corolla-tube. Drupes globose, ca. 5 mm in diam., shorter than calyx, shiny, glabrous.

Locality: Cultivated. *H. C. Tang 48, 183; L. T. Lo 572.*

Distribution: Fujian, Guangdong, Guangxi, Hainan, Hunan, Jiangxi, Taiwan, Zhejiang; native to America.

Ecology: Flowering & fruiting: May–Oct.

Uses: Medicinal (folklore), ornamental (hedges).

10. Clerodendrum L. 大青屬

Shrubs or small trees, rarely subshrubs or herbs, erect or rarely climbing, deciduous or evergreen. Branchlets usually 4-angled when young. Leaves simple, opposite or rarely whorled. Inflorescences loosely cymose or capitate, in terminal or rarely axillary paniculate thyrses. Calyx campanulate or cup-shaped, ca. 5-dentate or deeply 5-lobed. Corolla with a slender tube; lobes 5, spreading. Stamens 4, ± exserted. Ovary 4-locular; ovules pendulous or laterally attached. Style with 2 acute stigmatic lobes. Fruiting calyx ± inflated. Fruit a drupe with four 1-seeded pyrenes, sometimes separating into two 2-loculed or four 1-loculed mericarps.

About 400 species mostly distributed in tropical and subtropical, few in temperate Asia, Africa, and America; 34 species in China; nine species in Hong Kong.

In addition to the described species in this flora, *C. macrosiphon* Hook. f. (天女散花龍吐珠), *C. myricoides* (Hochst.) R. Br. ex Volke (楊梅葉大青) and *C. speciosissimum* Van Geert (爪哇槙桐) were occasionally cultivated in Hong Kong.

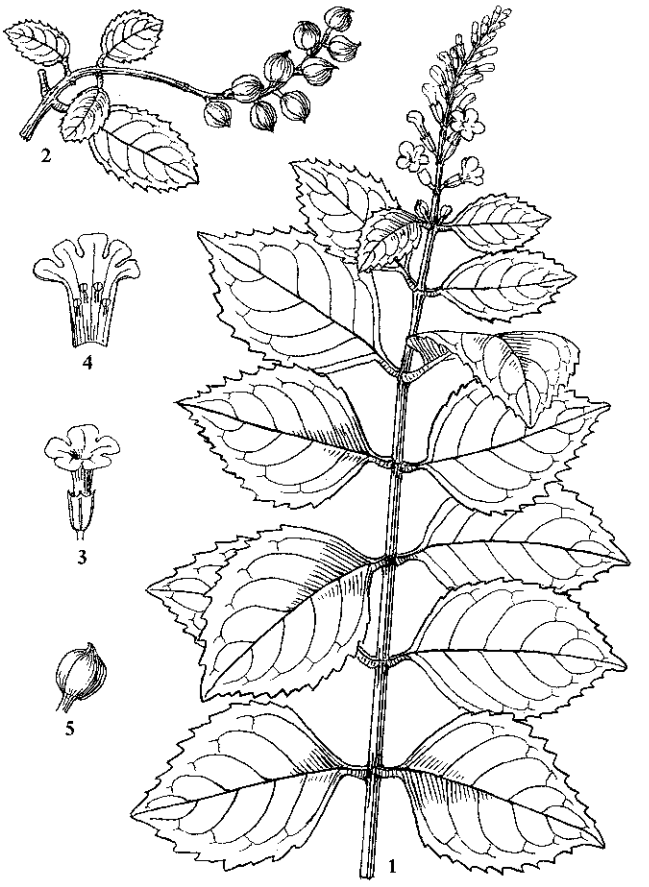


Figure 84. *Duranta erecta* L.
1. flowering branch; *2.* fruiting branch; *3.* flower; *4.* corolla opened up showing stamens; *5.* drupe. (drawn by H. P. Yu)

1a. Inflorescences axillary.
- 2a. Calyx 5-denticulate, subtruncate in fruit; corolla much longer than calyx ..... 1. *C. inerme*
- 2b. Calyx evidently 5-lobed, not truncate in fruit; corolla as long as calyx or slightly longer.
  - 3a. Scandent shrubs; calyx white; corolla red; leaf blade narrowly ovate or ovate-oblong ..... 2. *C. thomsonae*
  - 3b. Erect shrubs; calyx purplish red; corolla pale red or white; leaf blade oblong or obovate-lanceolate ... 3. *C. fortunatum*

1b. Inflorescences terminal.
- 4a. Leaf blade oblong or ovate-lanceolate, length/width=3–4.
  - 5a. Branchlets pubescent; leaf blade elliptic, ovate-elliptic, oblong or oblong-lanceolate, 6–20 × 3–9 cm; cymes corymbose, terminal or subterminal, 10–16 cm ..... 4. *C. cyrtophyllum*
  - 5b. Branchlets glabrous; leaf blade oblong to oblong-lanceolate, 11–18 × 2.5–4 cm; thyrses terminal, 20–33 cm, pendulous ..... 5. *C. wallichii*
- 4b. Leaf blade heart-shaped, ovate or broadly ovate, length/width≤2.
  - 6a. Leaf blade peltate glandular abaxially ..... 6. *C. japonicum*
  - 6b. Leaf blade not peltate glandular abaxially.
    - 7a. Calyx lobes broadly ovate, without peltate glands abaxially ..... 7. *C. canescens*
    - 7b. Calyx lobes linear-lanceolate or triangular, with peltate glands abaxially.
      - 8a. Flowers double ..... 8. *C. chinense*
      - 8b. Flowers simple ..... 9. *C. lindleyi*

1. Clerodendrum inerme (L.) Gaertn. 苦郎樹(假茉莉) **(Photos 167–168)**

Fruct. Sem. Pl. 1: 271, pl. 75. 1788; FHK 271. 1861; FKH 204. 1912; FGZ 632. 1956; FHN 4: 22. 1977; FRPS 65(1): 154, fig. 77. 1982; FFJ 4: 543, fig. 426. 1989; FOC 17: 42. 1994; FGD 3: 377. 1995.

Volkameria inermis L., Sp. Pl. 2: 637. 1753.

Scandent shrub, to 2 m. Stems erect or creeping. Branchlets tetragonal, yellowish grey, pubescent. Petiole ca. 1 cm; leaf blade thinly leathery, ovate, elliptic or elliptic-lanceolate, 3–7 × 1.5–4.5 cm, base obtuse, apex obtuse, margin entire, slightly revolute, adaxially dark green, subglabrous, abaxially pale green, glabrous or sparsely pubescent along veins, small glandular on both surfaces; lateral veins 4–7 pairs. Cymes axillary, usually 3-flowered, pubescent. Peduncle 2–4 mm. Bracts linear, ca. 2 cm. Flowers fragrant. Calyx campanulate,

finely pubescent abaxially, sparsely glandular, apex subtruncate, with minute rudimentary teeth. Corolla white; tube 2–3 cm, ca. 2 mm in diam. at throat, densely silky pubescent adaxially, subglabrous and inconspicuously glandular abaxially, 5-lobed; lobes elliptic, ca. 7 mm. Stamens 4(–6), filaments purple, slender, exserted. Ovary glabrous. Style glabrous, exserted. Stigma 2-lobed. Drupes greyish yellow, obovoid to subglobose, 6–11 mm in diam.

Locality: Common in Hong Kong. *Y. S. Lau 712, 2152; Y. W. Lam 25.*

Distribution: Guangdong, Guangxi, Fujian, Taiwan; SE Asia, Australia, Pacific islands.

Ecology: Near seashore. Flowering & fruiting: Mar.–Dec.

Uses: Medicinal (folklore).

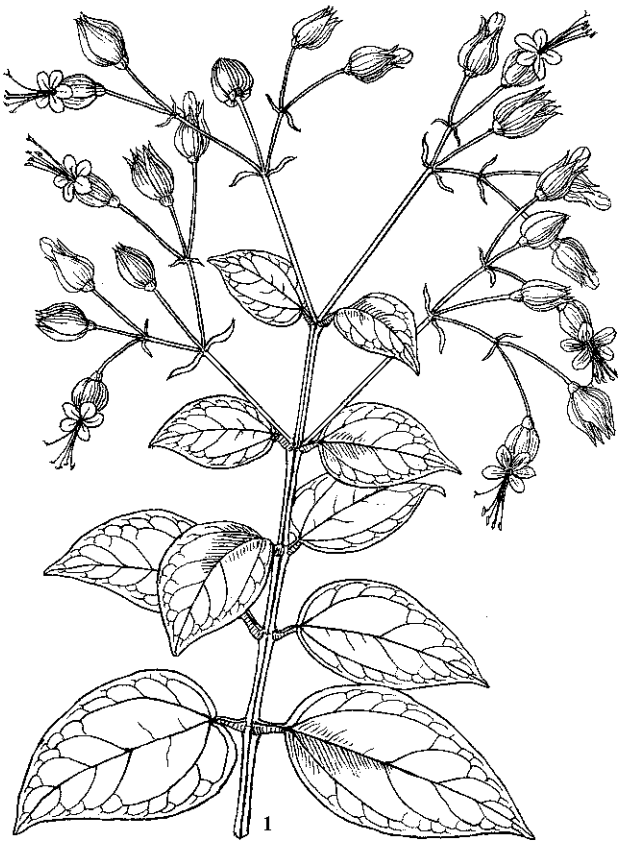


Figure 85. *Clerodendrum thomsonae* Balf. *1.* flowering branch. (drawn by H. P. Yu)

2. Clerodendrum thomsonae Balf.

龍吐珠 **(Fig. 85; Photo 169)**

Edinburgh New Philos. J. 15(2): 233, t. 2. 1862; FGZ 632. 1956; FHN 4: 22. 1977; FYN 1:458, pl. 109: 3–4. 1977; FRPS 65(1): 156. 1982; FFJ 4: 543. 1989; FGD 3: 377. 1995.

Scandent shrub, 2–5 m. Young branchlets tetragonal, yellowish brown tomentose, glabrescent. Petiole 1–2 cm; leaf blade papery, narrowly ovate or ovate-oblong, 4–10 × 1.5–4 cm, base subrotund, apex acuminate, entire, adaxially slightly rough, hispidulous, abaxially subglabrous; basal veins 3. Cymes axillary or pseudoterminal, dichotomous, 7–15 × 10–17 cm. Bracts narrowly lanceolate, 0.5–1 cm. Calyx white, connate at base, enlarged at middle, apex deeply 5-lobed, finely pubescent abaxially; lobes elliptic, ca. 9 mm. Corolla-tube as long as calyx. Stamens 4, exserted. Style exserted; stigma 2-lobed. Fruiting calyx not enlarged, reddish purple. Drupes subglobose, ca. 1.5 cm in diam., pyrenes 2–4.

Locality: Cultivated. *Y. S. Lau 1498, 1892; HK sheet 21984.*

Distribution: Native to tropical W Africa, widely cultivated in the tropics.

Ecology: Flowering: Mar.–May.

Uses: Ornamental.

3. Clerodendrum fortunatum L. 白花燈籠(鬼燈籠) **(Photos 170–171)**

Sp. Pl. ed. 2, 889. 1763; FKH 205. 1912; FGZ 633, fig. 338. 1956; FHN 4: 23. 1977; FRPS 65(1): 156, fig. 79. 1982; FFJ 4: 544. 1989; FOC 17: 37. 1994; FGD 3: 377, fig. 243. 1995.

Clerodendrum castaneifolium Hook. & Arn., Bot. Beechey Voy. 205. 1837, '*Clerodendron*'.

Clerodendrum lividum Lindl., Bot. Reg. 11: pl. 945. 1825, '*Clerodendron*'.

Clerodendrum oxysepalum Miq., J. Bot. Neerl. 1: 114. 1861, '*Clerodendron*'.

Clerodendrum pentagonum Hance, Ann. Bot. Syst. 3: 238. 1852, '*Clerodendron*'.

Clerodendrum pumilum (Lour.) Spreng., Syst. Veg. 2: 759. 1825, '*Clerodendron*'.

Volkameria pumila Lour., Fl. Cochin. 388. 1790.

Shrub to 2.5 m tall. Branchlets densely yellowish brown pubescent when young. Petiole 0.5–3 cm, densely yellowish brown pubescent; leaf blade papery, long elliptic, obovate-lanceolate, or rarely ovate-elliptic, 5–17.5 × 1.5–5 cm, base cuneate to broadly cuneate, apex acuminate, margin entire or undulate, adaxially sparsely pubescent, abaxially pubescent along veins and densely small yellow glandular. Cymes axillary, shorter than leaves, 3–9-flowered. Peduncle 1–4 cm, densely brown pubescent. Bracts linear, densely brown pubescent. Calyx reddish purple, 5-veined, like lantern in shape, 1–1.3 cm, deeply 5-lobed, glabrous adaxially, pubescent abaxially; lobes broadly ovate. Corolla white or pinkish, salverform; tube straight, ± funnelform, slightly longer than calyx; limb oblique; lobes oblong, ca. 6 mm, reflexed. Stamens longer than corolla. Style filiform, shorter than stamens. Stigma 2-lobed. Fruiting calyx inflated. Drupes dark blue-green, subglobose, ca. 5 mm in diam., enclosed by persistent calyx.

Locality: Common in Hong Kong. *H. C. Tang 1767, 2124; K. L. Yip 4485.*

Distribution: Guangdong, Guangxi, Fujian, Jiangxi; Philippines, Vietnam.

Ecology: Wastelands and thickets. Flowering & fruiting: Jun.–Nov.

Uses: Medicinal (folklore).

4. Clerodendrum cyrtophyllum Turcz.
大青 **(Fig. 86; Photos 172–173)**

Bull. Soc. Imp. Naturalistes Moscou 36(3): 222. 1863; FKH 205. 1912; FHN 4: 24, fig. 955. 1977; FYN 1: 460, pl. 110: 1–3. 1977; FTW 4: 421. 1978; FRPS 65(1): 164. 1982; FFJ 4: 549, fig. 429. 1989; FOC 17: 38. 1994; FGD 3: 378. 1995; FTW ed. 2, 4: 417, photo 247. 1998.

Clerodendrum amplius Hance, Ann. Sci. Nat. Bot., sér. 5, 5: 233. 1866.

Clerodendrum formosanum Maxim., Bull. Acad. Imp. Sci. Saint-Petersbourg 31: 85. 1886, '*Clerodendron*'.

Cordia venosa Hemsl., J. Linn. Soc., Bot. 26(174): 143. 1890.

Shrub or small tree, 1–10 m tall. Branchlets yellowish brown, pubescent. Petiole 1–8 cm; leaf blade papery, elliptic, ovate-elliptic, oblong or oblong-lanceolate, 6–20 × 3–9 cm, base rounded to cuneate, apex acuminate to acute, margin entire, glabrous or sparsely pubescent along veins, abaxially glandular; lateral veins 6–10 pairs. Cymes corymbose, terminal or subterminal, 10–16 × 20–25 cm. Bracts linear, 3–7 mm. Flowers small, fragrant. Calyx cupular, 3–4 mm, minutely tomentose and glandular abaxially, glabrous adaxially; lobes triangular-ovate, ca. 1 mm. Corolla white, sparsely puberulent, glandular; tube slender, ca. 1 cm; lobes ovate, ca. 5 mm. Stamens and style exserted. Ovary glabrous. Stigma 2-lobed. Fruiting calyx red. Drupes blue-purple, obovoid to globose, 5–10 mm in diam.

Locality: Common in Hong Kong. *Y. S. Lau 886, 1979; P. S. Choi 380.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Henan, Hubei, Anhui, Hunan, Jiangxi, Zhejiang, Fujian, Taiwan; Korea, Malaysia, Vietnam.

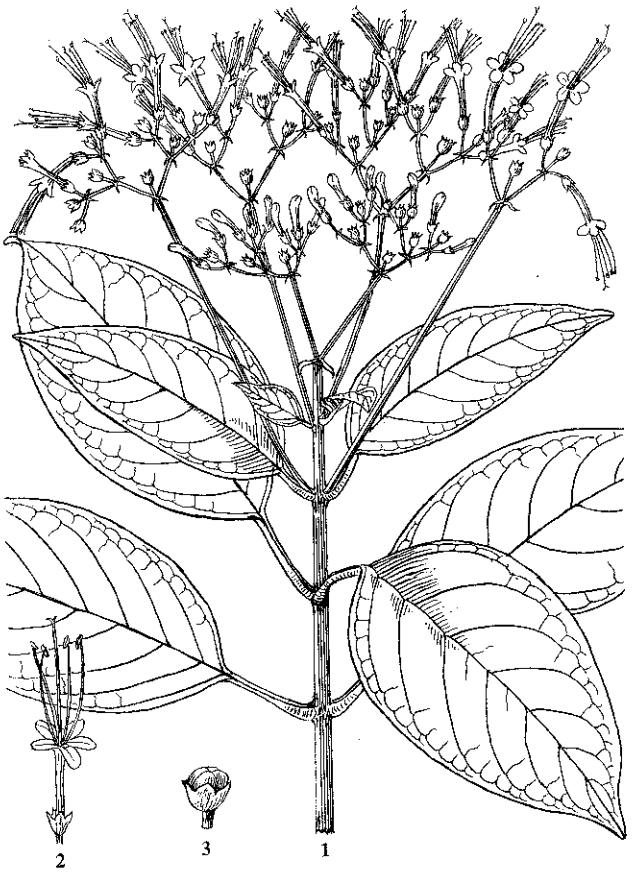


Figure 86. *Clerodendrum cyrtophyllum* Turcz.
1. flowering branch; *2.* flower; *3.* drupe. (drawn by H. P. Yu)

Ecology: Margins of forests, wastelands. Flowering & fruiting: Jun.–Feb. of the following year.

Uses: Medicinal (folklore).

5. Clerodendrum wallichii Merr. 垂茉莉(黑葉龍吐珠)

J. Arnold Arbor. 33(3): 220. 1952; FYN 1: 461, pl. 110: 8–9. 1977; FRPS 65(1): 158, fig. 80. 1982; FOC 17: 36. 1994.

Clerodendrum nutans Wall. ex D. Don, Prodr. Fl. Nepal. 103. 1825, *nom. illeg.*

Shrub or small tree, 2–4 m tall. Branchlets tetragonal, ± winged, glabrous. Petiole ca. 1 cm; leaf blade subleathery, oblong to oblong-lanceolate, 11–18 × 2.5–4 cm, base narrowly cuneate, apex acuminate to acute, margin entire, glabrous; lateral veins 7–8 pairs, adaxially slightly prominent. Thyrses terminal, 20–33 cm, pendulous, glabrous, axis and peduncle tetragonal or winged; cymes opposite or decussate, several-flowered. Bracts small, linear or subulate. Calyx red to purple, ca. 1 cm, tube very short; lobes ovate-lanceolate, 7–8 mm, enlarged in fruit. Corolla white, tube ca. 1.1 cm; lobes obovate, 1.1–1.5 cm. Stamens and style exserted. Fruiting calyx red to purple, inflated, thickened. Drupes yellowish green when young, black and shiny at maturity, globose, 1–1.3 cm in diam., often 2-sulcate.

Locality: Cultivated. *P. S. Choi 184.*

Distribution: Guangxi, Yunnan, Xizang; Bangladesh, India, Myanmar, Vietnam.

Ecology: Flowering & fruiting: Oct.–Apr. of the following year.

Uses: Ornamental.

Notes: The species was reported as *Clerodendrum nutans* Wall. previously (Check List HK Plants 59. 1993).

6. Clerodendrum japonicum (Thunb.) Sweet 赪桐 **(Photo 174)**

Hort. Brit. 1: 322. 1826; FHN 4: 23. 1977; FYN 1: 478, pl. 114: 5. 1977; FRPS 65(1): 187, fig. 99. 1982; FFJ 4: 544, fig. 427. 1989; FOC 17: 36. 1994; FGD 3: 381. 1995.

Volkameria japonica Thunb., Nova Acta Regiae Soc. Sci. Upsal. 3: 203. 1780.

Clerodendrum kaempferi (Jacq.) Siebold, Verh. Batav. Genootsch. Kunsten 3: 207. 1789; FGZ 634. 1956; FTW ed. 2, 4: 419, photo 249. 1998.

Volkameria kaempferi Jacq., Collectanea 3: 207. 1789.

Shrub, 1–4 m tall. Branchlets tetragonal, pubescent to subglabrous, nodes sometimes villous. Petiole 0.5–15 cm, densely yellowish brown pubescent; leaf blade nearly heart-shaped, 8–35 × 6–27 cm, base cordate, apex acuminate to acute, margin sparsely serrulate to dentate, adaxially sparsely pubescent, abaxially densely covered with many peltate glands and yellowish brown pubescent. Thyrses

terminal, 15–34 × 13–35 cm. Bracts broadly ovate, ovate-lanceolate, linear-lanceolate, reddish; bracteoles usually reddish. Calyx red, 1–1.5 cm, abaxially pubescent and peltate glandular, deeply 5-lobed; lobes ovate-lanceolate to ovate, 0.7–1.3 cm. Corolla red, rarely white; tube 1.7–2.2 cm, puberulous abaxially; lobes oblong, 1–1.5 cm. Stamens and style 3 times as long as corolla-tube or longer. Ovary glabrous, 4-locular. Stigma 2-cleft. Fruiting calyx much longer than fruit, enlarged, enclosing fruit at first, reflexed at maturity. Drupes subglobose, bluish black at maturity, 7–10 mm in diam.

Locality: Cultivated. *H. C. Tang 174; Y. S. Lau 985, 1901.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Hunan, Jiangxi, Fujian, Taiwan, Zhejiang, Jiangsu; Bangladesh, Bhutan, India, Indonesia, Laos, Malaysia, Vietnam.

Ecology: Flowering & fruiting: May–Nov.

Uses: Medicinal (folklore), ornamental.

7. Clerodendrum canescens Wall. ex Walp. 灰毛大青(獅子球) **(Photo 175)**

Repert. Bot. Syst. 4: 105. 1845; FHK 272. 1861; FKH 205. 1912; FYN 1: 473, pl. 113: 7–8. 1977; FTW 4: 421. 1978; FRPS 65(1): 171. 1982; FFJ 4: 547. 1989; FOC 17: 39. 1994; FGD 3: 379, fig. 245. 1995; FTW ed. 2, 4: 416. 1998.

Clerodendrum haematocalyx Hance, Ann. Bot. Syst. 3: 238. 1852.

Clerodendrum viscosum auct. non Vent.: FHN 4: 25. 1977; Check List HK Plants 59. 1993.

Shrub, 1–3.5 m tall. Petioles and peduncles densely yellowish to brownish tomentose to nearly villous. Branchlets tetragonal. Petiole 1.5–12 cm; leaf blade broadly ovate or cordate, rarely ovate, 6–18 × 4–15 cm, base cordate to subtruncate, apex acuminate, margin entire or sparsely mucronate-dentate, villous especially on veins. Inflorescences terminal, subconical. Peduncle robust, 1.5–11 cm. Bracts leaf-like, elliptic to ovate, 0.5–2.4 cm. Calyx green when young, ca. 1.3 cm, membranous, deeply 5-lobed, lobes ovate to broadly ovate. Corolla white or pinkish, outside puberulent; tube slender, ca. 2 cm; lobes obovate-oblong, 5–6 mm, reflexed. Stamens and style exserted. Fruiting calyx red. Drupes green when young, dark blue to black at maturity, subglobose, ca. 7 mm in diam.

Locality: Hong Kong Island, Shing Mun, Wu Kau Tang, Lantau Island. *H. C. Tang 540; Y. S. Lau 1281; P. S. Choi 379.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Zhejiang, Fujian, Taiwan; India, Vietnam.

Ecology: Thin forests on slopes. Flowering & fruiting: Apr.–Oct.

8. Clerodendrum chinense (Osbeck) Mabb. 重瓣臭茉莉 **(Photo 176)**

Pl.-Book (corr. repr. 1989) 707. 1989; FOC 17: 39. 1994; FTW ed. 2, 4: 416. 1998.

Cryptanthus chinensis Osbeck, Dagb. Ostind. Resa 215. 1757.

Clerodendrum philippinum Schauer, Prodr. 11: 666. 1847; FTW 4: 423. 1978; FYN 1: 470, pl. 112: 3–6. 1977; FRPS 65(1): 173, fig. 91. 1982.

Clerodendrum fragrans auct. non Vent.: FKH 205. 1912, *p.p.*

Shrub, 0.5–1.2 m tall. Branchlets nearly tetragonal to terete, pubescent when young, glabrescent. Petiole 3–17 cm, pubescent to tomentose; leaf blade broadly ovate to nearly heart-shaped, 9–22 × 8–21 cm, base truncate, broadly truncate, or subcordate, apex acuminate, margin sparsely irregularly dentate, adaxially strigose, abaxially pubescent especially on veins and with several large glands near base. Cymes terminal, dense corymbose. Peduncle tomentose. Bracts lanceolate, 1.5–3 cm; pubescent, with several large glands. Flowers double, fragrant. Calyx campanulate, 1.5–1.7 cm, deeply 5-lobed, pubescent, with several large glands; lobes linear-lanceolate, 0.7–1 cm. Corolla white, pinkish, or red, tube short, lobes ovate.

Locality: Sai Kung, Wun Yiu, Fung Kat Heung, Lantau Island. *H. C. Tang 103, 2211; HK sheet 21897.*

Distribution: Guangdong, Guangxi, Yunnan, Fujian, Taiwan (cultivated); widely cultivated in tropical and subtropical Asia.

Uses: Ornamental, medicinal (folklore).

Notes: The species was reported as *Clerodendrum fragrans* (Vent.) Willd. previously (Check List HK Plants 59. 1993, *p.p.*).

9. Clerodendrum lindleyi Decne ex Planch. 尖齒臭茉莉

Fl. Serres Jard. Eur. 9: 17. 1853; FYN 1: 471, pl. 112: 8. 1977; FRPS 65(1): 174, fig. 92. 1982; FFJ 4: 548. 1989; FOC 17: 39. 1994; FGD 3: 380. 1995.

Clerodendrum fragrans auct. non Vent.: FKH 205. 1912, *p.p.*

Shrub, 0.5–3 m tall. Branchlets pubescent, nearly tetragonal when young, becoming subterete, pubescent. Petiole 2–11 cm, pubescent; leaf blade papery, broadly ovate to heart-shaped, 6.5–12.5(–22) × 5.5–10(–20) cm, base truncate to cordate, apex acuminate, margin irregularly serrate or undulate, pubescent especially abaxially, with several peltate glands at base. Cymes terminal, dense, corymbose. Peduncle pubescent. Bracts many, lanceolate, 2.5–4 cm, puberulent, with several peltate glands. Calyx 1–1.5 cm, deeply 5-lobed, densely puberulent, with several peltate glands; lobes linear-lanceolate, 4–10 mm. Corolla purplish red or pale red, tube 2–3 cm; lobes obovate, 5–7 mm. Stamens exserted. Style exceeding stamens. Drupes enclosed in purple, inflated, persistent calyx, bluish black, subglobose, 5–6 mm in diam.

Locality: New Territories. *S. T. Dunn 1194.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Fujian, Zhejiang, Jiangsu, Anhui.

Ecology: Forests. Flowering & fruiting: Jun.–Nov.

Uses: Medicinal (folklore).

Notes: The species was reported as *Clerodendrum fragrans* (Vent.) Willd. previously (Check List HK Plants 59. 1993, *p.p.*).

11. Holmskioldia Retz. 冬紅屬

Shrubs; branchlets hairy. Leaves simple, opposite, entire or serrate, petiolate. Cymes axillary or crowded at apex. Calyx membranous, salverform, colourful, subentire. Corolla-tube curved, apex shallowly 5-lobed. Stamens 4, didynamous, inserted at the base of corolla-tube, exserted; anthers dehiscing by longitudinal slits. Ovary slightly compressed, ovules 4. Style slender; stigma 2-cleft. Fruit nearly 4-valved to base.

About three species distributed in India, Madagascar and tropical Africa; one species introduced to China; it is commonly cultivated in Hong Kong.

1. Holmskioldia sanguinea Retz. 冬紅花 **(Fig. 87; Photo 177)**

Observ. Bot. 6: 31. 1791; FRPS 65(1): 192, pl. 21. 1982; FFJ 4: 550, fig. 430. 1989; FGD 3: 383. 1995.

Evergreen shrub, 3–7 m. Branchlets tetragonal, 4-sulcate, hairy. Petiole 1–2 cm, sulcate, hairy and glandular; leaf blade membranous, ovate or broadly ovate, base rounded or subtruncate, margin serrate, sparsely hairy and glandular on both surfaces, hairs dense along veins. Thyrses composed of 2–6 cymes, each cyme 3-flowered. Peduncle and pedicels with glandular hairs and long simple hairs. Calyx red to orange-red, to 2 cm in diam., sparsely ciliate, reticulate veins conspicuous. Corolla red; tube 2–2.5 cm, glandular. Stamens 4, filaments 2.5–3 cm, glandular. Fruit obovoid, ca. 6 mm, enclosed in enlarged persistent calyx.

Locality: Cultivated. *Y. S. Lau 1458, 3197; HK sheet 22007.*

Distribution: Taiwan, Guangdong, Guangxi (cultivated); native to Himalaya.

Uses: Ornamental.

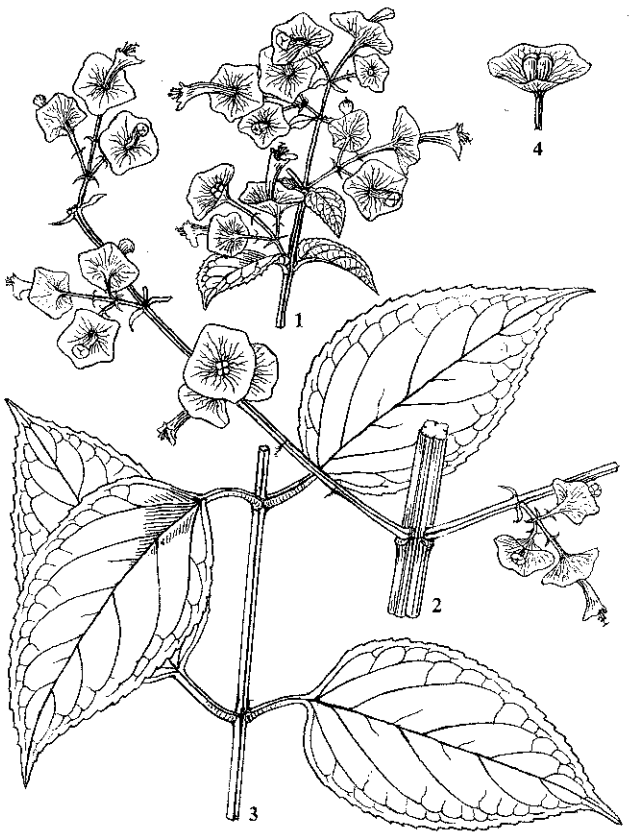


Figure 87. *Holmskioldia sanguinea* Retz.
1. flowering branch; *2.* old flowering branch; *3.* leafy branch; *4.* fruit with persistent calyx. (drawn by H. P. Yu)

12. Vitex L. 牡荊屬

Trees or shrubs. Leaves opposite, palmately (1–)3–7-foliolate; leaflets petiolulate, margin entire, dentate, serrate or incised. Inflorescences terminal or axillary, in cymes, thyrses, or panicles. Bracts usually small, often caducous. Calyx campanulate, rarely tubular or funnelform, sometimes 2-lipped, usually truncate or shortly 5-dentate, persistent and slightly enlarged in fruit. Corolla longer than calyx, 2-lipped, lower lip 3-lobed with middle lobe evidently larger, upper lip usually 2-lobed. Stamens 4, subequal or didynamous, inclusive or exserted. Ovary 2- or 4-locular; ovules 1 or 2 per locule. Style filiform; stigma 2-cleft. Drupes subtended by persistent calyx, globose, ovoid, or obovoid, endocarp a bony pyrene, mesocarp usually fleshy. Seeds obovoid or oblong, endosperm wanting; cotyledons usually fleshy.

About 250 species distributed in tropical and temperate regions of the world; 14 species in China; four species and one variety in Hong Kong.

In addition to the species described here, *V. agnus-castus* L. (紫花牡荊, including *V. agnus-castus* 'Alba' 白牡荊) and *V. tripinnata* (Lour.) Merr. (越南牡荊; Photo 178) are occasionally cultivated as ornamentals in Hong Kong.

1a. Leaflet 1 ..... 1. *V. rotundifolia*
1b. Leaflets 3–7.
2a. Leaflets glabrous except midvein ..... 2. *V. quinata*
2b. Leaflets hairy on both surfaces.
3a. Leaflets often 3 ..... 3. *V. trifolia*
3b. Leaflets often 5.
4a. Leaflets often entire or sometimes with several teeth at margin, glaucous and tomentose abaxially 4. *V. negundo*
4b. Leaflets often regularly coarse serrate at margin, pale green and pubescent abaxially ..... 4a. *V. negundo* var. *cannabifolia*

1. Vitex rotundifolia L. f. 單葉蔓荊(白背蔓荊) **(Photo 179)**

Suppl. Pl. 294. 1781; FTW 4: 434. 1978; FOC 17: 30. 1994; FTW ed. 2, 4: 428. 1998.

Vitex ovata Thunb., Fl. Jap. 257. 1784.

Vitex trifolia L. var. *simplicifolia* Cham., Linnaea : 107. 1832; FRPS 65(1): 140, fig. 70. 1982; FFJ 4: 539. 1989; FGD 3: 374. 1995.

Vitex trifolia L. var. *unifoliolata* Schauer, Prodr. 11: 683. 1847.

Shrub. Stems prostrate to creeping, rooting at nodes; branchlets silky tomentose when young. Leaves mostly 1(–3)-foliolate, sessile or short petiolate; blade obovate, 2.5–5 × 1.5–3 cm, base attenuate to rounded, apex abruptly subacuminate to rounded, margin entire, adaxially usually pale green and pubescent, abaxially densely tomentose. Thyrses terminal, 3–10 × 1–2.5 cm. Calyx cupular, 4–5 mm, slightly 2-lipped, 5-denticulate, glabrous adaxially, slightly silky tomentose and glandular abaxially. Corolla bluish purple, salverform, slightly silky tomentose and glandular abaxially, villous in tube and adaxially. Stamens and style exserted. Ovary globose, glabrous, densely glandular. Fruit dark brown when dry, globose.

Locality: Common in Hong Kong. *Y. S. Lau 2325; S. P. Lau 152; HK sheet 40601.*

Distribution: Guangdong, Taiwan, Fujian, Jiangxi, Anhui, Zhejiang, Jiangsu, Shandong, Hebei; Japan, SE Asia, Pacific islands.

Ecology: Sandy beaches. Flowering: Jul.–Sep.; fruiting: Sep.–Nov.

Uses: Medicinal (folklore).

2. Vitex quinata (Lour.) F. N. Williams 山牡荆 **(Photo 180)**

Bull. Herb. Boissier, ser. 2, 5(5): 431. 1905; FHN 4: 19. 1977; FTW 4: 434. 1978; FRPS 65(1): 135. 1982; FFJ 4: 539, fig. 424. 1989; FOC 17: 29. 1994; FGD 3: 373. 1995; FTW ed. 2, 4: 426, photo 255. 1998.

Cornutia quinata Lour., Fl. Cochinch. 2: 387. 1790.

Vitex loureiri Hook. & Arn., Bot. Beechey Voy. 206. 1837; FHK 273. 1861.

Vitex heterophylla Roxb., [Hort. Beng. 46. 1814, *nom. nud.*] Fl. Ind. ed. 1832, 3: 75. 1832; FKH 204. 1912.

Tree, 4–12 m tall; bark brown. Branchlets tetragonal, pubescent and glandular. Leaves 3(–5)-foliolate; petiole 2.5–6 cm; petiolules 0.5–2 cm; leaflets thickly papery, obovate-lanceolate to elliptic-lanceolate, base cuneate, apex acuminate, acute, or cuspidate, margin entire, puberulent along midvein on both surfaces, abaxially yellow glandular; central leaflet 5–9 × 2–4 cm; lateral ones smaller. Panicles terminal, 9–18 cm, densely yellowish brown pubescent. Calyx campanulate, 2–3 mm, densely yellowish brown pubescent and glandular abaxially, 5-denticulate. Corolla pale yellow, 7–8 mm, 2-lipped, 5-lobed, abaxially pubescent and glandular. Stamens exserted. Ovary glandular. Fruiting calyx truncate. Fruit obovoid to globose, black, 4–8 mm in diam., subtended by plateform truncate persistent calyx.

Locality: Common in Hong Kong. *Y. S. Lau 394, 889, 2375.*

Distribution: Guangdong, Guangxi, Hunan, Jiangxi, Zhejiang, Fujian, Taiwan; India, Japan, Malaysia, Philippines.

Ecology: Open places, forests on hillslopes. Flowering: Jul.; fruiting: Sep.–Nov.

3. Vitex trifolia L. 蔓荆 **(Photo 181)**

Sp. Pl. 2: 638(as 938). 1753; FHK 273. 1861; FKH 204. 1912; FHN 4: 18. 1977; FYN 1: 442, pl. 105: 1–3. 1977; FRPS 65(1): 138. 1982; FFJ 4: 539. 1989; FOC 17: 29. 1994; FGD 3: 374. 1995; FTW ed. 2, 4: 428. 1998.

Shrub, rarely small tree, 1.5–5 m tall. Branchlets tetragonal, densely pubescent. Leaves (1–)3(–5)-foliolate; petiole 1–3 cm; leaflets sessile, ovate, obovate or ovate-oblong, base cuneate, apex obtuse, margin entire, ± hairy adaxially, densely grey tomentose abaxially; lateral veins 5–8 pairs, slightly prominent on both surfaces; central leaflet 5–9 × 1.7–3 cm, lateral ones smaller and subsessile. Thyrses terminal, 3–10(–15) cm. Peduncle densely grey tomentose. Calyx campanulate, ca. 2 mm, slightly 5-dentate, glabrous adaxially, grey pubescent abaxially. Corolla purplish blue, 8–10 mm, villous adaxially, white mealy pubescent abaxially, 2-lipped, upper lip 2-lobed, lower lip 3-lobed with central one larger. Stamens exserted. Ovary glabrous, glandular. Style glabrous. Fruit subglobose, 4–5 mm in diam., black.

Locality: Fanling, Castle Peak, Lin Tong Mei, Yuen Long, Lantau Island. *P. S. Choi 342; Y. W. Lam 1531; HK sheet 34489.*

Distribution: Guangdong, Guangxi, Yunnan, Fujian, Taiwan; SE Asia, Australia, Pacific islands.

Ecology: Open fields, streamsides. Flowering: Jul.–Aug.; fruiting: Aug.–Nov.

Uses: Medicinal (folklore).

4. Vitex negundo L. 黄荆 **(Fig. 88; Photo 182)**

Sp. Pl. 2: 638. 1753; FHK 273. 1861; FKH 204. 1912; FGZ 628. 1956; FTW 4: 432. 1978; FRPS 65(1): 141. 1982; FFJ 4: 540, fig. 425. 1989; FOC 17: 30. 1994; FGD 3: 374, fig. 242. 1995; FTW ed. 2, 4: 426, pl. 180. 1998.

Shrub or small tree. Branchlets tetragonal, densely greyish white tomentose. Leaves usually (3–)5-foliolate; leaflets papery, oblong-lanceolate or lanceolate, base cuneate, apex acuminate, margin entire or rarely with several teeth along apical part,

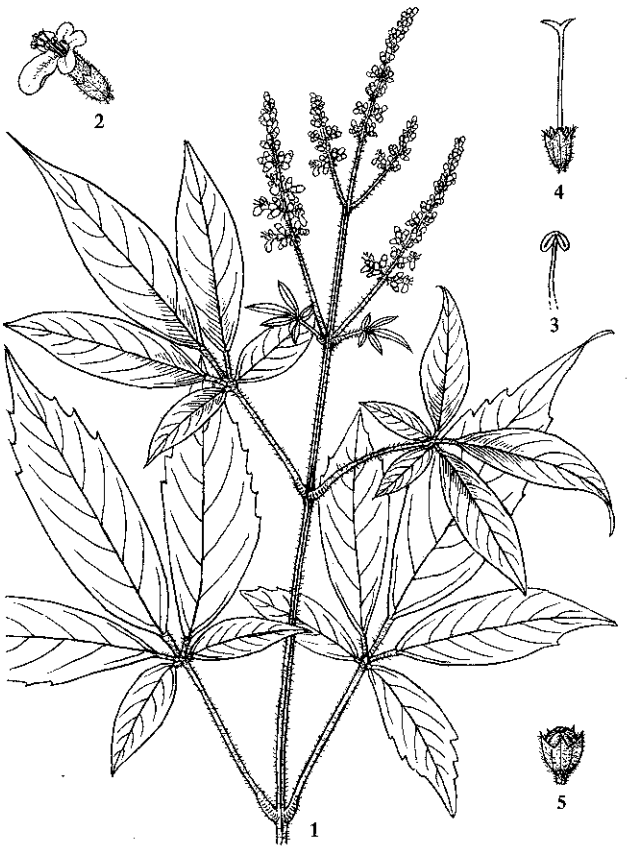


Figure 88. *Vitex negundo* L.

1. flowering branch; *2.* flower; *3.* one of the stamens; *4.* pistil; *5.* drupe. (drawn by H. P. Yu)

adaxially green, glabrous or puberulent, abaxially greyish white, tomentose; central leaflet 4–13 × 0.5–4 cm, distinctly petiolulate. Inflorescences terminal, 10–27 cm. Peduncle densely greyish white tomentose. Calyx campanulate, ca. 2 mm, abaxially greyish white tomentose, 5-dentate. Corolla bluish purple or pale purple, ca. 7 mm, 2-lipped, 5-lobed, puberulent abaxially. Stamens exserted. Ovary subglabrous. Drupes subglobose, ca. 2 mm in diam., mostly enclosed by persistent calyx.

Locality: Common in Hong Kong. *Y. S. Lau 8; Y. W. Lam 1027, 2181.*

Distribution: S, SW, E & NW China; Japan, E Africa, SE Asia, Pacific islands.

Ecology: Thickets on hillslopes. Flowering: Apr.–Jun.; fruiting: Jul.–Oct.

Uses: Medicinal (folklore).

4a. Vitex negundo L. var. **cannabifolia** (Siebold & Zucc.) Hand.-Mazz. 牡荊

Acta Horti Gothob. 9(4): 67. 1934; FRPS 65(1): 143. 1982; FFJ 4: 541. 1989; FOC 17: 31. 1994; FGD 3: 375. 1995.

Vitex cannabifolia Siebold & Zucc., Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4(3): 152. 1846.

Vitex negundo f. *intermedia* C. P'ei, Mem. Sci. Soc. China 1(3): 105. 1932; FYN 1: 452. 1977.

It differs from var. *negundo* by leaflets often regularly coarse serrate, abaxially greenish, minutely pilose.

Locality: Wong Nai Chung Gap, Quarry Bay, Fung Yuen, Lo Wu, Lantau Island. *W. J. Tutcher 8113; Y. S. Lau 342, 1918.*

Distribution: Guangdong, Guangxi, Guizhou, Hebei, Henan, Hunan, Sichuan; India, Nepal, SE Asia.

Ecology: Thickets on hillslopes. Flowering: Jun.–Jul.; fruiting: Aug.–Nov.

13. Gmelina L. 石梓屬

Trees or shrubs. Branchlets tomentose, sometimes spiny. Leaves simple, opposite, entire, rarely lobed, usually with large gland patches near base. Inflorescences usually terminal, cymose or paniculate, rarely flowers solitary and axillary; cymules axillary, decussate, several-flowered, short. Bracts often lanceolate or elliptic, deciduous or persistent. Calyx persistent, campanulate, enlarged in fruit, truncate, 4–5-dentate or lobed, slightly unequal or oblique, usually with large glands. Corolla zygomorphic, ventricose funnelform, tube narrow at base, throat wide; limb oblique, ca. 2-lipped, upper lip 2-lobed or entire, lower lip 3-lobed with middle lobe larger. Stamens 4, distinctly didynamous, inserted on basal part of corolla tube, usually inclusive, ± exserted; anthers divaricate, dehiscing by longitudinal slits. Ovary (2–)4-locular; ovules 1(–2) per locule. Style slender, stigma often unequally 2-lobed. Drupes fleshy, endocarp bony, mesocarp fleshy, 1–4-seeded.

About 35 species distributed in Asia, Australia, and New Guinea; seven species in China; one species in Hong Kong.

G. arborea Roxb. (雲南石梓) and *G. hystrix* Schult. ex Kurz (刺石梓) are occasionally cultivated.

1. Gmelina chinensis Benth.

石梓(華石梓) **(Fig. 89; Photo 183)**

FHK 272. 1861; FKH 203. 1912; FRPS 65(1): 129, fig. 64. 1982; FFJ 4: 537, fig. 423. 1989; FOC 17: 33. 1994; FGD 3: 370. 1995.

Tree or shrub, 4–12 m tall; bark grey. Branchlets robust, yellowish brown pubescent when young, glabrescent. Petiole 2–5.5 cm, sulcate, pubescent when young, glabrescent; leaf blade papery to thickly papery, ovate-elliptic to ovate, 5–15 × 3–7(–9) cm, base cuneate, apex acuminate, margin entire, adaxially glabrous, abaxially greyish white, puberulent and glandular; basal veins 3, lateral veins 3–5 pairs, prominent abaxially. Inflorescences terminal thyrses. Bracts leaf-like, deciduous. Peduncle 5–10 cm, hairy. Calyx campanulate, 0.5–1.2 cm, apex truncate or 4-denticulate, adaxially sparsely glandular and glabrous, abaxially pubescent, grey downy and with several disk-shaped glands. Corolla funnelform, white or pinkish, 3–3.5 cm, throat ca. 2.5 cm in diam., sparsely glandular adaxially, densely glandular abaxially. Filaments flat, sparsely glandular-hairy. Ovary obovoid, apically densely pubescent, basally glabrous. Drupes obovoid, ca. 2.2 cm.

Locality: Lantau Island. *Y. S. Lau 1279, 2730; HK sheet 36035.*

Distribution: Fujian, Guangdong, Guangxi, Guizhou.

Ecology: Forests. Flowering: May–Sep.; fruiting: Aug.–Sep.

Notes: The type specimen was collected by C. Wright from Hong Kong between 1853 and 1854. Listed in *Rare and Precious Plants of Hong Kong.*

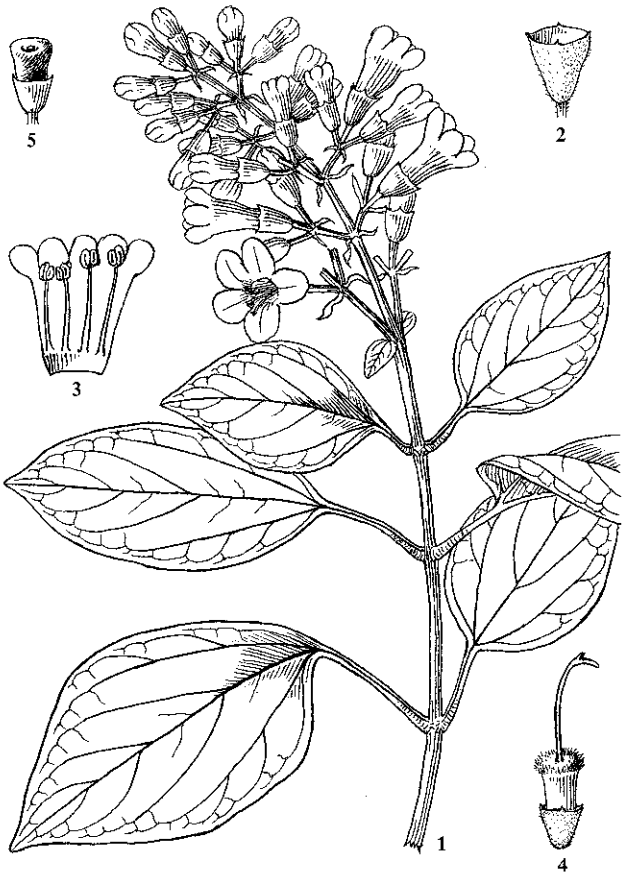


Figure 89. *Gmelina chinensis* Benth.

1. flowering branch; *2.* calyx; *3.* corolla opened up showing stamens; *4.* pistil; *5.* drupe. (drawn by H. P. Yu)

14. Premna L. 豆腐柴屬

Shrubs or trees, erect or rarely scandent. Branches usually terete, often with orbicular or elliptic yellowish white glandular lenticels. Leaves simple, opposite, margin entire or serrate, exstipulate. Inflorescences terminal, in panicles, leaf-opposed cymes, clusters, paniculate corymbs, or spike-like thyrses. Bracts linear or lanceolate, minute, rarely leaf-like. Flowers small. Calyx cupular or campanulate, truncate, sinuately dentate, or rarely long dentate, teeth equal or clearly 2-lipped, persistent and slightly enlarged in fruit. Corolla-tube short, throat with a ring of white hairs; limb 2-lipped and 4-lobed, upper lip with 1 lobe, lower lip 3-lobed. Stamens 4, often didynamous, shorter than corolla or sometimes slightly exserted; anthers globose, dorsifixed, thecae parallel or divergent at base. Ovary (2–)4-locular; ovules 1(–2) per locule, pendulous or laterally attached. Style filiform; stigma 2-cleft. Drupes globose, obovoid or ellipsoidal, usually with a 4-locular pyrene. Seeds ellipsoidal, testa thin; endosperm wanting.

About 200 species distributed in the tropical and subtropical regions of the Old World; 46 species in China; one species in Hong Kong.

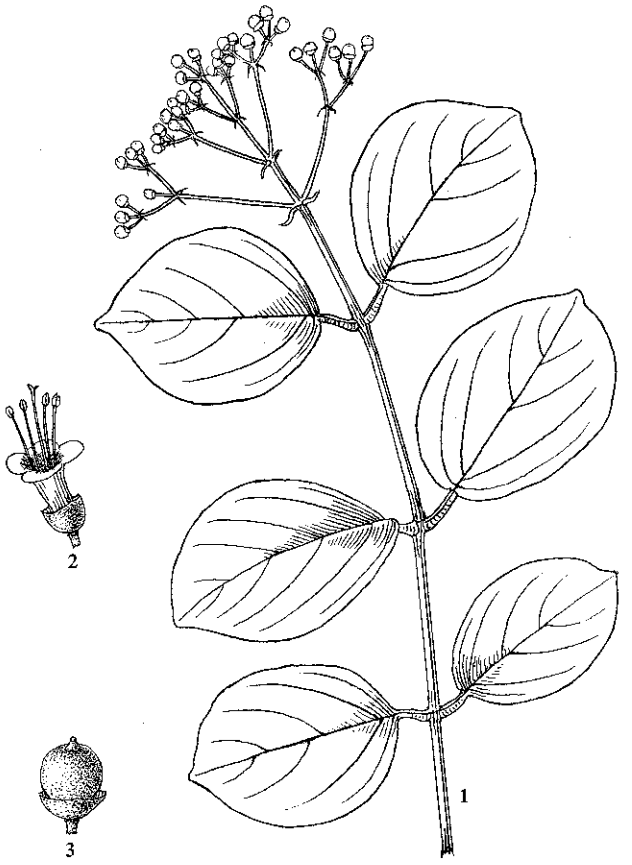


Figure 90. *Premna serratifolia* L.
1. fruiting branch; 2. flower; *3*. drupe. (drawn by H. P. Yu)

1. Premna serratifolia L.
傘序臭黃荊(美娘子) **(Fig. 90; Photos 184–185)**

Mant. Pl. 2: 253. 1771; FHK 203. 1861; FOC 17: 26. 1994; FTW ed. 2, 4: 423, photo 254. 1998.

Cornutia corymbosa Burm. f., Fl. Indica 132. pl. 41, fig. 1. 1768.

Premna corymbosa (Burm. f.) Rottler & Willd., Ges. Naturf. Freunde Berlin Mag. Neuesten Entdeck. Gesammten Naturk. 4: 187. 1803. ; FHN 4: 17. 1977; FRPS 65(1): 114. 5. 1982; FFJ 4: 537. 1989; FGD 3: 366. 1995.

Premna integrifolia L., Mant. Pl. 2: 154. 1771; FKH 203. 1912.

Premna integrifolia var. *obtusifolia* (R. Br.) C. P'ei, Mem. Sci. Soc. China 1(3): 75. 1932.

Premna obtusifolia R. Br., Prodr. 512. 1810; FGD 3: 367, fig. 238. 1995.

Shrub or small tree, 1–4(–8) m tall, erect or rarely scandent. Branchlets pale yellow lenticellate, densely pubescent when young, subglabrescent. Petiole 0.3–5 cm, puberulent; leaf blade papery to subleathery, oblong, broadly ovate, oblong-ovate, obovate to suborbicular, 3–15 × 2.5–9.5 cm, base broadly cuneate, rounded, or truncate, apex acute to rarely acuminate or obtuse, margin entire, slightly undulate, or crenate, subglabrous or pubescent only along veins on both surfaces. Inflorescences 1.5–15 × 2.5–24 cm. Peduncle 0.8–3 cm. Bracts to 6 mm, puberulent. Calyx cupular, 1.5–3 mm, 2-lipped, lower lip subentire to shortly 3-dentate, upper lip longer than lower lip and 2-dentate, abaxially puberulent and yellow glandular. Corolla pale yellow, abaxially glandular, slightly 2-lipped; lower lip 3-lobed, lobes subequal or middle lobe slightly longer and broader; upper lip entire or emarginate. Ovary glabrous, apically glandular. Style 3.5–4 mm. Fruit globose or obovoid, 2–4 mm in diam., sparsely yellow glandular.

Locality: Hong Kong Island, Clear Water Bay, Sha Tin, Kei Ling Ha, Castle Peak, Ma On Shan, Ping Chau. *Y. S. Lau 308, 389; HK sheet 39784.*

Distribution: Guangdong, Guangxi, Taiwan; S & SE Asia, Australia, Pacific islands.

Ecology: Forests, hillslopes. Flowering: Summer; fruiting: Autumn.

292. LAMIACEAE (LABIATAE) 唇形科

HU Qi-ming 胡啟明

Herbs or subshrubs, rarely shrubs, usually aromatic. Stems and branches usually 4-angled. Leaves mostly simple, opposite, rarely whorled or alternate, without stipules. Flowers mostly zygomorphic, axillary, in opposite cymes or rarely solitary, either forming axillary clusters (verticillasters), or in terminal spikes, or racemes, or spike-like panicles. Calyx persistent, usually 5-toothed, 2-lipped or tubular. Corolla with a distinct tube and 4 or 5 lobes, usually forming 2 lips, rarely nearly equal. Stamens epipetalous, 4 or 2, free, rarely filaments connate, sometimes one staminodial; anthers linear, ovoid or rounded, the locules parallel or divaricate, sometimes confluent or rarely dimidiate or disjoined by a slender connectives, usually dehiscing longitudinally; disk persistent. Ovary superior, 2-locular and each locule 2-ovuled and style subterminal, or ovary 4-parted and each lobe 1-ovuled and style gynobasic (from bases of ovary lobes) with 2-cleft apex. Fruit usually 4 dry nutlets. Seeds with or without endosperm.

About 220 genera and 3500 species of cosmopolitan distribution, but mostly in the Mediterranean region and SW Asia; 96 genera and 807 species in China; 24 genera, 40 species and two varieties in Hong Kong.

1a. Style subterminal (not gynobasic); nutlets with lateral-ventral attachment, the large surface of contact often more than half the height of the ovary.
2a. Corolla 1-lipped; verticillasters 2–3-flowered; bracts distinctly different with stem leaves ..... 1. *Teucrium*
2b. Corolla 2-lipped; verticillasters many-flowered; bracts similar to stem leaves ..... 2. *Ajuga*
1b. Style inserted at base of ovary (gynobasic); nutlets with basal attachment and small surface of contact.
3a. Fertile stamens 2, with or without staminodia.
4a. Filaments branched, one branch with a perfect anther-cell, the other with an imperfect or rudimentary one ..... 3. *Salvia*
4b. Filaments and anther-cells not as above.
5a. Stamens only the upper pair perfect, the lower pair abortive ..... 4. *Mosla*
5b. Stamens only the lower pair perfect, the upper pair abortive ..... 5. *Clinopodium*
3b. Fertile stamens 4.
6a. Corolla slightly 2-lipped, nearly actinomorphic.
7a. Calyx 2-lipped; flowers solitary in axils of opposite bract-like floral leaves, forming terminal or axillary racemes ..... 6. *Perilla*
7b. Calyx nearly actinomorphic, 5-toothed.
8a. Filaments bearded; stamens much exerted.
9a. Verticillasters glomerate in head-like or interrupted, spike-like inflorescence ..... 7. *Pogostemon*
9b. Verticillasters aggregated in slender, dense continuous spike-like inflorescence ... 8. *Dysophylla*
8b. Filaments glabrous; stamens included ..... 9. *Mentha*
6b. Corolla distinctly 2-lipped.
10a. Upper lip of corolla 3-lobed, lower lip entire or emarginate.
11a. Stamens long exserted; filaments 2 times longer than corolla-tube ..... 10. *Clerodendranthus*
11b. Stamens included or slightly exserted.
12a. Filaments connate at the base in a sheath around the style ..... 11. *Coleus*
12b. Filaments free, not connate in a sheath.
13a. Stamens 4, subequal; filaments bearded ..... 7. *Pogostemon*
13b. Stamens didynamous, the upper longer, not bearded.
14a. Calyx equally or subequally 5-toothed; filaments without appendages at base ..... 12. *Isodon*
14b. Calyx distinctly 2-lipped.
15a. Lower lip of fruiting calyx nearly entire; calyx tube deeply pitted by network of elevated veins ..... 13. *Mesona*
15b. Lower lip of fruiting calyx sharply 2-toothed; calyx-tube not as above ..... 14. *Ocimum*
10b. Upper lip of corolla entire, emarginate or 2-lobed, lower lip 3–4-lobed.
16a. Nutlets drupaceous, with fleshy pericarp and crustaceous endocarp ..... 15. *Gomphostemma*
16b. Nutlets not drupaceous, with thin and dry pericarp.
17a. Stamens 4, subequal.
18a. Anthers rounded, anther-cells confluent ..... 16. *Hyptis*
18b. Anthers not rounded, anther 2 cells very divaricate ..... 17. *Stachys*
17b. Stamens didynamous.
19a. Lower pair of stamens longer than the upper pair; plants gynodioecious or gynomonoecious ..... 18. *Glechoma*
19b. Lower pair of stamens shorter than the upper pair; flowers all bisexual.
20a. Anthers rounded, the locules confluent into 1 locule and becoming flat after dispersing pollen grains; verticillasters aggregated in secund, spike-like inflorescence ..... 19. *Elsholtzia*
20b. Anthers not rounded, 2-loculate, the locules parallel or divaricate, not confluent; inflorescence not as above.
21a. Anthers of upper pair and lower pair stamens different, one of them reduced to 1-celled.
22a. Fruiting calyx-tube with a large shield or pouch-like appendage above the upper lip ..... 20. *Scutellaria*
22b. Fruiting calyx not as above ..... 21. *Anisomeles*
21b. Anthers of upper pair and lower pair stamens similar, all 2-celled.
23a. Calyx 13-veined, inflated one side at base ..... 5. *Clinopodium*
23b. Calyx 5(or 10)-veined, not inflated at base.

24a. Leaves 3-palmatipartite, the ultimate fragment linear; calyx with spinescent teeth ..... 22. *Leonurus*
24b. Leaves not lobed; calyx-teeth not spinescent.
25a. Calyx 8–10-toothed; style unequally 2-lobed ..... 23. *Leucas*
25b. Calyx 5-toothed; style almost equally 2-lobed... 24. *Paraphlomis*

1. Teucrium L. 香科科屬

Herbs or subshrubs, with rhizomes or stolons. Leaves simple, opposite, serrate. Verticillasters 2–3-flowered, forming terminal and axillary spike-like inflorescence. Calyx 10-veined, ± 2-lipped; tube tubular to campanulate, swollen in front at base; limb 5-toothed. Corolla 1-lipped; tube included or exserted, not hairy annulate inside; limb 5-lobed, with middle lobe circular or spathulate, occasionally 2-lobulate; lateral lobes 4, small. Stamens 4, lower 2 slightly longer, all exserted from posterior sinus of corolla; anthers reniform, with 2 divaricate cells. Disk symmetrical. Ovary globose. Style equally or subequally 2-fid. Nutlets obovoid, glabrous, rugose or reticulate; surface of contact large, oblique or lateral.

About 260 species distributed worldwide, but abundant in the Mediterranean region; 18 species in China; two species in Hong Kong

1a. Upper lip of calyx equally 3-toothed; corolla 5–8 mm ..... 1. *T. viscidum*
1b. Upper lip of calyx with a large middle lobe and 2 much smaller lateral lobes; corolla 1.2–1.3 cm ..... 2. *T. quadrifarium*

1. Teucrium viscidum Blume 血見愁 **(Fig. 91; Photo 186)**
Bijdr. Fl. Ned. Ind. 14: 827. 1825; FRPS 65(2): 31. 1977; FGD 3: 389, fig. 247. 1995; FTW ed. 2, 4: 545, pl. 250. 1998.

Teucrium stoloniferum Roxb., Fl. Ind. ed. 1832, 3: 3. 1832, *nom. illeg.*, non *Teucrium stoloniferum* Ruiz & Pav. (1814).

Teucrium stoloniferum Hamilt. ex Benth. in Wall., Pl. Asiat. Rar. 1: 58. 1830; FHK 279. 1861; FKH 212. 1912.

Teucrium japonicum Willd in DC. Prodr. 12: 581.

Perennial herbs, 30–70 cm tall, stoloniferous; stems and branches glandular pubescent. Leaves opposite; petioles 1–3 cm; leaf blade ovate to ovate-oblong, 3–7(–10) × 2.5–4 cm, base rounded, broadly cuneate or cuneate, decurrent, apex acute or shortly acuminate, margin crenate, subglabrous or very sparsely puberulent on both surfaces. Verticillasters forming terminal and axillary raceme-like inflorescence of 3–7 cm, viscous; pedicels ca. 2 mm. Calyx campanulate, 2–3 mm, 10-veined, glandular pubescent, limb subequally 5-toothed. Corolla white, pink tinged with blue, 6–8 mm, limb seemly 1-lipped, the middle lobe suborbicular, lateral lobes ovate-triangular. Stamens exserted. Style equaling stamens. Nutlets depressed ovoid or globose, ca. 1.3 mm.

Locality: Common in Hong Kong. *L. T. Lo 123; Y. S. Lau 2759, 3137.*

Distribution: Areas S of Changjiang; Korea, Japan, Philippines, Vietnam, Myanmar, India to Indonesia.

Ecology: Wet places in ravines, thin forests, roadside. Flowering & fruiting: Jun.–Aug.

Uses: Medicinal (folklore).

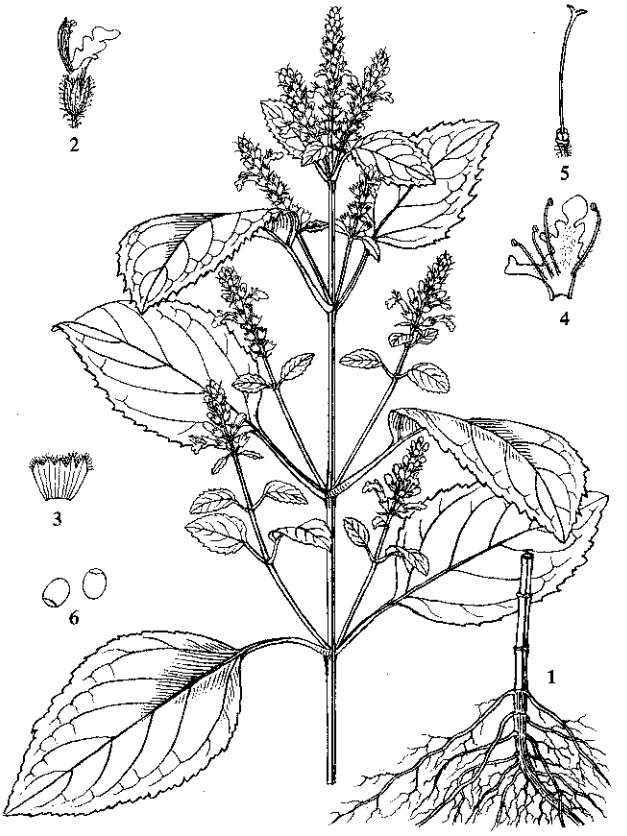


Figure 91. *Teucrium viscidum* Blume
1. upper and lower portion of plant; *2.* flower; *3.* calyx opened; *4.* corolla opened; *5.* pistil; *6.* nutlets. (drawn by H. P. Yu)

2. Teucrium quadrifarium Buch.-Ham. 鐵軸草 **(Photos 187–188)**
Prodr. Fl. Nepal. 108–109. 1825; FHK 280. 1861; FKH 212. 1912; FRPS 65(2): 40, pl. 6. 1977; FOC 17: 59. 1994.

Subshrubs, 30–100 cm tall; stems and branches rusty villous or hirsute. Leaves opposite; petioles 1–1.5 cm, the uppermost leaves subsessile; leaf blade narrowly elliptic to very narrowly ovate, 3–8 × 1.5–4 cm, base truncate or cordate, often oblique, apex bluntly acute, margin serrulate, pubescent and slightly rugose adaxially, villous along veins abaxially. Verticillasters forming terminal and axillary raceme-like inflorescence and rearranged in panicles of 7–10 cm; axis villous. Calyx tubular-campanulate, 3–5 mm, 10-veined, villous, 2-lipped, upper lip 3-toothed, the middle lobe large, oblate-orbicular, the lateral 2 lobes much smaller, triangular. Corolla pink, 1.2–1.3 cm, pubescent abaxially, with a ring of hairs at the throat, limb seemly 1-lipped, the middle lobe obovate-orbicular, lateral lobes ovate-oblong. Stamens exserted. Style equaling stamens. Nutlets obovoid-globose, ca. 1 mm.

Locality: Pok Fu Lam, Victoria Peak, Mount Nicholson, Mount Cameron, Aberdeen, Repulse Bay, Deep Water Bay, Ng Kwai Shan. *Y. S. Lau 2351; HK sheet 39830, 40883.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Jiangxi, Fujian; Nepal, India, Myanmar to Indonesia.
Ecology: Hillslopes, thickets. Flowering: Jul.–Dec.; fruitig: Aug.–Feb. of the following year.
Uses: Medicinal (folklore).

2. Ajuga L. 筋骨草屬

Annual or perennial herbs. Leaves simple, opposite, petiolate or sessile, margin dentate to incised. Verticillasters 2–many-flowered, axillary or in terminal leafy spike-like inflorescence; bracts similar to stem leaves or gradually reduced upwards. Flowers subsessile. Calyx ovoid to globose, campanulate to funnelform, usually 10-veined; teeth 5, subequal. Corolla purple to blue, rarely yellow or white; tube straight to slightly curved, base slightly bent/swollen; throat slightly dilated, villous annulate, rarely glabrous inside; limb 1–2-lipped; the upper lip usually very short, 2-fid, the lower lip long and spreading or slightly concave, 3-lobed, the middle lobe the largest, often notched at apex. Stamens 4, in two pairs ascending, exserted from upper lip, lower 2 longer; filaments straight to slightly curved; anthers 2-celled, divaricate, often confluent at length apically. Ovary shortly 4-lobed; style subequally 2-cleft. Nutlets obovoid, triquetrous, netted on back; scar very large, lateral.

About 50 species spreading throughout the Old World; 18 species in China; one species in Hong Kong.

Ajuga reptans L. var. *purpurea* Hort. (紫色匍匐筋骨草) is occasionally cultivated for ornamental purpose.

1. Ajuga nipponensis Makino 紫背金盤 **(Photos 189–190)**

Bot. Mag. (Tokyo) 23(267): 67–68. 1909; FRPS 65(2): 76. 1977; FOC 17: 68. 1994; FGD 3: 392. 1995; FTW ed. 2, 4: 438, pl. 186. 1998.

Ajuga genevensis L., Sp. Pl. 2: 561. 1753; FKH 212. 1912.

Ajuga decumbens auct. non Thunb.: FKH 212. 1912.

Annual or biennial herbs, 10–20 cm or taller; stems usually erect, branched from base, villous or pilose. Leaves opposite, petiolate; leaf blade broadly elliptic or ovate-elliptic, 2–4.5 × 1.5–2.5 cm, base cuneate, decurrent, apex obtuse, margin irregularly undulate-crenate, ciliate, sparsely hirsute or pubescent on both surfaces. Verticillasters many-flowered, forming terminal spike-like inflorescence; lower bracts similar to stem leaf, gradually reduced upward, ovate to broadly lanceolate, 0.8–1.5 cm, green or sometimes tinged with purple, ciliate; pedicels short or almost absent. Calyx campanulate, 3–5 mm, villous on upper half, the teeth triangular, subequal, about half the length of the calyx. Corolla bluish or blue-purple, rarely white or greenish, with dark lines, 7–11 mm, base slightly swollen, sparsely pubescent adaxially, villous annulate at throat abaxially; lower lip 3-lobed, middle lobe flabellate, truncate or emarginate at apex, lateral lobes narrowly oblong. Nutlets obovoid rugose-reticulate dorsally.

Locality: Wong Chuk Hang, Tai Mo Shan, Shing Mun, Ping Shan, Lantau Island. *Y. S. Lau 2683; P. S. Choi 531; Y. W. Lam 1307.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hubei, Hunan, Jiangxi, Jiangsu, Zhejiang, Fujian; Japan, Korea.

Ecology: Wet places, old walls. Flowering: Dec.–Mar. of the following year; fruiting: Mar.–Apr.

Uses: Medicinal (folklore).

3. Salvia L. 鼠尾草屬

Herbs, subshrubs, or shrubs. Leaves opposite, simple or pinnately compound. Verticillasters 2–many-flowered, forming terminal and axillary racemes or panicles; bracts small or large, sometimes brilliantly coloured in cultivated forms. Calyx tubular to campanulate, 2-lipped; upper lip entire, 2-toothed, or 3-mucronate; lower lip notched or 2-toothed. Corolla 2-lipped; tube with or without hairy annulus inside; upper lip straight or falcate, entire or emarginate; lower lip spreading, 3-lobed; the central lobe usually wider than the lateral ones, entire or emarginate. Fertile stamens 2, representing the lower pair; filaments short, articulating with a slender connective, and sometimes produced beyond the joint; connectives linear, transverse, with an upper ascending arm which bears a linear fertile anther-cell or empty; staminodes 2, small or absent. Disk usually enlarged anteriorly. Style shortly 2-cleft, lobes subulate, linear or circular, equal or the lower larger, sometimes flattened. Nutlets ovoid, often triquetrous, glabrous, smooth.

About 900–1100 species widely distributed in temperate and subtropical regions of the world; 84 species in China; five species (three native) in Hong Kong.

1a. Flowers pink or purplish; corolla 4.5–12 mm.
  2a. Leaves simple, base cuneate ..... 1. *S. plebeia*
  2b. Leaves 3-foliolate to 1–2-pinnate or, if simple, base cordate to rounded.
    3a. Leaves 3-foliolate or simple; leaf or leaflet ovate to ovate-elliptic, base rounded or cordate ..... 2. *S. chinensis*
    3b. Leaves 1–2-pinnately compound; terminal leaflet lanceolate or rhombic, base cuneate ..... 3. *S. japonica*
1b. Flowers brilliantly scarlet; corolla 2–4 cm.
  4a. Leaves hairy on both surfaces; corolla sub-campanulate, 2–2.3 cm ..... 4. *S. coccinea*
  4b. Leaves glabrous; corolla tubular, 4–4.2 cm ..... 5. *S. splendens*

1. Salvia plebeia R. Br. 荔枝草(雪見草) **(Photos 191–192)**

Prodr. 501. 1810; FHK 277. 1861; FKH 210. 1912; FRPS 66: 168, pl. 39: 5–9. 1977; FOC 17: 216. 1994; FGD 3: 437, fig. 273. 1995; FTW ed. 2, 4: 527, pl. 238. 1998.

Annual or biennial herbs, with thick tap root. Stems erect, 20–60(–90) cm tall, many-branched, grey pilose or glabrescent. Leaves simple; petiole 4–15 mm; leaf blade elliptic-ovate to elliptic-lanceolate, 2–6 × 0.8–2.5 cm, base rounded to cuneate, apex obtuse to acute, margin crenate, dentate, or serrate, sparsely hirsute adaxially, finely pilose and sparsely yellow-brown glandular abaxially. Verticillasters 4–6-flowered, numerous, often forming terminal and axillary panicles. Bracts small, linear-lanceolate. Pedicels 1–2 mm, hairy. Calyx campanulate, ca. 2 mm (2.7 mm in fruit), sparsely pilose and yellow-brown glandular, 2-lipped; upper lip obtuse, often shortly 3-fid at the tip; lower lip deeply 2-toothed, teeth triangular. Corolla reddish, purplish, purple, blue-purple, to blue, rarely white, 3–4 mm; tube glabrous, hairy annulate inside; upper lip oblong, obtuse, densely puberulent; lower lip 3-lobed, the middle lobe largest, broadly obovate. Stamens slightly exserted; filaments ca. 1.5 mm; connectives ca. 1.5 mm, arcuate, arms subequal. Nutlets obovoid, 0.4–0.6 mm in diam., brown, rugose.

Locality: Mui Tsz Lam, Fanling, Kuk Po. *W. J. Tutcher 9177; Y. W. Lam 520; HK sheet 38878.*

Distribution: Widely spread over all provinces except Gansu, Qinghai, Xinjiang, Xizang; Afghanistan, India, Indonesia, Japan, Korea, Malaysia, Myanmar, Russia, Thailand, Vietnam, Australia.

Ecology: Farmlands, margins of forests, streamsides. Flowering & fruiting: Oct.–Apr. of the following year.

Uses: Medicinal (folklore).

2. Salvia chinensis Benth. 華鼠尾草 **(Fig. 92; Photo 193)**

Labiat. Gen. Spec. 725. 1835; FRPS 66: 181, pl. 45: 1–5. 1977; FOC 17: 219. 1994; FGD 3: 431, fig. 272. 1995.

Annual herbs, 20–60 cm tall. Stems erect or prostrate at base, pubescent. Leaves simple or 3-foliolate toward stem base; petiole very short or up to 7 cm, villous; leaf blade of simple leaves ovate to ovate-elliptic, 1.3–7 × 0.8–4.5 cm, base cordate to rounded, apex obtuse or acute, margin crenate or obtusely serrate, pubescent along veins on both surfaces; terminal leaflet 2.5–7.5 cm, petiolule 0.5–1.7 cm. Verticillasters 6-flowered, forming terminal racemes or panicles of 5–24 cm, pubescent; bracts lanceolate. Pedicel 1.5–2 mm. Calyx campanulate, purple, veins villous; tube 4–4.5 mm, throat densely hirsute annulate; upper lip ± semicircular, ca. 1.5 × 3 mm, apex 3-mucronate; lower lip longer than upper lip, ca. 2 × 3 mm; teeth narrowly triangular, apex acuminate. Corolla blue-purple or purple, ca. 1 cm, pubescent; tube ca. 6.5 mm, pilose annulate inside; upper lip oblong, ca. 3.5 × 3.3 mm, spreading; lower lip ca. 5 × 7 mm, middle lobe obcordate, curved downward, ca. 4 × 7 mm, margin crenulate, apex emarginate; lateral lobes semiorbicular, ca. 1.3 mm wide. Stamens nearly exserted. Nutlets brown, ellipsoidal-ovoid, ca. 1.5 × 0.8 mm.

Locality: Aberdeen, Mount Kellet, Mount Nicholson, Ma On Shan, Sunset Peak. *Y. S. Lau 380, 2601; Y. W. Lam 1579.*

Distribution: Guangdong, Guangxi, Sichuan, Hubei, Hunan, Jiangxi, Anhui, Shandong, Jiangsu, Zhejiang, Fujian, Taiwan.

Ecology: Margins of forests, grassy hillsides. Flowering: Jul.–Sep.

Uses: Medicinal (folklore).

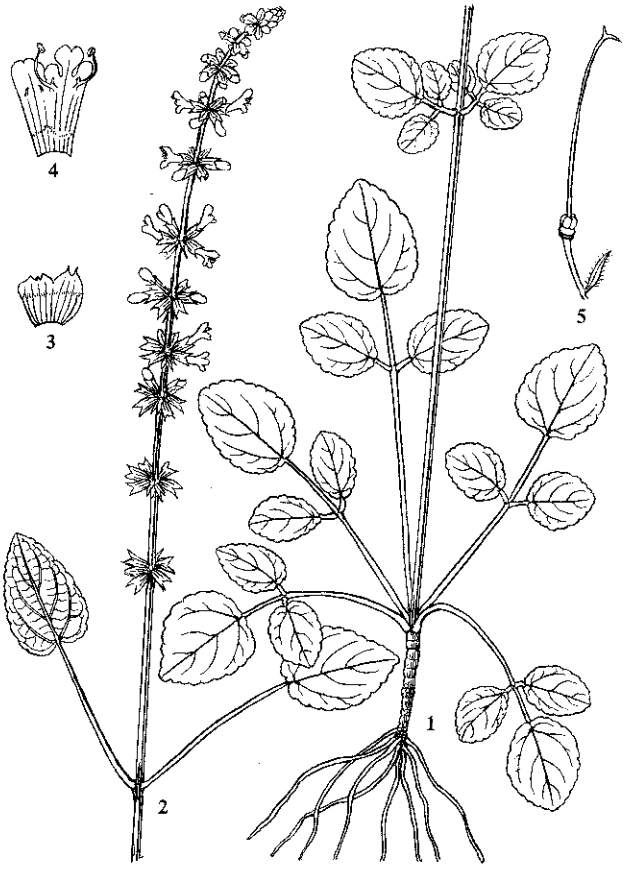


Figure 92. *Salvia chinensis* Benth.
1. lower portion of plant; *2.* upper portion of plant; *3.* calyx opened; *4.* corolla opened; *5.* pistil and bract. (drawn by H. P. Yu)

3. Salvia japonica Thunb. 鼠尾草

Syst. Veg. ed. 14, 72. 1784; FKH 210. 1912; FRPS 66: 179. 1977; FOC 17: 219. 1994; FGD 3: 432. 1995.

Salvia fortunei Benth., Prodr. 12: 354. 1848; FHK 277. 1861; FTW ed. 2, 4: 523, pl. 235. 1998.

Annual herbs, 40–60 cm tall. Stems obtusely quadrangular, sparsely villous on angles or subglabrous. Leaves 1–3-pinnate; petiole 7–9 cm; leaf blade 6–13 × 5–9 cm, pilose or glabrous; upper stem leaves 1-pinnate, short petiolate; terminal leaflet lanceolate or rhombic, to 10 × 3.5 cm, base cuneate; lateral leaflets subsessile, ovate-lanceolate, 1.5–5 × 0.8–2.5 cm, base obliquely rounded, margin obtusely serrate. Verticillasters 2–6-flowered, forming terminal racemes or panicles; rachis densely glandular pilose or pilose; bracts and bracteoles lanceolate, 2–5 mm, glabrous. Pedicel 1–1.5 mm, pubescent. Calyx tubular, 4–6 mm, sparsely glandular pilose, hairy annulate on throat inside, 2-lipped to 1/3 of its length; upper lip triangular or nearly semicircular, ca. 2 × 3 mm; teeth narrowly triangular, apex long acuminate. Corolla reddish, purplish, bluish, to white, ca. 1.2 cm, densely villous; tube obliquely pilose annulate inside, ca. 9 mm, exserted, ca. 2 mm wide at base, to 3.5 mm wide at throat; upper lip elliptic to ovate, ca. 2.5 × 2 mm; lower lip ca. 3 × 4 mm, margin crenulate. Stamens exserted; filaments ca. 1 mm; connectives ca. 6 mm, straight or slightly curved. Nutlets brown, ellipsoidal, ca. 1.7 × 0.5 mm.

Locality: D'Aguilar Peak, Tai Mo Shan, Ma On Shan, Lantau Island. *Y. S. Lau 2522; D. P. M. Guile 1185; Y. W. Lam 1653.*

Distribution: Guangdong, Guangxi, Sichuan, Hubei, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; Japan.

Ecology: Hillsides, thickets, margins of forests. Flowering: Jun.–Sep.

4. Salvia coccinea Buc'hoz ex Etlinger 朱唇
De Salvia 23. 1777; FRPS 66: 174. 1977; FOC. 17: 217. 1994; FGD 3: 436. 1995.

Annual or biennial herbs. Stems erect, to 70 cm, covered with spreading and recurved hairs. Leaves simple; petiole 0.5–2 cm; leaf blade ovate to triangular-ovate, 2–5 × 1.5–4 cm, base cordate or truncate, apex acute, margin serrate or obtusely serrate, adaxially pubescent, abaxially grey minutely tomentose. Verticillasters 4–many-flowered, forming terminal, interrupted racemes; bracts ovate, apex caudate-acuminate, margin ciliate. Pedicel 2–3 mm, white pilose. Calyx tubular-campanulate, 7–9 mm, finely pubescent, intermixed with yellowish glands; upper lip ovate, ca. 2.5 mm, ciliolate, apex mucronate; lower lip nearly as long as upper, deeply 2-toothed. Corolla scarlet or deep red, 2–2.3 cm, pubescent abaxially; tube ca. 1.6 cm; upper lip shorter than lower lip; lower lip ca. 7 mm. Stamens exserted; filaments ca. 4 mm; connectives ca. 1.5 mm, slender. Nutlets yellow-brown with blackish spots, obovoid, 1.5–2.5 mm.

Locality: Cultivated. *HK sheet 22372.*
Distribution: S & C USA, Mexico, S America.
Ecology: Flowering: Feb.–May.
Uses: Ornamental

5. Salvia splendens Ker-Gawl. 一串紅 **(Photo 194)**
Bot. Reg. 8: t. 687. 1822; FRPS 66: 172. 1977; FOC 17. 217. 1994; FGD 3: 436. 1995.

Perennial herbs. Stems erect, 50–90 cm tall. Leaves simple; petiole 3–4.5 cm, glabrous; leaf blade ovate to triangular-ovate, 2.5–7 × 2–4.5 cm, base truncate or ± rounded, apex acuminate, margin serrate, glabrous, abaxially glandular. Verticillasters 2–6-flowered, forming terminal racemes to 20 cm, all parts scarlet; bracts ovate, enveloping flowers in bud, apex caudate-acuminate. Pedicel 4–7 mm, glandular villous. Calyx campanulate, ca. 1.6 cm in flower, dilated to 2 cm after anthesis, veins villous, 2-lipped to ca. 1/3 of its length; upper lip triangular-ovate, 5–6 mm, apex mucronate; lower lip slightly longer than upper, deeply 2-toothed, teeth triangular. Corolla 4–4.2 cm, pubescent; tube slightly dilated at throat; upper lip straight, somewhat concave, oblong, 8–9 mm; lower lip shorter than upper. Filaments ca. 5 mm; connectives ca. 1.3 cm. Nutlets dark brown, ellipsoidal, ca. 3.5 mm, apex irregularly pleated, margin (or midvein) narrowly winged.

Locality: Cultivated. *Y. S. Lau 1877; HK sheet 22452.*
Distribution: Native to Brasil, widely cultivated elsewhere.
Ecology: Flowering: Jan.–May.
Uses: Ornamental.
Notes: The corolla is purple or even white in different varieties.

4. Mosla (Benth.) Buch.-Ham. ex Maxim. 石荠苎屬

Annual herbs, aromatic. Leaves opposite, petiolate. Verticillasters 2-flowered, forming terminal racemes; bracts small or lower ones large and leafy. Flowers pedicellate. Calyx campanulate, 10-veined, often gibbous at the base, throat pubescent, limb subequally 5-toothed and 2-lipped; upper lip 3-toothed, teeth acute to obtuse; lower lip 2-toothed, generally slightly longer, teeth lanceolate. Corolla white or rose to purple-red, tube glabrous or hairy annulate inside; limb nearly 2-lipped, upper lip emarginate; lower lip 3-lobed, margin crenate; lateral lobes smaller than middle lobe. Stamens 4, in 2 pairs, only the upper pair fertile, anther cells 2, divaricate, the lower pair reduced, with indistinct anther cells. Disk glandular, produced in the front. Style apex subequally to equally 2-cleft. Nutlets subglobose to globose, sparsely netted or pitted with small depressions.

About 22 species distributed in SE Asia and E Asia; 12 species in China; two species in Hong Kong.

1a. Stems and branches densely pubescent; bracts ovate, 2.7–3.5 cm, apex caudate-acuminate; corolla hairy annulate near base inside ..... 1. *M. scabra*
1b. Stems and branches glabrous or nearly so; bracts lanceolate to linear-lanceolate, ca. 1 mm; corolla glabrous or obscurely hairy annulate inside ..... 2. *M. dianthera*

1. Mosla scabra (Thunb.) C. Y. Wu & H. W. Li
石荠苎 **(Fig. 93; Photo 195)**
Acta Phytotax. Sin. 12: 230. 1974; FRPS 66: 294. 1977; FOC 17: 244. 1994; FGD 3: 446. 1995.

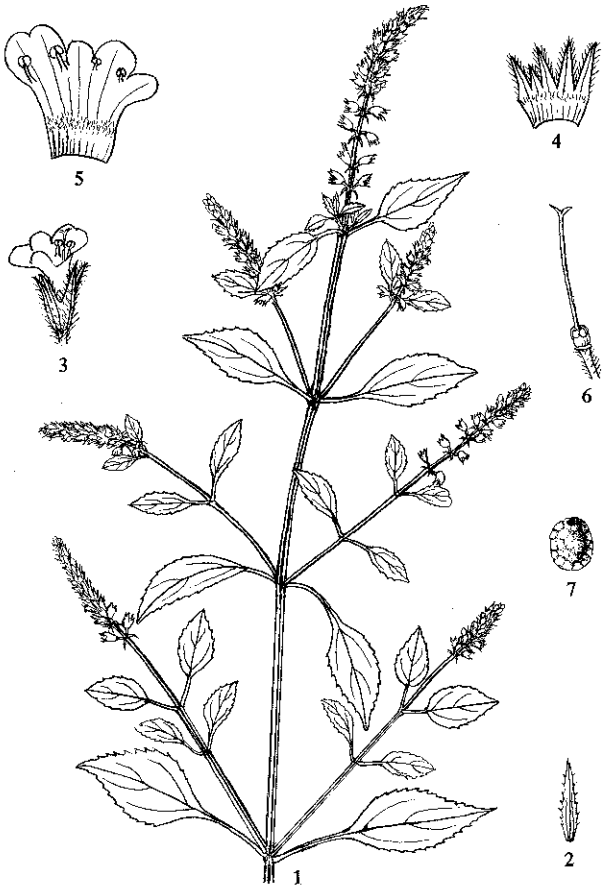


Figure 93. *Mosla scabra* (Thunb.) C. Y. Wu & H. W. Li
1. upper portion of plant; *2.* bracteole; *3.* flower; *4.* calyx opened; *5.* corolla opened; *6.* pistil; *7.* nutlet. (drawn by H. P. Yu)

Perilla lanceolata Benth., Prodr. 12: 164. 1848; FHK 276. 1861.

Mosla lanceolata Maxim., Melanges Biol. Bull. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 9: 434. 1879; FKH 209. 1912.

Ocimum scabrum Thunb., Trans. Linn. Soc. London 2: 338. 1794.

Annual aromatic herbs, 20–100 cm tall. Stems erect, many-branched, densely pubescent. Leaves opposite; petioles 3–6 mm, pubescent; leaf ovate to ovate-lanceolate, 1.5–3.5 × 0.9–1.7 cm, base rounded or broadly cuneate, apex acute or obtuse, margin serrate, adaxially grey puberulent, abaxially subglabrous or slightly puberulent, densely dotted with sunk glands. Racemes terminal, 2.5–15 cm; bracts ovate, 2.7–3.5 mm, apex caudate-acuminate; pedicels ca. 1 mm, lengthening to 3 mm in fruit, densely grey pubescent. Calyx campanulate, ca. 2.5 mm, sparsely pubescent abaxially; limb 2-lipped, upper lip 3-toothed; teeth ovate-lanceolate, apex acuminate, the middle one slightly smaller, the lower lip 2-toothed, teeth linear, apex acute. Corolla pink, 4–5 mm, puberulent abaxially, hairy annulate near base adaxially. Nutlets globose, ca. 1 mm in diam.

Locality: Cheung Sheung, Plover Cove, Tai Lam. *L. T. Lo 642; HK sheet 39291, 40259.*

Distribution: Guangdong, Guangxi, Sichuan, Gansu, Shaanxi, Liaoning, Henan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; Japan, Vietnam.

Ecology: Open fields near villages. Flowering & fruiting: Jun.–Dec.

Uses: Medicinal (folklore).

2. Mosla dianthera (Buch.-Ham.ex Roxb.) Maxim. 小魚仙草

Bull. Acad. Imp. Petersbourg. Ser. 3, 20: 457. 1875; FKH 209. 1912; FRPS 66: 297, pl. 64: 1–7. 1977; FOC 17: 245. 1994; FGD 3: 447, fig. 280. 1995; FTW ed. 2, 4: 492, pl. 217. 1998.

Lycopus dianthera Buch.-Ham. ex Roxb., Fl. Ind. 1: 144. 1820.

Annual aromatic herbs, up to 1 m tall. Stems erect, many-branched, subglabrous, often woody at base. Leaves opposite; petioles 3–18 mm. pubescent; leaf blade rhomboid or ovate 1.2–3.5 × 0.5–1.8 cm, base acute or cuneate, apex acute, margin few-toothed, glabrous or nearly so, sparsely dotted with sunk glands. Racemes terminal, 3–15(–30) cm, often branched; bracts lanceolate, 1–2 mm subtending the flowers. Calyx campanulate, 2–2.5 mm, lengthening to 4–5 mm in fruit, throat hairy annulate inside; teeth deltoid, the lower 2 teeth larger than the upper ones. Corolla purplish, 3.5–5 mm, puberulent abaxially, glabrous or obscurely hairy annulate adaxially. Nutlets ellipsoidal 1–1.6 mm in diam.

Locality: Tai Po Kau. *Y. S. Lau 3257.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Shaanxi, Hubei, Hunan, Jiangxi, Jiangsu, Zhejiang, Fujian, Taiwan; Japan, Vietnam, Myanmar, Malaysia, India, Bhutan, Nepal, Pakistan.

Ecology: Wastelands, roadsides. Flowering: Aug.–Oct.; friuting: Oct.–May of the following year.

Uses: Medicinal (folklore).

5. Clinopodium L. 風輪菜屬

Perennial herbs. Leaves petiolate or sessile, dentate or serrate. Verticillasters many-flowered, forming interrupted spikes or panicles; bracteoles setiform, pilose. Calyx tubular, always 13-veined, straight or slightly curved, ± constricted at middle, ventricose in front at base; throat glabrous or villous; limb 2-lipped; upper lip 3-toothed, teeth broad and connate; lower lip longer, 2-toothed, teeth subulate. Corolla purple-red, reddish, or white; tube exserted, puberulent abaxially; limb 2-lipped; upper lip erect, flat; lower lip spreading, 3-lobed, middle lobe larger, emarginate or entire. Stamens 4, in 2 pairs, ascending under the upper lip; upper pair always small and imperfect; anther cells 2, divaricate, ± obliquely inserted on dilated connectives. Disk uniform, entire. Ovary glabrous; style unequally 2-fid. Nutlets ovoid or subglobose, less than 1 mm in diam., glabrous, areolae small, basal.

About 20 species distributed in Asia, Europe; 11 species in China; one species in Hong Kong.

1. Clinopodium gracile (Benth.) Matsum.
細風輪菜 **(Fig. 94; Photo 196)**

Index Pl. Jap. 2: 538. 1912; FRPS 66: 235, pl. 54: 1–6. 1977; FOC 17: 230. 1994; FGD 3: 440. 1995; FTW ed. 2, 4: 452, pl. 193. 1998.

Calamintha gracilis Benth., Prodr. 12: 232. 1848; FKH 210. 1912.

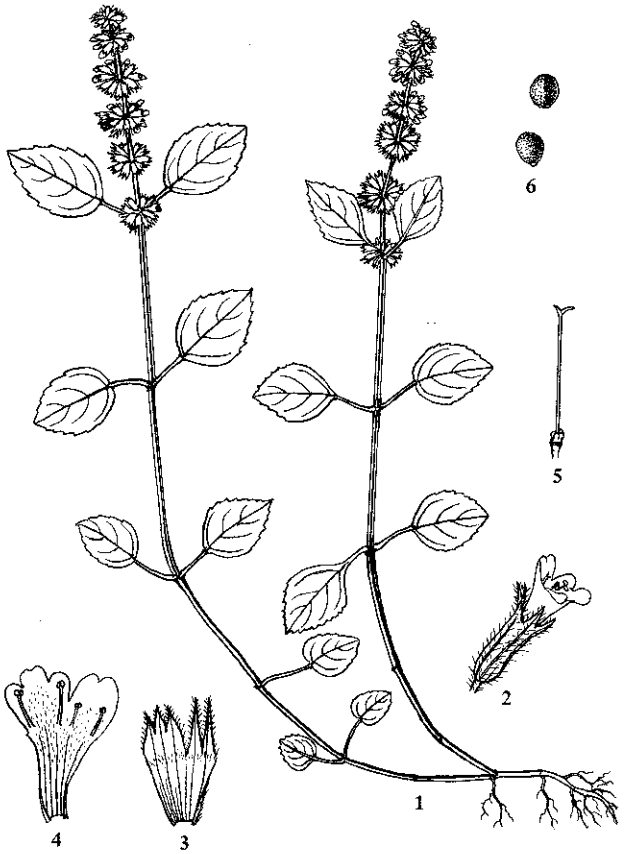


Figure 94. *Clinopodium gracile* (Benth.) Matsum.
1. whole plant; *2.* flower; *3.* calyx opened; *4.* corolla opened; *5.* pistil; *6.* nutlets. (drawn by H. P. Yu)

Perennial herbs. Stems ascending from the prostrate base, puberulous, rooting on the lower nodes. Leaves papery; petioles 0.5–1 cm, puberulous; leaf blade broadly ovate or subrounded 1–2 × 0.8–1.5 cm, base rounded or broadly cuneate, apex acute, margin crenate-serrate, glabrous on both surfaces except on the veins. Verticillasters many-flowered in axils of upper leaves, sometimes aggregated in racemose or subcapitate terminal inflorescence; bracts subulate, puberulous. Calyx tubular-campanulate, 2–3 mm, lengthening to 4–4.5 in fruit, sparsely hirsute; tube slightly inflated below; upper teeth recurved, highly connate, slightly shorter than the lower ones; lower teeth subulate, ciliate, slightly incurved. Corolla straight, 3–4 mm, barely exserted. Anther-cells parallel, connivent. Nutlets rounded, compressed, 0.5–0.6 mm across, pale brown, finely reticulate.

Locality: Hong Kong Island, Tai Mo Shan. *Y. S. Lau 2209; P. S. Choi 128; Y. W. Lam 1559.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Shaanxi, Hubei, Hunan, Jiangxi, Jiangsu, Zhejiang, Fujian, Taiwan; Japan, Vietnam, Laos, Myanmar, Thailand, India, Indonesia.

Ecology: Open fields, wastelands, roadsides near villages. Flowering: Apr.–Aug.; fruiting: Jun.–Oct.

6. Perilla L. 紫蘇屬

Annual aromatic herbs. Leaves simple, opposite. Verticillasters 2-flowered, forming terminal and axillary secund racemes; bracts broadly ovate to subrounded. Flowers pedicellate. Calyx campanulate, 10-veined, straight in flower, enlarged, spreading or pendulous, swollen on one side in fruit, throat pilose annulate, limb 2-lipped, upper lip 3-toothed, the middle tooth smallest, lower lip 2-toothed, teeth lanceolate. Corolla white to purple-red, with a short tube, throat oblique; limb shortly 5-cleft, nearly 2-lipped; upper lip emarginate; lower lip 3-lobed, lateral lobes smaller than middle lobe, similar to upper lip. Stamens 4, subequal, nearly straight, not exserted; anther cells 2, parallel, becoming divergent or divaricate. Style included, apex 2-cleft; lobes subequal, subulate. Nutlets subglobose, reticulate.

A monotypic genus distributed in E Asia; one species and two varieties in China and Hong Kong.

1a. Leaves coarsely serrate.
  2a. Fruiting calyx to 1.1 cm; villous at base ..... 1. *P. frutescens*
  2b. Fruiting calyx 4-4.5 mm, sparsely pilose at base ..... 1a. *P. frutescens* var. *purpurascens*
1b. Leaves fimbriate-serrate and crisped ..... 1b. *P. frutescens* var. *crispa*

1. Perilla frutescens (L.) Britton 紫蘇 **(Fig. 95; Photo 197)**

Mem. Torrey Bot. Club 5(18): 277. 1894; FRPS 66: 282, pl. 62. 1977; FOC 17: 241. 1994; FGD 3: 444. 1995; FTW ed. 2, 4: 506, pl. 225. 1998.

Ocimum frutescens L., Sp. Pl. 2: 597. 1753.

Perilla ocymoides L., Gen. Pl. ed 6, 578. 1764; FKH 209. 1912.

Ocimum acutum Thunb., Fl. Jap. 248. 1784.

Annual herbs, 0.5–1.5 m tall. Stems erect, obtusely 4-angled, densely villous. Leaves opposite; petioles 3–5 cm, densely villous; leaf blade broadly ovate to suborbicular, 7–13 × 4.5–10 cm, base rounded or broadly cuneate, apex acute or mucronate, margin coarsely serrate, stained with purple abaxially, or sometimes on both surfaces, sparsely pubescent adaxially, appressed pubescent abaxially. Verticillasters forming 1-sided racemes of 5–15 cm, densely villous; bracts broadly ovate to suborbicular, ca. 4 mm in diam., apex mucronate; pedicels ca. 1.5 mm, densely pubescent. Calyx campanulate, 10-veined, ca. 3 mm, lengthening to 1.1 cm in fruit, straight, base villous, limb 2-lipped, lower lip longer than upper lip. Corolla white or purplish red, 3–4 mm, ± puberulous abaxially, 2-lipped, upper lip emarginate, lower lip 3-lobed, the middle lobe the largest. Stamens not exserted. Nutlets subglobose, ca. 1.5 mm in diam.

Locality: Cultivated. *Y. S. Lau 1835; HK sheet 22248.*

Distribution: Widely cultivated and naturalized in China and elsewhere.

Ecology: Flowering: Oct.–Dec.; fruiting: Nov.–Feb. of the following year.

Uses: Additive (flavouring), medicinal (folklore).

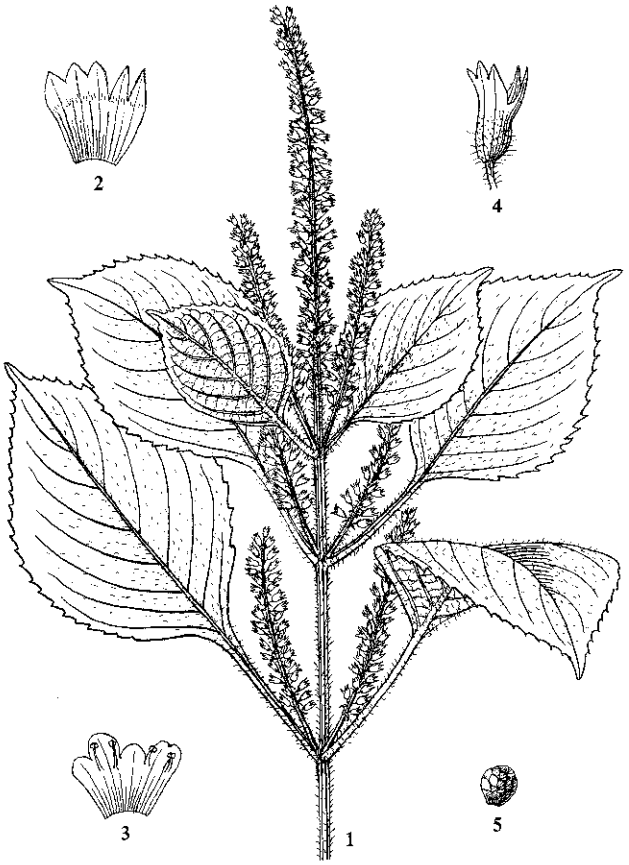


Figure 95. *Perilla frutescens* (L.) Britton
1. upper portion of plant; *2.* calyx opened; *3.* corolla opened; *4.* fruiting calyx; *5.* nutlet. (drawn by H. P. Yu)

1a. Perilla frutescens (L.) Britton var. **purpurascens** (Hayata) H. W. Li 野生紫蘇

Act Bot. Yunnan. 13: 350. 1991; FOC. 17: 241. 1994.

Perilla ocymoides L. var. *purpurascens* Hayata, Icon. Pl. Formos. 8: 103. 1919.
Perilla frutescens L. var. *acuta* (Odash.) Kudô, Mem. Fac. Sci. Taihoku Imp. Univ. 2: 74. 1929; FGD 3: 445. 1995.

Stems finely pilose. Fruiting calyx 4–4.5 mm, sparsely pilose and glandular at base.
Locality: Cultivated and naturalized. *W. J. Tutcher 7283; L. T. Lo 269; HK sheet 4443.*
Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Shanxi, Hubei, Hunan, Jiangxi, Jiangsu, Zhejiang, Fujian, Taiwan; Japan.
Ecology: Wastelands near villages, sometimes cultivated.
Uses: Additive (flavouring).

1b. Perilla frutescens (L.) Britton var. **crispa** (Benth.) Deane ex Bailey 回回蘇
Manual Cult. Plants ed. 1, 646. 1924; FOC 17: 242. 1994; FGD 3: 445. 1995.
Perilla arguta Benth., Prodr. 12: 164. 1848; FHK 276. 1861.
Perilla frutescens var. *arguta* (Benth.) Hand.-Mazz., Acta Horti Gothob. 13(10): 351–352. 1939.
Perilla nankinensis (Lour.) Decne, Rev. Hort. 1: 61, pl. 4. 1852; FKH 209. 1912.
Dentidia nankiensis Lour., Fl. Cochinch. ed. 2, 448. 1793.

Leaves fimbriate-serrate and crisped, with narrow and deep teeth.
Locality: Cultivated. *Hance s.n.* (*fide* Bentham, 1861)
Distribution: Widely cultivated in China; Japan.
Ecology: Cultivated in gardens or escaped in wastelands.
Uses: Additive (flavouring), medicinal (folklore).

7. Pogostemon Desf. 刺蕊草屬

Herbs or subshrubs. Leaves opposite, petiolate or subsessile, ± hairy or tomentose. Verticillasters regular or secund, forming continuous or interrupted spikes or panicles; bracts and bracteoles linear to ovate. Calyx tubular or campanulate, equally or subequally 5-toothed. Corolla with a short tube; limb nearly 2-lipped, upper lip 3-lobed, the middle lobe usually longer and narrower than the lateral ones; lower lip entire, as long as to slightly longer than upper lip. Stamens 4, exserted, usually straight, the lower pair often slightly shorter than the upper; filaments bearded at middle; anthers terminal, 1-celled. Disk subentire. Style shortly 2-fid, lobes subulate, subequal. Nutlets ovoid to globose, slightly flattened, smooth.

About 40 species distributed in E India to Malesia and S China to Japan, and a few species in Africa; 16 species in China; two species in Hong Kong.

1a. Spikes caudate-acuminate, 6–18 cm; calyx ca. 1 mm; stems and leaves densely hirsute ..... 1. *P. auricularius*
1b. Spikes cylindric, 1–4 cm; calyx 4–5 mm; stems and leaves pubescent ..... 2. *P. championii*

1. Pogostemon auricularius (L.) Hassk.
水珍珠菜 **(Fig. 96; Photo 198)**
Tijdsch. Nat. Geschied. 10: 127. 1843; FRPS 66: 379, pl. 79: 1–7. 1977; FOC 17: 262. 1994; FGD 3: 454. 1995; FTW ed. 2, 4: 508, pl. 226. 1998.
Dysophylla auricularia (L.) Blume, Bijdr. Fl. Ned. Ind. 14: 826–827. 1826; FHK 275. 1861; FKH 208. 1912.
Mentha auricularia L., Mant. Pl. ed. 1, 81. 1767.

Annual herbs, 0.4–1.5 m tall. Stems ascending from the prostrate base, rooting at nodes, densely yellow spreading hirsute. Leaves opposite, shortly petiolate, upper stem leaves subsessile; leaf blade oblong to ovate-oblong, 2.5–7 × 1.5–2.5 cm, base rounded to shallowly cordate, rarely cuneate, apex obtuse to acute, margin serrate, yellow hirsute on both surfaces and with scattered impressed glands on abaxial surface. Spikes 6–18 cm, apex caudate-acuminate, continuous or sometimes interrupted at base; bracts ovate-lanceolate, as long as corolla, margin strigose. Calyx campanulate, ca. 1 × 1 mm, glabrous, yellow glandular; teeth broadly triangular, margin pilose. Corolla purplish to white, ca. 2–2.5 mm, glabrous. Stamens long-exserted, exserted parts bearded. Nutlets brown, subglobose, ca. 0.5 mm in diam., glabrous.

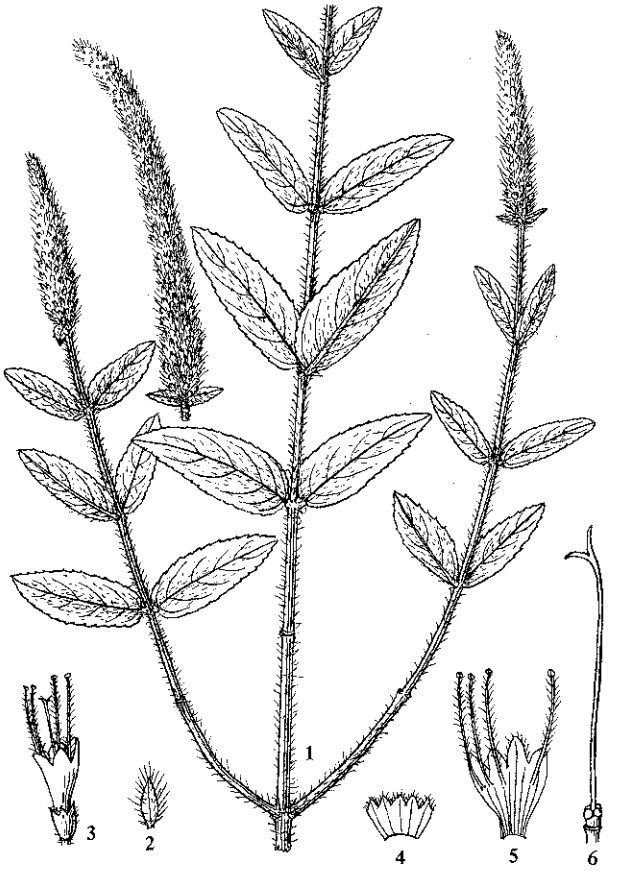


Figure 96. *Pogostemon auricularius* (L.) Hassk.
1. upper portion of plant; *2.* bract; *3.* flower; *4.* calyx opened; *5.* corolla opened; *6.* pistil. (drawn by H. P. Yu)

Locality: Tai Tam, Mau Ping, Pak Sha O, Tai Po, Shing Mun, Tai Mo Shan, Ha Hang, Luk Keng, Plover Cove, Lantau Island. *L. T. Lo 541; HK sheet 39645, 39825.*

Distribution: Guangdong, Guangxi, Yunnan, Jiangxi, Fujian, Taiwan; Vietnam, Laos, Myanmar, Thailand, India, Sri Lanka, Malaysia, Indonesia, Philippines.

Ecology: Wet places along streams, in forests. Flowering & fruiting: May–Dec.

2. Pogostemon championii Prain 短穗刺蕊草 **(Photo 199)**

Bull. Misc. Inform. 1908: 254. 1908; FKH 208. 1912; FRPS 66: 369. 1977; FOC 17: 259. 1994; FGD 3: 454. 1995.

Pogostemon parviflorus Benth., *sensu* FHK 275. 1861.

Perennial herbs or subshrubs, to 80 cm tall. Stems ascending from the prostrate base, initially pubescent. Leaves opposite; petioles of lower stem leaves 3–6 cm, those of upper leaves 1–1.5 cm, sparsely strigose; leaf blade ovate to ovate-lanceolate, 6–11 × 2.5–6 cm, base cuneate, apex acuminate, margin double serrate or crenate, sparsely appressed pubescent on adaxial surface, strigose along veins abaxially. Spikes short-cylindric, 1.5–4 × 1 cm, continuous or rarely interrupted, appressed pubescent; bracts ovate-lanceolate, 3–4 mm, ca. as long as calyx. Calyx narrowly campanulate, ca. 4 mm, pubescent abaxially; teeth 5, triangular, subequal, about 1/3 the length of calyx. Corolla purplish, slightly longer than calyx, glabrous, margin sparsely ciliate, lobes subequal. Filaments bearded. Style lobes subequal. Nutlets broadly ovoid, smooth.

Locality: Tai Mo Shan, Fung Yuen, Ha Hang. *Y. S. Lau 2825; HK sheet 22172, 30337.*

Distribution: Guangdong.

Ecology: Thin forests on hillslopes. Flowering: Dec.–Apr. of the following year.

Notes: The type specimen was collected by J. G. Champion from Mount Parker between 1847 and 1850. Listed in *Rare and Precious Plants of Hong Kong*.

8. Dysophylla Blume 水蠟燭屬

Annual or perennial herbs. Leaves in whorls of 3–10, rarely opposite, sessile or petiolate. Verticillasters many-flowered, forming continuous or rarely interrupted terminal spikes; bracts minute, hairy. Flowers sessile. Calyx campanulate, shortly 5-toothed, teeth subequal, ciliate, throat glabrous inside. Corolla tubular, straight; tube gradually widened at apex; limb 4-lobed; lobes subequal, the upper lobe entire or notched. Stamens 4, exserted, subequal and nearly straight; filaments bearded; anthers subglobose, 1-locular. Disk ring-like, subentire. Style 2-fid; lobes subequal, subulate. Nutlets subglobose, smooth.

About 27 species mostly in SE Asia (especially rich in India), only one species extended to Australia; seven species in China; one species in Hong Kong.

1. Dysophylla stellata (Lour.) Benth. 水虎尾 **(Fig. 97)**

Pl. Asiat. Rar. 1: 30. 1830; FRPS 66: 382. 1977; FOC 17: 262. 1994; FGD 3: 456, fig. 285. 1995.

Dysophylla verticillata Benth., Pl. Asiat. Rar. 1: 30. 1830; FKH 208. 1912.

Dysophylla stellatus (Lour.) Kuntze, Gen. Pl. 2: 429. 1891; FTW ed. 2, 4: 511, pl. 228. 1998.

Mentha stellata Lour., Fl. Cochinch. 2: 361. 1790.

Annual herbs, 15–50 cm tall. Stems erect, verticillately branched above middle, glabrous or very sparsely hirsute, nodes sometimes grey villous. Leaves in whorls of 4–10, sessile or very shortly petiolate; leaf blade linear to lanceolate, 2–7 cm × 0.2–0.5 cm, base attenuate, apex acute, margin remotely serrulate or entire, revolute or flat, glabrous, abaxially grey. Spikes cylindric, 0.5–7(–9) cm × 4–6.5(–8) mm, continuous, densely flowered; bracts lanceolate, conspicuously longer than calyx. Calyx campanulate, 1–1.2 mm, lengthening to 1.8 mm in fruit, densely grey tomentose abaxially. Corolla purple-red, 1.8–2 mm, lobes subequal. Nutlets brown, obovoid.

Locality: Sha Tau Kok. *S. B. C. Ross 11449.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Hunan, Jiangxi, Anhui, Zhejiang, Fujian; Bangladesh, Bhutan, Cambodia, India, Indonesia, Japan, Laos, Malaysia, Thailand, Vietnam, Australia.

Ecology: Paddy fields, wet areas along streams. Flowering & fruiting: Nearly all year round.

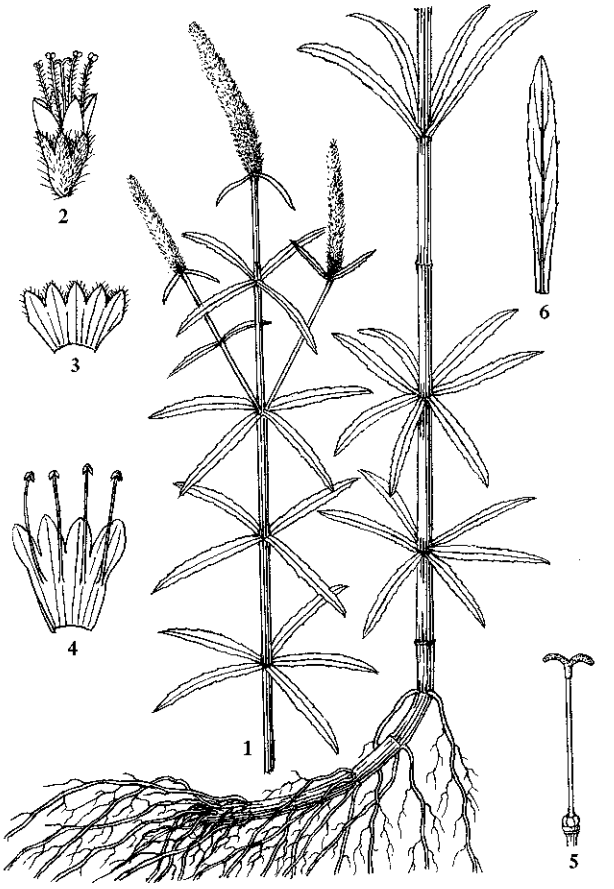


Figure 97. *Dysophylla stellata* (Lour.) Benth.
1. upper and lower portion of plant; *2.* flower; *3.* calyx opened; *4.* corolla opened; *5.* pistil; *6.* leaf. (drawn by H. P. Yu)

9. Mentha L. 薄荷屬

Perennial herbs, strongly scented, often with creeping rhizomes. Leaves opposite, often dotted with glands. Verticillasters (2–6)–many-flowered, forming terminal heads or spikes; bracts lanceolate to linear, ± distinct. Calyx tubular or campanulate, 10-veined, throat glabrous or hairy, nearly regular, 5-toothed; teeth subequal. Corolla funnel-shaped, ± regular or slightly irregular; tube generally included, throat slightly dilated or saccate in front, limb 4-lobed; lobes equal, entire, the uppermost lobe slightly broader than other 3, emarginate. Stamens 4, subequal and erect; filaments glabrous; anther cells 2, parallel. Disk entire, uniform. Style shortly 2-branched, branches subequal. Nutlets ovoid, smooth or reticulate.

About 30 species mainly distributed in N temperate regions, a few in the S hemisphere; six native and six cultivated species in China; one species in Hong Kong.

1. Mentha canadensis L. 薄荷 **(Fig. 98)**

Sp. Pl. 2: 577. 1753; FOC 17: 237. 1994; FTW ed. 2, 4: 487, pl. 214. 1998.

Mentha haplocalyx Briq., Bull. Soc. Bot. Geneve, ser. 2, 5: 39. 1889; FRPS 66: 262, pl. 60. 1977; FGD 3: 442. 1995.

Mentha arvensis auct. non L.: Benth., FHK 276. 1861; FKH 209. 1912.

Perennial aromatic herbs, 30–60 cm tall, with creeping rhizomes. Stems erect, ± hoary with adpressed retrorse hairs. Petioles 2–10 mm, puberulent; leaf blade oblong-lanceolate, lanceolate to elliptic or ovate-lanceolate, 3–5(–7) × 0.8–3 cm, base cuneate to subrounded, apex acute, margin remotely coarse dentate-serrate, sparingly puberulous on adaxial surface or only on the veins, often densely puberulous on veins of abaxial surface. Verticillasters axillary, globose, ca. 1.8 cm in diam. Calyx tubular-campanulate, 2.5–3 mm, puberulous and glandular abaxially, glabrous adaxially, obscurely 10-veined; teeth subequal, lanceolate or subulate. Corolla purplish or white, 4–5 mm, puberulent abaxially. Nutlets ellipsoidal, finely granular.

Locality: Cultivated. *W. J. Tutcher 8119; Y. S. Lau 2621; HK sheet 39283.*

Distribution: Widely distributed in all provinces of China; also in Korea, Japan, Vietnam, Laos, Cambodia, Thailand, Malaysia, Russia (Far East) and N America.

Ecology: Flowering: Aug.–Sep.; fruiting: Oct.

Uses: Material (essential oils), spice, medicinal (folklore).

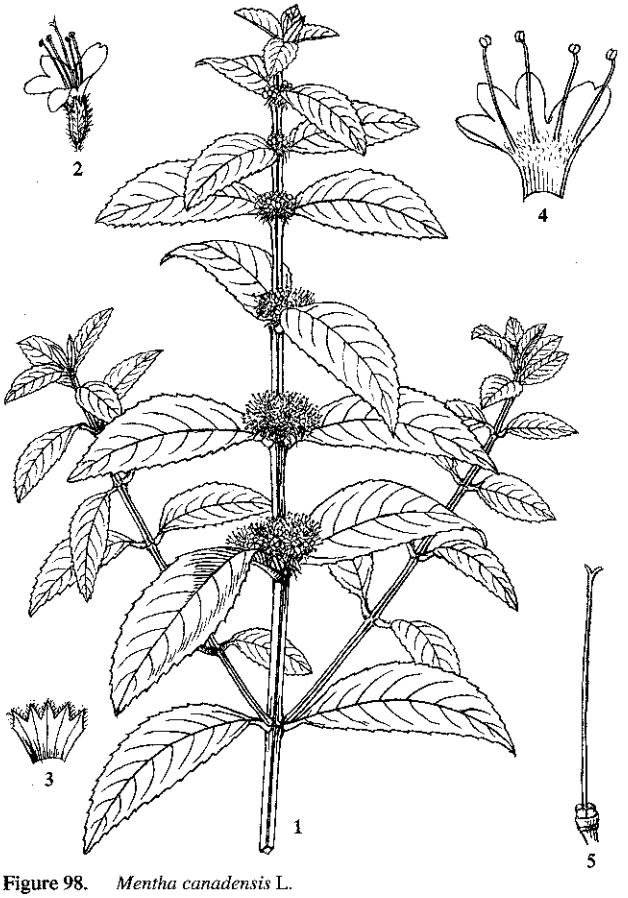


Figure 98. *Mentha canadensis* L.
1. upper portion of plant; *2.* flower; *3.* calyx opened; *4.* corolla opened; *5.* pistil. (drawn by H. P. Yu)

10. Clerodendranthus Kudô 腎茶屬

Perennial herbs or subshrubs. Leaves petiolate, dentate. Verticillasters 6–10-flowered, forming terminal racemes; bracts small, ovate, entire, apex cuspidate. Pedicel distinct. Calyx ovoid, hairy and glandular outside, glabrous inside, 2-lipped, enlarged after anthesis, 10-veined; upper lip large, orbicular, margin decurrent to the tube; lower lip 4-toothed, interior 2 teeth longer. Corolla purplish or white, 2-lipped, hairy outside, not hairy annulate inside; tube narrowly cylindric, much exserted, straight, not oblique at throat; upper lip reflexed, 3-lobed, middle lobe larger, apex emarginate; lower lip erect, narrow, slightly concave. Stamens 4, declined, much exserted, anterior 2 longer. Style slightly longer than stamens, apex clavate, 2-cleft. Nutlets ovoid to oblong, wrinkled.

About five species distributed from SE Asia to Australia; one species in China and Hong Kong.

1. Clerodendranthus spicatus (Thunb.) C. Y. Wu ex H. W. Li 腎茶 **(Fig. 99; Photo 200)**

Acta Phytotax. Sin. 12: 233. 1974; FRPS 66: 574, pl. 123. 1977; FOC 17: 299. 1994; FGD 3: 477, fig. 298. 1995.

Clerodendrum spicatum Thunb., Fl. Jav. 22. 1825.

Clerodendranthus stamineus (Benth.) Kudô, Mem. Fac. Sci. Taihoku Imp. Univ. 2: 117. 1929.

Orthosiphon stamineus Benth., Pl. Asiat. Rar. 2: 15. 1830.

Ocimum aristatum Blume, Bijdr. Fl. Ned. Ind. 14: 833–834. 1826.

Orthosiphon aristatus (Blume) Miq., Fl. Ned. Ind. 2: 943. 1858; FTW ed. 2, 4: 500. 1998.

Perennial herbs, 1–1.5 m tall. Stems erect, many-branched, retrorse pubescent. Leaves opposite; petiole (3–)5–15 mm; leaf blade ovate, rhombic-ovate to ovate-oblong, (1.2–)2–5.5 × (0.8–)1.3–3.5 cm, base broadly cuneate to truncate-cuneate, apex acute, margin coarsely mucronate, dentate to remotely mucronate-crenate, pubescent and sparsely impressed glandular on both surfaces. Verticillasters 6-flowered, forming loose terminal racemes of 8–12 cm; rachis densely pubescent; bracts orbicular-ovate, ca. 3.5 mm, entire, apex

cuspidate, longitudinally parallel veined. Pedicel to 5 mm, densely pubescent. Calyx 5–6 mm, puberulous and rusty glandular outside; upper lip orbicular, ca. 2.5 mm in diam.; teeth of lower lip triangular, awned, margin ciliolate, interior 2 teeth ca. 2 times as long as lateral teeth; fruiting calyx to 1.1 cm, reticulate veins distinct; upper lip conspicuously reflexed. Corolla purplish or white, puberulous and sparsely rusty glandular on upper lip; tube 0.9–1.9 cm; upper lip reflexed, ca. 6 mm in diam., 3-lobed, middle lobe larger, apex emarginate; lower lip oblong, ca. 5 mm; filaments 2–4 cm exserted from corolla-tube. Nutlets dark brown, ovoid, ca. 2 × 1.6 mm, wrinkled.

Locality: Cultivated. *L. T. Lo 190; HK sheet 32793.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan (cultivated); SE Asia and N Australia.

Ecology: Flowering & fruiting: May–Nov.

Uses: Medicinal (folklore).

11. Coleus Lour. 鞘蕊花屬

Herbs or subshrubs. Leaves opposite, petiolate. Verticillasters 6–many-flowered, forming axillary racemes or terminal panicles; bracts early deciduous or absent. Calyx subcampanulate, 5-toothed, 2-lipped, accrescent and often declined in fruiting time. Corolla tube exserted long or short, straight or recurved; limb 2-lipped; upper lip (3- or) 4-lobed, strongly reflexed; lower lip entire, navicular, narrowed at base. Stamens 4, declined, included within lower lip; filaments connate or free, rarely adnate to corolla tube; anther cells apex confluent. Style apex equally 2-cleft. Nutlets ovoid to globose, smooth, tuberculate or not.

About 90–150 species in tropics of the Old World and in Australia; six species in China; one species in Hong Kong.

1. Coleus scutellarioides (L.) Benth. 五彩蘇(洋紫蘇) **(Fig. 100)**
Edward's Bot. Reg. 15: t. 1300. 1830; FRPS 66: 542. 1977; FOC 17: 293. 1994; FGD 3: 468. 1995.

Coleus blumei Benth., Labiat. Gen. Sp. 56. 1832.

Solenostemon scutellarioides (L.) Codd, Bothalia 11(4): 439–440. 1975.

Ocimum scutellarioides L., Sp. Pl. ed. 2, 2: 834. 1763.

Annual herbs, erect or ascending, 0.5–1 m tall. Stems and branches finely pubescent or glabrous. Leaves opposite; petioles 1–5(–8) cm; leaf blade variable in size, shape and colour, generally ovate in outline, 3–7(–15) × (1–)3–5(–10) cm, base rounded or cuneate, apex acute or acuminate, margin crenate, serrate or sometimes laciniate, variously coloured with yellow, dull red and purplish or green, puberulent on midvein and secondary veins; verticillasters many-flowered, forming panicles of 5–10(–25) cm, puberulent. Calyx campanulate, 2–3 mm, lengthening to 7 mm in fruit, 10-veined, minutely hispid, glandular; middle lobe of upper lip broadly ovate, as long as or longer than lobes of lower lip, reflexed in fruit; lateral lobes ovate, about half the length of middle lobe; lower lip rhombic, longer than upper lip, lobes narrowly triangular. Corolla purple to blue, 0.8–1.3 cm, puberulent, tube abruptly recurved, throat to 2.5 mm wide, upper lip erect. Nutlets brown, broadly ovoid to globose, 1–1.2 mm, shiny.

Locality: Cultivated. *L. T. Lo 90; HK sheet 4437.*

Distribution: Guangdong, Guangxi, Fujian, Taiwan; cultivated elsewhere.

Ecology: Flowering: Dec.–Jul. of the following years; fruiting: May–Oct.

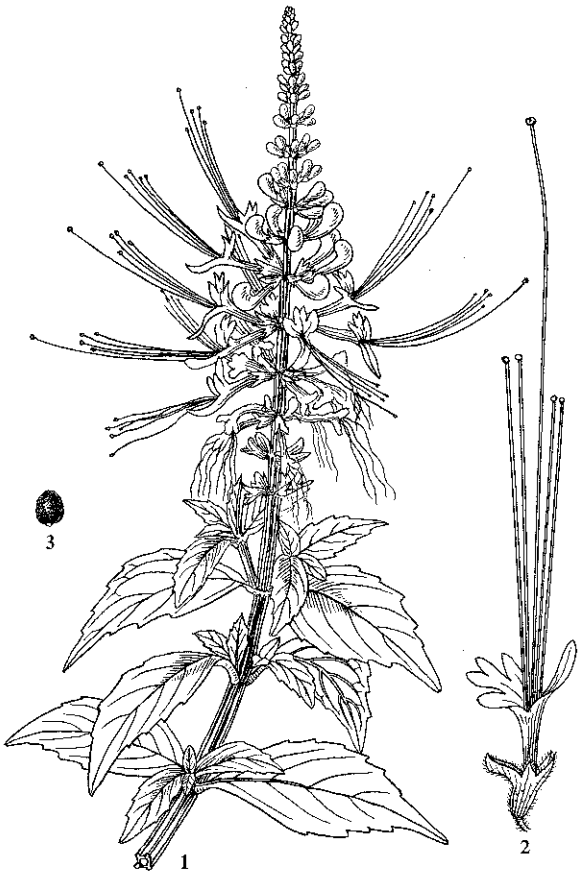


Figure 99. *Clerodendranthus spicatus* (Thunb.) C. Y. Wu ex H. W. Li
1. flowering branch; *2.* flower; *3.* nutlet. (drawn by H. P. Yu)

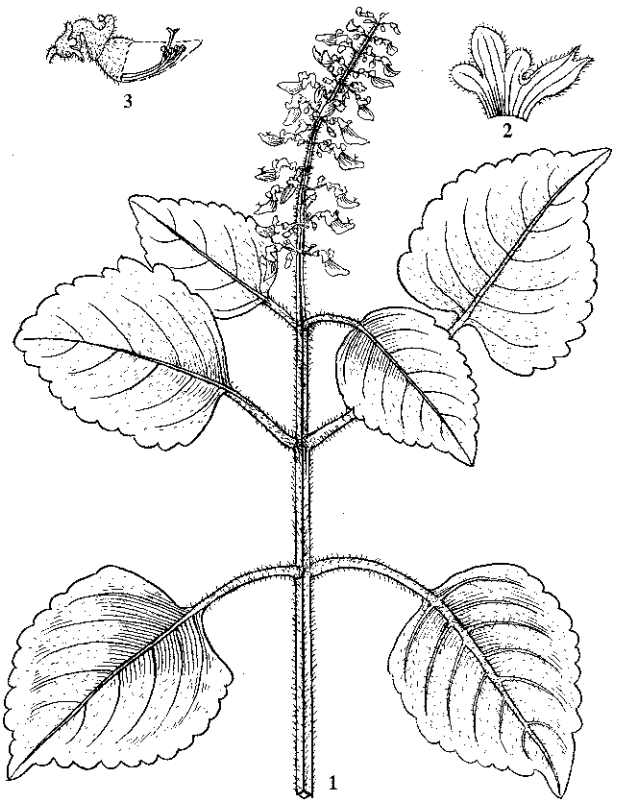


Figure 100. *Coleus scutellarioides* (L.) Benth.
1. upper portion of plant; *2.* calyx opened; *3.* flower with lower lip dissected. (drawn by H. P. Yu)

Uses: Ornamental.

Notes: This species was also reported as *Coleus pumilus* Blanco or *Coleus scutellarioides* var. *crispipilus* (Merr.) H. Keng previously (Check List HK Plants 76. 1993; 81. 2004). Other *Coleus* species were also cultivated for ornamental purpose, including such occasional examples as *Coleus aromaticus* Benth. (芳香鞘蕊花), *Coleus carnosifolius* (Hemsl.) Dunn (肉葉鞘蕊花) and others.

12. Isodon (Schrad. ex Benth.) Spach 香茶菜屬

Perennial herbs, shrubs or subshrubs, with thick, woody rhizomes. Leaves opposite, usually petiolate and toothed. Cymes axillary and terminal, (1–)3–many-flowered, arranged in lax thyrses or panicles, rarely in dense spikes. Flowers pedicellate. Calyx campanulate to tubular-campanulate, straight or declined, often accrescent; limb equally or subequally 5-toothed or 2-lipped, upper lip 3-toothed, lower lip 2-toothed. Corolla tube exserted, declined or abruptly deflexed, sometimes straight, ± saccate to spurred abaxially near base, 2-lipped; upper lip 4-cleft, recurved or reflexed; lower lip entire, concave, navicular. Stamens 4, declined; filaments free, edentate; anther 2-celled apex usually confluent. Style apex short 2-cleft. Nutlets subcircular or occasionally oblong to ovoid, glabrous or hairy, smooth, granular or dotted.

About 100 species mainly in tropical and subtropical Asia, only a few species in Africa; 77 species in China; four species in Hong Kong.

1a. Fruiting calyx erect, with 5 equal or subequal teeth.
  2a. Fruiting calyx broadly campanulate, as long as wide; leaves opposite ..... 1. *I. amethystoides*
  2b. Fruiting calyx tubular, conspicuously longer than wide; leaves in whorls of 3–4, or opposite ..... 2. *I. ternifolius*
1b. Fruiting calyx recurved, conspicuously 2-lipped.
  3a. Stamens included, filaments hairy basally ..... 3. *I. coetsa*
  3b. Stamens long-exserted, filaments not hairy ..... 4. *I. lophanthoides*

1. Isodon amethystoides (Benth.) H. Hara 香茶菜 (Photos 201–202)

J. Jap. Bot. 60: 233. 1985; FOC 17: 274. 1994; FTW ed. 2, 4: 470, pl. 204. 1998.

Rabdosia amethystoides (Benth.) H. Hara, FRPS 66: 429. 1977; FGD 3: 463. 1995.

Plectranthus amethysoides Benth., Labiat. Gen. Spec. 45. 1832; FKH 208. 1912.

Perennial herbs, with thick, woody rhizomes. Stems erect, 30–150 cm tall, quadrangular, 4-sulcate, densely appressed incurved-pilose or puberulent. Leaves opposite; petioles 0.2–2.5 cm; leaf blade ovate-orbicular to lanceolate, 0.8–11 × 0.7–3.5 cm, base abruptly attenuate or broadly cuneate-attenuate, apex acuminate, acute or obtuse, margin crenate, adaxially olive green, ± densely hispidulous, sometimes subglabrous, abaxially greenish, pilose or tomentulose, sometimes subglabrous. Cymes many-flowered, arranged in loose, terminal panicles; floral leaves ovate, similar to stem leaves but smaller, gradually reduce to bracts upward. Calyx campanulate, ca. 2.5 mm, sparsely hirtellous or subglabrous abaxially, with scattered white or yellow glands; teeth 5, subequal, triangular; fruiting calyx erect, broadly campanulate, 4–5 mm, slightly shorter than wide. Corolla white bluish, white, or purplish, purple bluish on upper lip, ca. 7 mm, sparsely puberulent abaxially. Stamens included. Style included. Nutlets ovoid, ca. 2 mm, brown to yellow or white glandular.

Locality: Tai Mo Shan, Fanling. *W. J. Tutcher 8394.*

Distribution: Guangdong, Guangxi, Guizhou, Hubei, Jiangxi, Anhui, Zhejiang, Fujian, Taiwan.

Ecology: Forests, wet grasslands. Flowering: Jun.–Oct.; fruiting: Sep.–Nov.

Uses: Medicinal (folklore).

2. Isodon ternifolius (D. Don) Kudô 牛尾草 (Fig. 101)

Mem. Fac. Sci. Taihoku Imp. Univ. 2: 137. 1929; FOC 17: 273. 1994.

Rabdosia ternifolia (D. Don) H. Hara, J. Jap. Bot. 47(7): 201. 1972; FRPS 66: 436, pl. 92: 1. 1977; FGD 3: 464. 1995.

Plectranthus ternifolius D. Don, Prodr. Fl. Nepal. 117. 1825; FKH 208. 1912.

Perennial robust herbs or subshrubs, 0.5–2 m tall. Stems erect; branches hexagonal, densely tomentose-villous. Leaves opposite or in whorls of 3 or 4; petiole 2–3(–10) mm; leaf blade narrowly lanceolate to oblong, rarely ovate-oblong, 2–12 × 0.7–5 cm, base broadly cuneate to cuneate, rarely rounded, apex acute to acuminate,

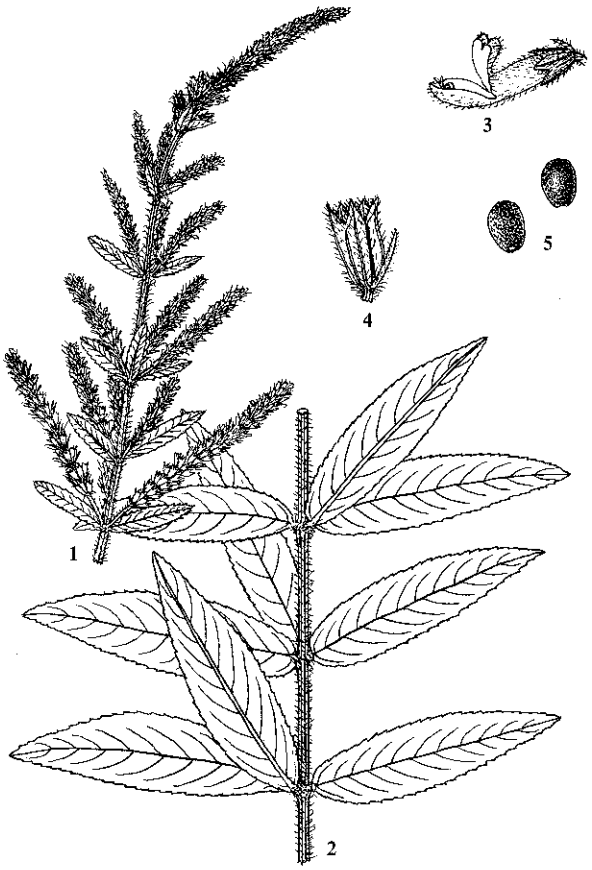


Figure 101. *Isodon ternifolius* (D. Don) Kudô

1. upper portion of plant; *2.* middle portion of plant; *3.* flower; *4.* fruiting calyx; *5.* nutlets. (drawn by H. P. Yu)

rarely obtuse, margin serrate, adaxially ± wrinkled, pilose to villous, abaxially densely whitish or dull yellow tomentose. Cymes many-flowered, ca. 6 mm in diam., forming terminal and axillary, compact spikes; floral leaves similar to stem leaves, gradually reduced, bract-like apically. Calyx campanulate, ca. 2.3 mm, lengthening to 4 mm in fruit, densely grey or tawny villous; teeth triangular, equal, ca. 0.5 mm, obscurely veined. Corolla white to purplish; upper lip purple-spotted, 5–6 mm. Stamens and style usually included. Nutlets triquetrous, ovoid, ca. 1.8 × 1 mm, glabrous.

Locality: Tai Mo Shan, Pat Sin Leng. *HK sheet 22127, 22128, 22130.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan; Vietnam, Myanmar, Bangladesh, India, Nepal.

Ecology: Open grassy uplands, thickets and thin forests. Flowering: Sep.–Feb. of the following year; fruiting: Dec.–May of the following year.

Uses: Medicinal (folklore).

3. Isodon coetsa (Buch.-Ham. ex D. Don) Kudô 細錐香茶菜 **(Photo 203)**

Mem. Fac. Sci. Taikoku Imp. Univ. 2: 131. 1929; FOC 17: 286. 1994.

Rabdosia coetsa (Buch.-Ham ex D. Don) H. Hara, J. Jap. Bot. 47(7): 194. 1972; FRPS 66: 494. 1977; FGD 3: 464. 1995.

Plectranthus coetsa Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 117. 1825.

Perennial herbs or subshrubs, 0.5–2 m tall, with woody rhizomes and numerous fibrous roots. Stems erect, obtusely 4-angled, puberulous or subglabrous. Stem leaves opposite; petiole 1–5.5 cm; leaf blade ovate, 3–9 × 1.5–6 cm, base broadly cuneate, apex acuminate, margin crenate, glandular, adaxial surface sparsely strigose, minutely hispid on veins, abaxial surface densely minutely hispid on veins. Cymes 3–5-flowered, forming narrow, terminal or axillary panicles, pubescent; peduncle of cymes 2–3 mm; pedicels 1–3 mm, puberulous; lower floral leaves sessile, ovate, upper floral leaves bract-like, ovate-lanceolate, shorter than pedicels. Calyx campanulate, ca. 1.5 × 1.5 mm, pubescent abaxially, glandular, slightly 2-lipped; teeth ovate-triangular, ca. 1/3 as long as calyx, apex acute; fruiting calyx tubular-campanulate, dilated to ca. 4 mm, slightly curved, netted at apex. Corolla purple to purple-blue, ca. 6 mm, pubescent, tube ca. 2.5 mm, upper lip ca. 2.5 mm; lower lip broadly ovate, ca. 3.5 mm. Stamens included. Style included or slightly exserted. Nutlets brown, obovoid, ca. 1 mm wide, glabrous.

Locality: Tai Mo Shan. *Y. S. Lau 3241.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Hunan; Vietnam, Laos, Thailand, Myanmar, Sri Lanka, Bangladesh, India, Nepal.

Ecology: Margins of forests, thickets. Flowering & fruiting: Aug.–Feb. of the following year.

4. Isodon lophanthoides (Buch-Ham. ex D. Don) H. Hara 線紋香茶菜 **(Photo 204)**

J. Jap. Bot. 60: 235. 1985; FOC 17: 278. 1994.

Rabdosia lophanthoides (Buch.-Ham. ex D. Don) H. Hara, J. Jap. Bot. 47(7): 194, 197. 1972; FRPS 66: 479. 1977; FGD 3: 466. 1995.

Plectranthus striatus Benth., Pl. Asiat. Rar. 2: 17. 1830; FKH 208. 1912.

Isodon striatus (Benth.) Kudô, Mem. Fac. Sci. Taihoku Imp. Univ. 2: 134. 1929.

Hyssopus lophanthoides Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 110. 1825.

Perennial herbs, 0.5–1.5 m tall, with underground globose root tubers. Stems erect or ascending from repent base, puberulent or pilose. Stem leaves opposite; petiole equal to or longer than blade; leaf blade broadly lanceolate to ovate, 1.5–20 × 0.5–8.5 cm, base cuneate to rounded, rarely shallow cordate, apex obtuse to acuminate, margin crenate, minutely hirsute, adaxially olive green, abaxially greenish, sparsely brown glandular. Cymes helicoid, 11–13-flowered, forming terminal and axillary panicles of 7–20 cm; floral leaves bract-like, ovate; bracteoles linear, 3–5 mm, slightly longer than pedicels. Calyx campanulate, ca. 2 mm, lengthening to 4.5–5 mm in fruit, base sparsely villous abaxially, sparsely red-brown glandular, 2-lipped; teeth ovate-triangular, lower 2 longer. Corolla white or rose, with purple spots on limb, 2–7 mm; tube 3.7–5 mm, straight; upper lip 1.6–2 mm, lower lip slightly longer. Stamens and style much exserted. Nutlets brown, compressed ovoid, ca. 1 × 0.7[illegible] mm, glabrous, smooth.

Locality: A Ma Wat, Sheung Miu Tin, Lantau Island. *HK sheet 22119.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Gansu, Hubei, Hunan, Jiangxi, Zhejiang, Fujian; Vietnam, Laos, Thailand, Myanmar, India, Nepal.

Ecology: Forests, thickets in ravines. Flowering & fruiting: Aug.–Dec.

Uses: Medicinal (folklore).

13. Mesona Blume 涼粉草屬

Annual herbs. Stems erect or procumbent. Leaves opposite, petiolate. Verticillasters forming terminal racemes; bracts sessile, often caducous. Calyx campanulate in flower, 8–10-veined, tubular or urceolate-tubular and transversely pitted in fruit, 2-lipped; upper lip 3-toothed, middle tooth very large; lower lip entire, occasionally emarginate. Corolla white or reddish; tube short, throat inflated, not hairy annulate inside; limb 2-lipped, upper lip truncate or 4-toothed; lower lip longer, oblong, concave, margin entire. Stamens 4, in 2 pairs, exserted; the upper pair filaments with a tooth or appendages at the base; anthers 1-locellate. Style longer than stamens, apex unequally 2-cleft, lobes subulate. Nutlets oblong or ovoid, smooth or inconspicuously tuberculate.

About eight to ten species in tropical Asia; two species in China; one species in Hong Kong.

1. Mesona chinensis Benth. 凉粉草 **(Fig. 102; Photo 205)**
FHK 274. 1861; FKH 207. 1912; FRPS 66: 547, pl. 116. 1977; FOC 17: 294. 1994; FGD 3: 470, fig. 293. 1995; FTW ed. 2, 4: 487, pl. 215. 1998.

Annual herbs. Stems erect or decumbent, 15–100 cm, slightly pubescent or hairy, glabrescent. Leaves opposite; petiole 2–15 mm; leaf blade oblong-ovate to broadly ovate, 2–5 × 0.8–2.8 cm, base cuneate to sometimes rounded, apex acute to obtuse, margin serrate, finely hispid, pubescent, or only hairy along veins abaxially. Verticillasters forming interrupted or nearly continuous terminal racemes of 2–10(–13) cm; floral leaves or bracts ovate or lanceolate, scarcely longer than the flowers, mostly coloured at the base. Pedicel 3–4(–5) mm, short hairy. Calyx 2–2.5 mm in flower, densely white pilose, middle lobe of upper lip acute to obtuse, lower lip sometimes emarginate; fruiting calyx 3–5 mm, subglabrous or hairy on veins, deeply reticulate and pitted between the veins. Corolla white or reddish, ca. 3 mm, puberulent, throat inflated; upper lip 4-lobed, lateral 2 lobes distinct, longer than middle lobes, or upper lip subentire. Nutlets black, oblong.

Locality: Shek O, Tai Tam Tuk, Shing Mun, Tai Mo Shan. *Y. S. Lau 679, 779, 3012.*

Distribution: Guangdong, Guangxi, Jiangxi, Zhejiang, Fujian, Taiwan.

Ecology: Ravines, grassy fields. Flowering & fruiting: Jul.–Oct.

Uses: The decoction of dried plants mixed with starch and water is used to make a jelly-like cooling drink in S China.

Notes: The type specimen was collected by C. Wilford from "Saywan" (Chai Wan) between 1857 and 1858.

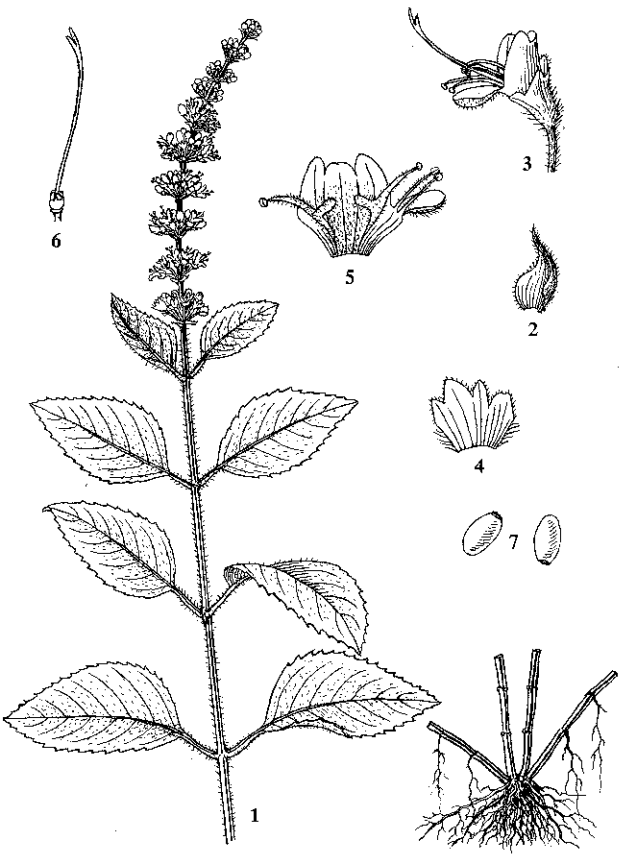


Figure 102. *Mesona chinensis* Benth.
1. upper portion and root of plant; *2.* bract; *3.* flower; *4.* calyx opened; *5.* corolla opened; *6.* pistil; *7.* nutlets. (drawn by H. P. Yu)

14. Ocimum L. 羅勒屬

Perennial herbs or subshrubs, strongly scented. Leaves opposite, petiolate. Verticillasters 6(–10)-flowered, forming terminal, racemes or panicles; pedicels recurved under the calyx; bracts small, caducous. Calyx ovoid to campanulate, declined in fruit, limb 2-lipped; upper lip 3-toothed, middle tooth large, suborbicular to obovate, margin winged, decurrent, strongly reflexed in fruit, lateral teeth shorter; lower lip 2 toothed, teeth narrower, apex acuminate to spinescent, sometimes approximate. Corolla tube slightly shorter than calyx or rarely exserted, not hairy annulate inside, dilated, obliquely campanulate at throat; limb 2-lipped, upper lip truncate, subequally (3- or) 4-lobed; lower lip somewhat elongate or not, declined, margin entire, flat or slightly concave. Stamens 4, exserted, declined on lower corolla lip, lower 2 longer; filaments free or lower 2 connate at base; anthers ovoid-reniform, 1-locellate. Style longer than stamens, 2-cleft at apex; lobes subequal, subulate or flat. Nutlets ovoid or subglobose, smooth or glandular foveolate, viscid when moist, with a white basal areola.

About 100–150 species spread throughout the temperate and tropical regions worldwide, especially in Africa and S America; five species in China; two species cultivated or naturalized in Hong Kong.

1a. Apex of leaves acute; calyx hairy annulate inside; posterior filaments dentate at base ..... 1. *O. basilicum*
1b. Apex of leaves obtuse; calyx glabrous inside; posterior filaments edentate, but with a tuft of hairs ..... 2. *O. tenuiflorum*

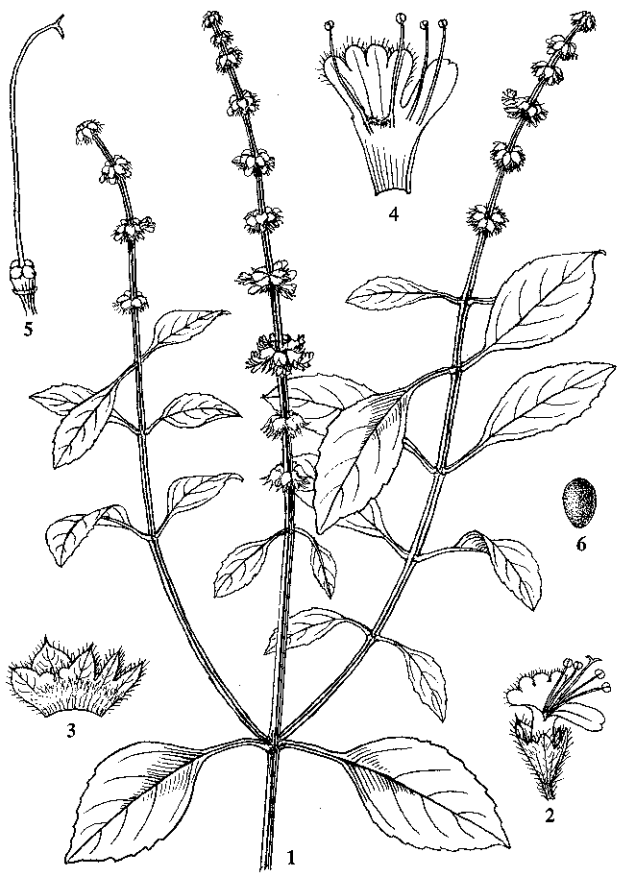


Figure 103. *Ocimum basilicum* L.
1. upper portion of plant; *2.* flower; *3.* calyx opened; *4.* corolla opened; *5.* pistil; *6.* nutlet. (drawn by H. P. Yu)

1. Ocimum basilicum L. 羅勒 **(Fig. 103; Photo 206)**

Sp. Pl. 2: 597. 1753; FKH 206. 1912; FRPS 66: 561. 1977; FOC 17: 296. 1994; FGD 3: 473. 1995; FTW ed. 2, 4: 495, pl. 219. 1998.

Annual herbs, 20–80 cm tall. Stems erect, many-branched, often tinged red, glabrous or retrorse puberulent when young. Leaves opposite; petiole 1–2 cm; leaf blade ovate or elliptic ovate, 2.5–5 × 1–2.5 cm, base attenuate, apex subobtuse to acute, margin irregularly dentate or subentire, glabrescent or hairy, glandular abaxially. Verticillasters many-flowered, forming simple or branched racemes of 10–15 cm or more, puberulent or densely pilose; bracts sessile, oblanceolate, 5–8 mm, ciliate, often coloured. Pedicel ca. 3 mm in flower, lengthening to 5 mm in fruit. Calyx campanulate, ca. 4 mm in flower, 5–6 mm in fruit, pubescent outside, pilose at throat inside; middle tooth of upper lip suborbicular, concave, apex mucronate; lower lip teeth lanceolate, ca. 2 mm, apex spinescent, ciliate. Corolla purplish or with upper lip white, limb puberulent outside; upper lip wide, ca. 3 × 4.5 mm, 4-lobed, ± flat; lower lip purple, ca. 6 mm. Stamens free, slightly exserted, upper filaments with a tooth above the base. Nutlets dark brown, ovoid, ca. 2.5 × 1 mm, glandular foveolate.

Locality: Deep Water Bay, New Territories. *Y. S. Lau 2018; HK sheet 25715, 40312.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Xinjiang, Jilin, Hebei, Henan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; widely spread throughout the Old World tropics.

Ecology: Wastelands near villages. Flowering: Nearly all year round; fruiting: Sep.–Dec.

Uses: Additive (flavouring), material (essential oils).

2. Ocimum tenuiflorum L. 聖羅勒

Sp. Pl. 597. 1753.

Ocimum sanctum L., Mant. I. 85. 1767; FRPS 66: 566, pl. 121. 1977; FOC 17: 297. 1994; FGD 3: 474, fig. 296. 1995.

Perennial herbs or subshrubs, 0.5–1 m tall. Stems erect, many-branched, covered with spreading soft hairs. Leaves opposite; petiole 1–2.5 cm; leaf blade elliptic-oblong or elliptic, 2.5–6 × 1–3 cm, base cuneate to rounded, apex obtuse, margin shallowly undulate-serrate, puberulent and glandular on both surfaces, especially on veins abaxially. Verticillasters 6-flowered, forming terminal racemes or panicles of 6–10 cm; bracts sessile, cordate, ca. 1.5 × 1.5 mm, apex acute. Pedicel ca. 2.5 mm. Calyx campanulate, ca. 2.5 mm in flower, to 6 mm in fruit, villous; middle tooth of upper lip broadly oblate, abruptly acute; lateral teeth broadly triangular, shorter than lower lip teeth, spinescent; lower lip teeth lanceolate, apex spinescent. Corolla white to reddish, ca. 3 mm, slightly exserted, sparsely puberulent; upper lip less than 1 × 2.5 mm, lobes ovate; lower lip oblong, ca. 1 × 0.6 mm, flat. Stamens slightly exserted; upper filaments puberulent at base. Nutlets brown, ovoid, ca. 1 × 0.7 mm, glandular foveolate.

Locality: Luk Keng. *Y. S. Lau 2875.*

Distribution: Hainan, Sichuan, Taiwan; pantropical.

Ecology: Dry grassy fields. Flowering: Feb.–Jun.; fruiting: Mar.–Aug.

Uses: Additive (flavouring, leaves used as a condiment in salads and other foods).

15. Gomphostemma Benth. 錐花屬

Perennial herbs or subshrubs, often tomentose or stellately pubescent. Leaves opposite, mostly long-petiolate. Verticillasters few–many-flowered, axillary, sometimes basal, rarely terminal, often forming densely sessile or laxly branched cymose inflorescences, rarely seemingly racemose; bracts suborbicular to linear-lanceolate. Calyx campanulate to tubular, 10-veined, subequally 5-toothed. Corolla purple-red or yellow to white; tube slender, erect or incurved, throat narrow or inflated; limb 2-lipped; upper lip straight, slightly galeate, entire or emarginate; lower lip spreading, 3-lobed, middle lobe longest. Stamens 4, lower 2 longest; filaments complanate, hairy on two sides or glabrous; anthers close together in pairs, cells parallel, transverse. Disk subequal or gibbous behind. Style included, apically subequally 2-cleft. Nutlets drupaceous, glabrous or pubescent, the pericarp usually fleshy and white, with a broad hilum; only 1 or 2, rarely all 4 developed.

About 36 species in SE Asia, from China, Indochina, Malesia to E India; 15 species in China; one species in Hong Kong.

1. Gomphostemma chinense Oliv.
中華錐花 **(Fig. 104; Photo 207)**

Hooker's Icon. Pl. 15: 54. 1884; FKH 212. 1912; FRPS 65(2): 116, pl. 23: 1–6. 1977; FOC 17: 74. 1994; FGD 3: 398. 1995.

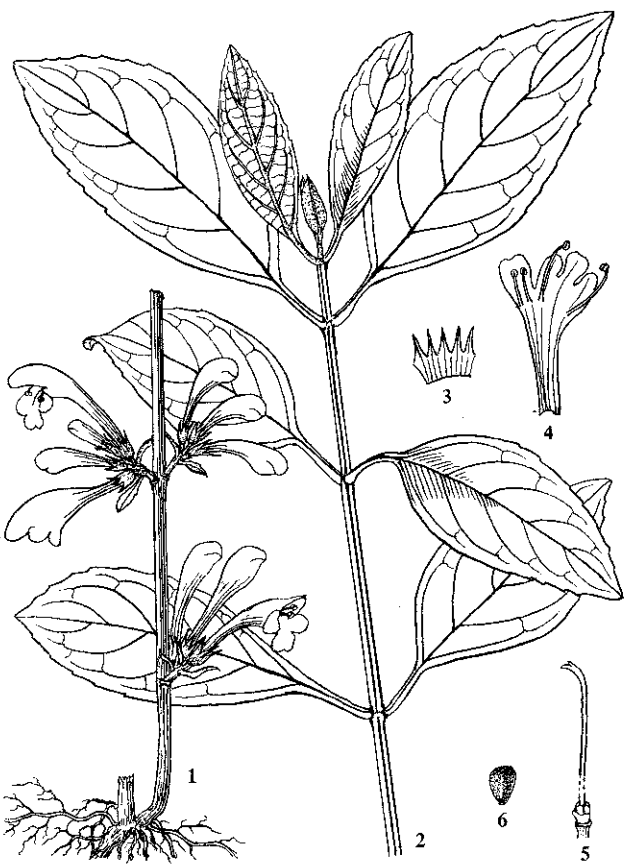


Figure 104. *Gomphostemma chinense* Oliv.
1. lower portion of plant; *2.* upper portion of plant; *3.* calyx opened; *4.* corolla opened; *5.* pistil; *6.* nutlet. (drawn by H. P. Yu)

Perennial herbs, 20–80 cm tall, rhizomatous. Stems erect, obtusely 4-angled, densely stellate tomentose. Leaves subleathery; petiole 2–6 cm, densely stellate tomentose; leaf blade elliptic to ovate-elliptic, 4–13 × 2–7 cm, base obtuse to rounded, apex obtuse, margin irregularly coarse serrate to subentire, adaxially stellate pubescent and sparsely strigose, abaxially dense grey stellate tomentose. Flowers solitary or in 4–many-flowered whorls at the axils of the lower leaves; peduncle to ca. 2.2 cm; bracts elliptic to lanceolate, 11–16 × 5–7 mm, margin coarsely serrate or entire on apical half; bracteoles linear, shorter than bracts. Calyx narrowly campanulate in flower, 12–13 mm, densely grey stellate tomentose outside; teeth lanceolate to narrowly lanceolate, 6–7 mm, apex acuminate. Corolla yellowish to white, ca. 5.2 cm, sparsely puberulent outside; upper lip erect, ca. 6 × 8 mm, apex rounded and emarginate; lower lip 1–1.4 × 1.3–1.9 cm, middle lobe obovate-subcircular, 7–8 × 6–7 mm; lateral lobes ovate, ca. 5 × 5 mm. Stamens almost as long as upper lip of corolla; filaments complanate, margin puberulent. Style shorter than stamens, slightly thicker on apical 2/3, apically unequally 2-cleft. Nutlets 4 per flower at maturity, obovoid, triquetrous, ca. 4 × 2.8 mm, brown, bullate, hairy.

Locality: Tate's Cairn, Pyramid Hill, Fo Tan. *HK sheet 32249, 38428, 39407.*

Distribution: Hainan, Guangdong, Guangxi, Jiangxi, Fujian; Vietnam.

Ecology: Ravines, margins of forests. Flowering: Jul.–Aug.; fruiting: Oct.–Dec.

Uses: Medicinal (folklore).

16. Hyptis Jacq. 山香屬

Herbs or subshrubs, often aromatic. Leaves opposite, serrate. Flowers in dense capitula, compact spikes, or in few-flowered clusters, often seund; bracts subulate to setaceous. Calyx tubular, straight to oblique, 10-veined; teeth 5, subequal, acute or awned, erect, ± dilated in fruit. Corolla tube cylindric to swollen on one side; limb 2-lipped, upper lip 2-lobed, lobes erect, spreading or reflexed; lower lip 3-lobed, middle lobe abruptly reflexed with thickened margins, sometimes saccate at the base. Stamens 4, lower 2 longer, declined; filaments free, without basal appendages; anther cells 2, apically confluent. Disk entire. Style apex 2-cleft or subentire. Nutlets ovoid to oblong, smooth or rugose.

More than 350 species in tropical and subtropical regions of the New World; four species naturalized in China; two species naturalized in Hong Kong.

1a. Flowers congested into globose head ..... 1. *H. rhomboidea*

1b. Flowers 1–5, in axillary cymes ..... 2. *H. suaveolens*

1. Hyptis rhomboidea M. Martens & Galeotti 吊球草

Bull. Acad. Roy. Sci. Bruxelles. 11(2): 188. 1844; FRPS 66: 408, pl. 85: 7. 1977; FOC 17: 267. 1994; FGD 3: 459. 1995; FTW ed. 2, 4: 466, pl. 201. 1998.

Hyptis decurrens (Blanco) Epling, Repert. Spec. Nov. Regni Veg. 34(891–894): 120–122. 1933.

Pycnanthemum decurrens Blanco, Fl. Filip. ed. 2, 33. 1846.

Annual stout herbs, 0.5–1.5 m tall, non aromatic. Stems and branches pubescent on the angles. Leaves opposite; petioles 1–3.5 cm; leaf blade lanceolate or rhomboid-elliptic, 6–18 × 1.5–4(–6) cm, base cuneate and decurrent, apex acute or acuminate, margin crenate-serrate or serrate, adaxially sparsely minute hispid, abaxially densely glandular, pilose on veins. Flowers numerous, forming axillary, solitary globular heads, 1–1.5 cm in diam.; peduncle 1–10 cm; basal involucral bracts linear-lanceolate, hairy, 3–6 mm. Calyx 3–4 mm, lengthening to 6–8 mm in fruit, ca. 4 × 2 mm, minutely hispid, base villous; teeth subulate, as long as or shorter than the tube. Corolla cream-white, 5–6 mm, puberulent; upper lip 1–1.2 mm, lobes ovate, reflexed; lower lip longer than the upper lip. Nutlets ovoid, compressed, ca. 1.2–2 mm.

Locality: Naturalized in Hong Kong. *Y. S. Lau 238, 2070; HK sheet 34819.*

Distribution: Hainan, Guangdong, Guangxi, Taiwan (naturalized); native to tropical America.

Ecology: Hillslopes, open fields near villages. Flowering: Oct.–Nov.

2. Hyptis suaveolens (L.) Poit. 山香 **(Fig. 105)**

Ann. Nat. Hist. 7: 472. 1806; FKH 208. 1912; FRPS 66: 406, pl. 85: 1–6. 1977; FOC 17: 267. 1994; FGD 3: 460. 1995; FTW ed. 2, 4: 466, pl. 203. 1998.

Ballota suaveolens L., Syst. Nat. ed. 10, 2: 1100. 1759.

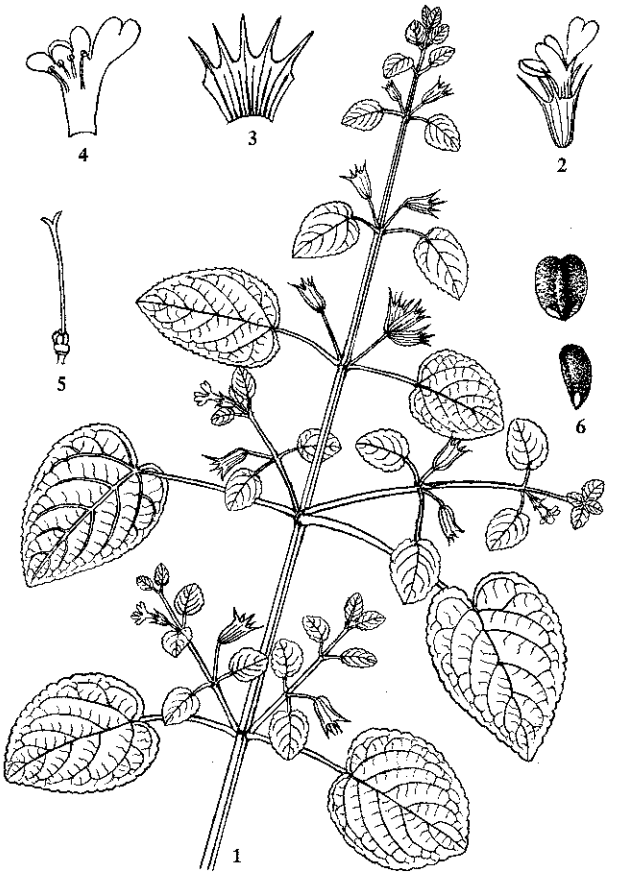


Figure 105. *Hyptis suaveolens* (L.) Poit.

1. upper portion of plant; *2.* flower; *3.* calyx opened; *4.* corolla opened; *5.* pistil; *6.* nutlets. (drawn by H. P. Yu)

Annual robust herbs, 0.5–1.5 m tall, aromatic. Stems erect, hirsute. Leaves opposite; petioles slender, 0.53(–6) cm; leaf blade ovate to broadly ovate, 1.4–11 × 1.2–9 cm, base rounded to truncate, often slightly oblique, apex subacute to obtuse, margin irregularly serrulate, adaxially olive green, sparsely pilose, abaxially densely pubescent. Flowers in lax, (1–)2–5-flowered, secund cymes, arranged racemosely towards apex of branches in the axils of smaller leaves; peduncles 5–10 mm, pubescent; bracts minute, setaceous. Calyx campanulate 5–5.5 mm, lengthening to 8–10 mm in fruit, strongly ribbed, mouth villous; teeth erect, setaceous, ciliate. Corolla blue, 6–8 mm, puberulent except near base; tube ca. 2 mm wide at throat; upper lip lobes reflexed; middle lobe of lower lip notched. Nutlets narrowly oblong, granulate.

Locality: Naturalized in Hong Kong. *H. C. Tang 1888; Y. S. Lau 2401; L. T. Lo 414.*

Distribution: Hainan, Guangdong, Guangxi, Fujian, Taiwan (naturalized); native to tropical America.

Ecology: Wastelands near villages. Flowering & fruiting: Almost all year round.

17. Stachys L. 水蘇屬

Herbs, rarely subshrubs, sometimes rhizomatous. Leaves simple, opposite, crenate or serrate. Verticillasters 2–many-flowered, forming terminal spikes. Calyx tubular-campanulate, 5- or 10-veined; teeth 5, unequal, acute to bristle-like, or spinescent. Corolla red, purple, yellow, or white, 2-lipped; tube cylindric, usually villous annulate inside; upper lip ascending, concave; lower lip spreading, 3-lobed, the middle lobe the largest, entire or emarginate. Stamens 4, subequal, ascending; anther cells 2, divaricate; filaments glabrous. Style 2-fid, the lobes subequal. Nutlets ovoid to oblong, smooth or tuberculate, apex obtuse to rounded.

About 300 species widely distributed in Africa, Asia, Europe, N & S America; 18 species in China; one species in Hong Kong.

1. Stachys geobombycis C. Y. Wu
地蠶(野芝麻) **(Fig. 106; Photo 208)**

Acta Phytotax. Sin. 10: 222. 1965; FRPS 66: 21. 1977; FOC 17: 182. 1994; FGD 3: 427, fig. 268. 1995.

Stachys asper auct. non Michx.: FKH 211. 1912.

Perennial herbs, 40–50 cm tall. Rhizomes enlarged into succulent tubers at the end. Stems and branches retrorse hispid on angles and at nodes. Leaves opposite; petioles 1–4.5 cm; leaf blade ovate to oblong-ovate, 4.5–8 × 2.5–3 cm, base shallowly cordate or rounded, apex obtuse, margin coarsely crenate-serrate, sparsely pilose-hispid, densely so on veins of abaxial surface. Verticillasters 4–6-flowered, forming terminal spikes to 5 cm or more. Calyx obconical, ca. 5.5 mm, densely puberulent, 10-veined; teeth 5, ca. 1.5 mm, callous-tipped. Corolla pale purple to bluish purple, or sometimes pink, ca. 1.1 cm; upper lip erect, oblong-ovate, ca. 4 mm; lower lip spreading, ca. 5 mm, 3-lobed. Stamens included. Style slightly exserted.

Locality: Hung Mui Kuk. *L. T. Lo 463; HK sheet 32792.*

Distribution: Guangdong, Guangxi, Hunan, Hubei, Jiangxi, Zhejiang, Fujian.

Ecology: Wet grasslands and wastelands. Flowering & fruiting: Apr.–May.

Uses: Food (rhizomes), medicinal (folklore).

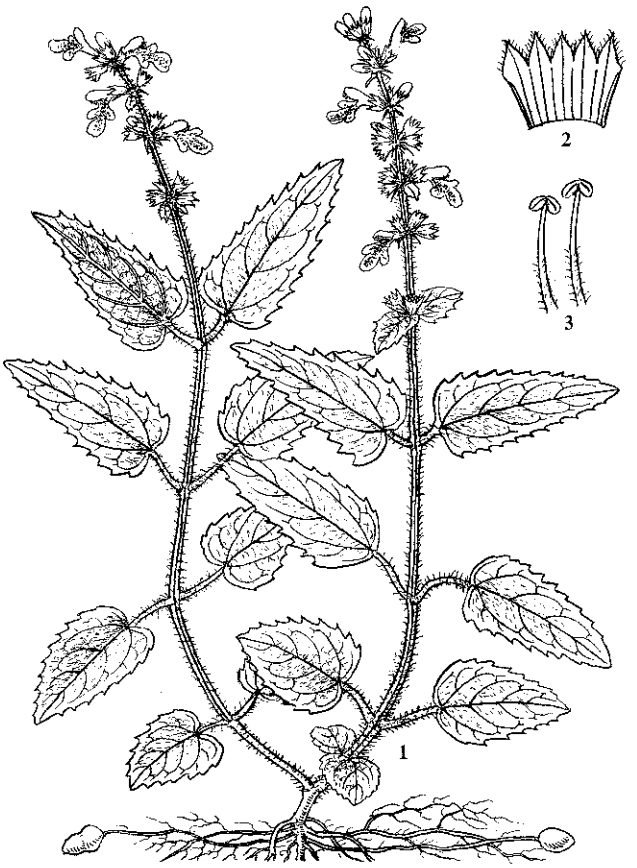


Figure 106. *Stachys geobombycis* C. Y. Wu
1. whole plant; *2.* calyx opened; *3.* stamens. (drawn by H. P. Yu)

18. Glechoma L. 活血丹屬

Perennial herbs stoloniferous, gynodioecious or gynomonoecious. Stems ascending to prostrate, rooting at lower nodes. Leaves petiolate, orbicular, cordate or reniform. Verticillasters axillary, 2–6(–many)-flowered; floral leaf similar to stem leaf; bracts and bracteoles usually subulate. Calyx tubular to campanulate, slightly curved near throat, 15-veined, indistinctly 2-lipped, upper lip 3-toothed, lower lip 2-toothed. Corolla tubular, dilated at apex, 2-lipped; upper lip straight, emarginate or 2-lobed; lower lip spreading, 3-lobed. Stamens 4; filaments glabrous, undeveloped in pistillate flowers; anther cells oblong, parallel or divergent. Ovary glabrous. Style slender, apex subequally 2-cleft. Nutlets dark brown, oblong-ovoid, smooth or impressed-punctate, glabrous.

About eight species spread over Asia and Europe; five species in China; one species in Hong Kong.

1. Glechoma longituba (Nakai) Kuprian. 活血丹 **(Fig. 107; Photos 209–210)**

Bot. Zhurn. (Moscow & Leningrad) 33(2): 236, fig. 1(4), 2. 1948; FRPS 65(2): 316, pl. 61: 1–3. 1977; FOC 17: 118. 1994; FGD 3: 410. 1995.

Glechoma hederacea L. var. *longituba* Nakai, Bot. Mag. (Tokyo) 35(418): 173–174. 1921.

Glechoma brevituba Kupr., Bot. Zhurn. (Moscow & Leningrad) 33(2): 236. 1948

Perennial herbs, 10–30 cm tall; stems ascending, often purplish red at base, young parts sparsely villous. Leaves opposite; petioles 1–2 times as long as blade; leaf blade upper leaves cordate, 1.8–2.6 × 2–3 cm, apex acute to obtuse, margin coarsely crenate or serrate-crenate, adaxially sparsely strigose or puberulent, abaxially purplish, veins pilose or hirsute. Verticillasters usually 2-flowered, rarely 4–6-flowered; bracts and bracteoles linear, to 4 mm, ciliate. Calyx tubular, 0.9–1.1 cm, villous especially on veins; teeth ovate-triangular, 3–5 mm, apex awned, ciliate, adaxial ones longer. Corolla blue to purple with dark spots on lower lip, long-tubed corolla 1.7–2.2 cm, short-tubed corolla 1–1.4 cm, ± pilose or puberulent abaxially; upper lip straight, 2-lobed, lobes subreniform; lower lip elongate, obliquely spreading, middle lobe reniform, 2–3 times as long as upper lip, apex emarginate; lateral lobes oblong, ca. 1/2 as long as middle lobe. Nutlets ca. 1.5 × 1 mm, basally ± triquetrous, apex rounded.

Locality: Lai Chi Chong, Kop Tong. *W. J. Tutcher 11721; HK sheet 34038.*

Distribution: Spread over all provinces except Gansu, Qinghai, Xinjiang, Xizang; far E of Russia, Korea.

Ecology: Thin forests, streamsides, roadsides near villages. Flowering: Apr.–May; fruiting: May–Jul.

Uses: Medicinal (folklore).

19. Elsholtzia Willd. 香薷屬

Herbs or subshrubs. Leaves opposite, petiolate or sessile, serrate or crenate. Verticillasters forming secund or terete spikes or sometimes in panicles; bracts ovate or flabellate to lanceolate or linear. Calyx campanulate or cylindric, 5-toothed; teeth subequal or anterior 2 longer. Corolla purplish, white or yellowish, shortly exserted, straight or incurved; limb 4- or 5-lobed, obliquely 2-lipped; upper lip erect, ± notched; lower lip spreading, 3-lobed. Stamens 4, usually exserted, lower 2 longer, rarely undeveloped, free; filaments glabrous; anther cells 2, divergent or divaricate, apex confluent. Ovary glabrous. Style usually exserted beyond stamens, apex deeply to shallowly 2-cleft; lobes subulate, sublinear or clavate, usually equal. Nutlets ovoid to oblong, glabrous or sparsely hairy, tuberculate or smooth.

About 40 species distributed in N temperate and warm parts of the Old World; 33 species in China, one species in Hong Kong.

1. Elsholtzia argyi H. Lév. 紫花香薷 **(Fig. 108; Photo 211)**
Repert. Spec. Nov. Regni Veg. 8: 425. 1910; FRPS 66: 343. 1977; FOC 17: 254. 1994; FGD 3: 449. 1995.

Herbs 50–100 cm tall. Stems often purplish, grooved, with white hairs in grooves. Leaves opposite; petiole 0.8–2.5 cm, narrowly winged, white pubescent; leaf blade ovate to broadly ovate, 2–6 × 1–3 cm, base rounded to broadly cuneate, decurrent, apex shortly acuminate, margin crenate or crenate-serrate, adaxially sparsely pilose, abaxially impressed glandular, white pubescent on veins. Verticillasters 8-flowered, forming secund spikes of 2–7 cm; bracts rounded, ca. 5 mm, apex abruptly spinescent, spines to 2 mm, abaxially white villous, yellow glandular, purplish, adaxially glabrous, margin ciliate. Pedicel ca. 1 mm, white pilose. Calyx tubular, ca. 2.5 mm, white villous abaxially; teeth subulate, subequal, apex spinescent, margin ciliate. Corolla rose-purple, ca. 6 mm, white villous abaxially, glandular at apex; upper lip notched,

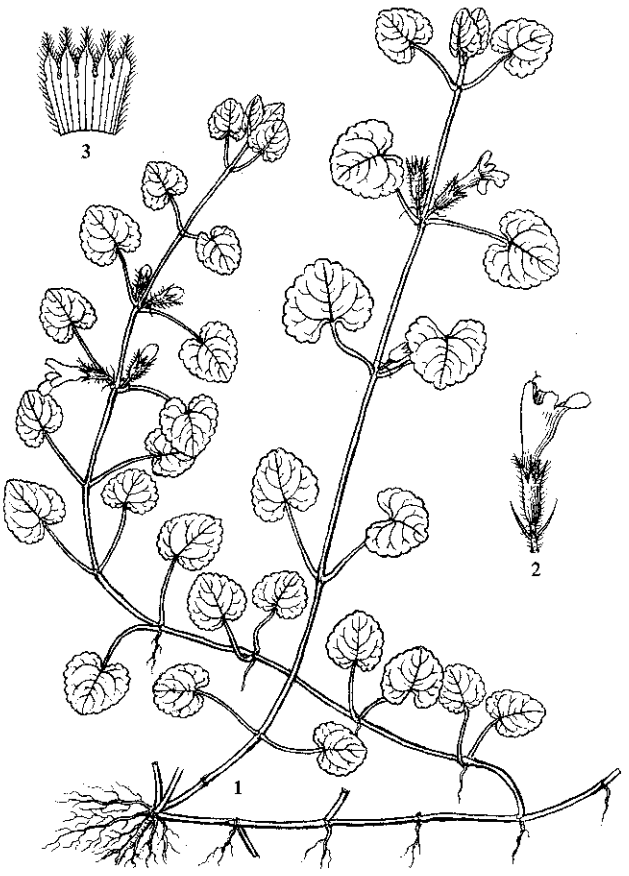


Figure 107. *Glechoma longituba* (Nakai) Kuprian.
1. portion of plant; *2*. flower; *3*. calyx opened. (drawn by H. P. Yu)

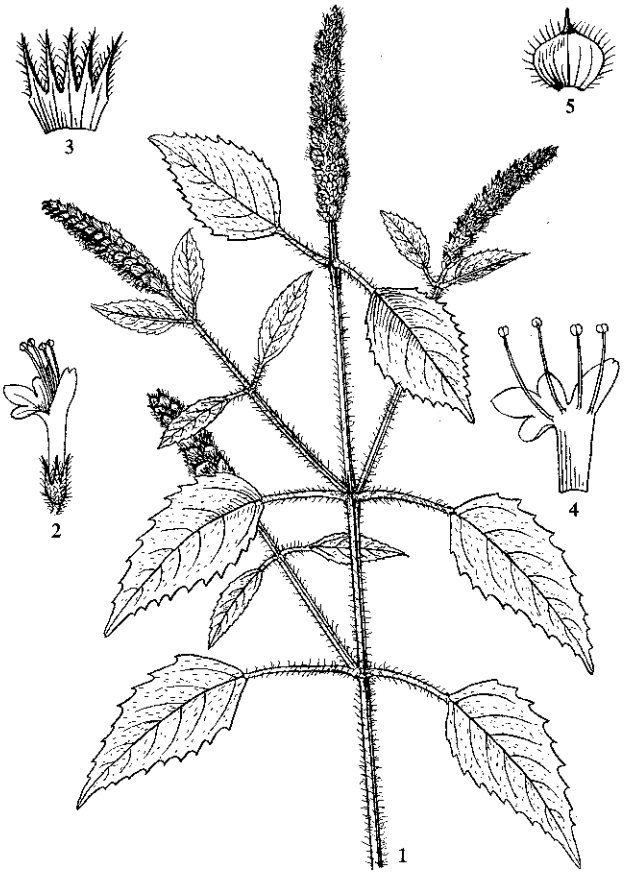


Figure 108. *Elsholtzia argyi* H. Lév.
1. upper portion of plant; *2*. flower; *3*. calyx opened; *4*. corolla opened; *5*. bract. (drawn by H. P. Yu)

margin villous; lower lip slightly spreading, middle lobe oblong, apex usually mucronate; lateral lobes arcuate. Anthers dark purple. Nutlets dark brown, oblong, ca. 1 mm, minutely tuberculate.

Locality: Victoria Peak, Tai Mo Shan. *S. B. C. Ross 11450; Y. S. Lau 2077, 3025.*

Distribution: Guangdong, Guangxi, Guizhou, Sichuan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian; Japan, Vietnam.

Ecology: Thickets, forests, streamsides. Flowering & fruiting: Sep.–Nov.

Notes: The species was reported as *Elsholtzia ciliata* (Thunb.) Hyl. previously (Check List HK Plants 76. 1993).

20. Scutellaria L. 黃芩屬

Herbs or subshrubs, not aromatic. Leaves opposite, petiolate, rarely sessile. Flowers in terminal or axillary racemes or spikes; bracts minute or conspicuous and foliaceous. Calyx short campanulate, 2-lipped; lips entire, the upper one with a large deciduous shield- or pouch-like appendage (scutellum) on its back; in fruit, at first the lips closed together, then the upper lip falling away together with the appendage. Corolla 2-lipped; tube rather long, usually sharply recurved from the base and erect upwards, not hairy annulate inside; upper lip often boat-shaped, entire or notched; lower lip 3-lobed, middle lobe broad, flattened, entire, lateral lobes ± joined to upper lip and sometimes spreading. Stamens 4, lower pair longer, underlying upper lip; anthers close together in pairs, bearded on cell aperture; upper pair conspicuously 2-celled, ± apically acute, lower pair 1-celled by abortion. Disk tubular, elongate. Style subulate, apically unequally 2-cleft. Nutlets raised on a short, oblique, or curved stalk (gynophore).

About 350 species distributed nearly throughout the world, but only a few in tropical Africa; 98 species in China; four species in Hong Kong.

1a. Flowers axillary; bracts similar to stem leaf ..... 1. *S. barbata*
1b. Flowers in terminal racemes; bracts distinctly different from stem leaf.
  2a. Leaves subleathery, margin with 3–4 undulate serrations on each side ..... 2. *S. formosana*
  2b. Leaves herbaceous, margin with many crenations.
    3a. Stems white villose, with multicellular hairs; corolla 1.8–2.5 cm ..... 3. *S. tayloriana*
    3b. Stems puberulous; corolla 1.4–1.8 cm ..... 4. *S. indica*

1. Scutellaria barbata D. Don 半枝蓮 (Photos 212–213)

Prodr. Fl. Nepal. 109. 1825; FRPS 65(2): 229, pl. 49: 5. 1977; FOC 17: 99. 1994; FGD 3: 406. 1995; FTW ed. 2, 4: 532. 1998.

Scutellaria rivularis Wall. ex Benth., Numer. List n. 214. 1829; FKH 211. 1912.

Perennial herbs, 10–30 cm tall. Stems erect from short, thick rhizomes, glabrous or young parts sparsely puberulous. Leaves papery; petiole 1–3 mm, sparsely pubescent; leaf blade narrowly ovate to ovate, 10–25 × 7–15 mm, base broadly cuneate to subtruncate, apex shortly acuminate or acute, sometimes obtuse, margin remotely and obtusely shallow dentate, subglabrous to sparsely appressed pubescent along veins. Flowers axillary; lower bracts similar to stem leaves, to 8 mm, reduced upward, adaxially sparsely pubescent, abaxially sparsely pubescent only on veins; bracteoles needle-like, ca. 0.5 mm, inserted at middle of pedicels. Pedicel 1–2 mm, puberulent. Calyx ca. 2 mm, puberulent along veins abaxially, margin ciliolate, to 4.5 mm in fruit; scutellum ca. 1 mm, to 2 mm in fruit. Corolla purple blue, 9–13 mm, pubescent abaxially; tube saccate in front at base, gradually dilated from middle; limb 2-lipped; upper lip semiorbicular, galeate, ca. 1.5 mm, emarginate at apex; lower lip broadly ovate, 3-lobed, middle lobe emarginate, lateral lobes triangular-ovate, ca. 1.5 mm wide, apex acute. Nutlets brown, oblate, ca. 1 mm in diam., warty.

Locality: Shing Mun, Tai Po, Fung Hang, Sai Kung. *P. S. Choi 176, 450; HK sheet 39094.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Shaanxi, Hebei, Henan, Hubei, Hunan, Jiangxi, Jiangsu, Shandong, Zhejiang, Fujian, Taiwan; Korea, Japan, Vietnam, Laos, Myanmar, Thailand, India, Nepal.

Ecology: Farmlands, streamsides, grassy fields. Flowering & fruiting: Mar.–Jul.

Uses: Medicinal (folklore).

2. Scutellaria formosana N. E. Br. 藍花黃芩 (Photos 214–215)

Gard. Chron. Ser. 3. 16: 212. 1894; FKH 211. 1912; FRPS 65(2): 142. 1977; FOC 17: 81. 1994; FGD 3: 402. 1995.

Perennial herbs to 30 cm tall, with ± woody rhizomes. Stems ascending, simple or few-branched, rooting at basal nodes, subglabrous, often purplish. Leaves subleathery; petioles 8–12 mm, subglabrous, glandular; leaf blade ovate to ovate-lanceolate, 3–8 × 1.5–3.3 cm, base broadly cuneate, apex obtuse to acute, margin with 3- or 4-undulate-serration on each side, adaxially shiny, abaxially sometimes tinged purple, glabrous and glandular dotted on both surfaces, sometimes sparsely puberulous on veins abaxially. Flowers in terminal racemes of 7–17 cm; bracts narrowly rhombic, ca. 2 mm, pubescent. Pedicel ca. 4 mm, densely pubescent. Calyx ca. 3 mm, ca. 4 mm. in fruit, pubescent abaxially, glandular; scutellum spreading, semiorbicular, to 2 mm. Corolla blue, ca. 2.5 cm, glandular puberulent abaxially; tube ca. 2 cm, base bent, throat to 6 mm wide, villous near base inside; upper lip triangular-ovate, ca. 8 mm wide; middle lobe of lower lip suborbicular, ca. 4.5 mm in diam., emarginate; lateral lobes ovate, ca. 3 mm wide. Nutlets tuberculate.

Locality: Sham Tseng, Tuen Mun, Wong Lung Hang, Sunset Peak. *Y. S. Lau 2996; Y. W. Lam 620; K. L. Yip 4436.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Jiangxi, Fujian.

Ecology: Forest. Flowering & fruiting: Jul.–Feb. of the following year.

3. Scutellaria tayloriana Dunn 偏花黃芩 **(Fig. 109)**

Notes Roy. Bot. Gard. Edinb. 8: 166. 1913; FRPS 65(2): 170. 1977; FOC 17: 87. 1994; FGD 3: 404. 1995.

Perennial herbs, 10–35 cm tall, sometimes with trailing rhizomes. Stems erect to ascending, covered with white multicellular hairs. Leaves in 3 or 4 pairs; petioles 2–5(–9) cm, those of mid stem leaves longest, densely white villose; leaf blade ovate to ovate-oblong, lower ones 2–4 × 1.8–2.7 cm, middle ones 5–9 × 4.5–7 cm, base cordate or rounded, apex rounded or obtuse, margin shallowly undulate-crenate, both surfaces white strigose especially on veins, orange glandular dotted abaxially. Racemes terminal, secund, 7–15 cm; peduncle 1–4.5 cm; bracts sessile, gradually narrowed toward apex, ovate, ca. 4 × 2 mm, margin entire. Pedicel ca. 2 mm, villous. Calyx ca. 2.5 mm, densely pubescent. Corolla purplish to purple-blue, (1.5–)1.8–2.5(–3) cm, bent at base, to 6 mm wide at throat, sparsely puberulent abaxially; middle lobe of lower lip semiorbicular; lateral lobes ovate.

Locality: Tai Mo Shan, Sunset Peak. *P. S. Choi 486; HK sheet 32233, 39913.*

Distribution: Guangdong, Guangxi, Guizhou, Hunan.

Ecology: Forests, thickets. Flowering: Feb.–Apr.

Uses: Medicinal (folklore).

Notes: The type specimen (*Ford 107*, E) was collected by C. Ford from Tai Mo Shan in March 1885.

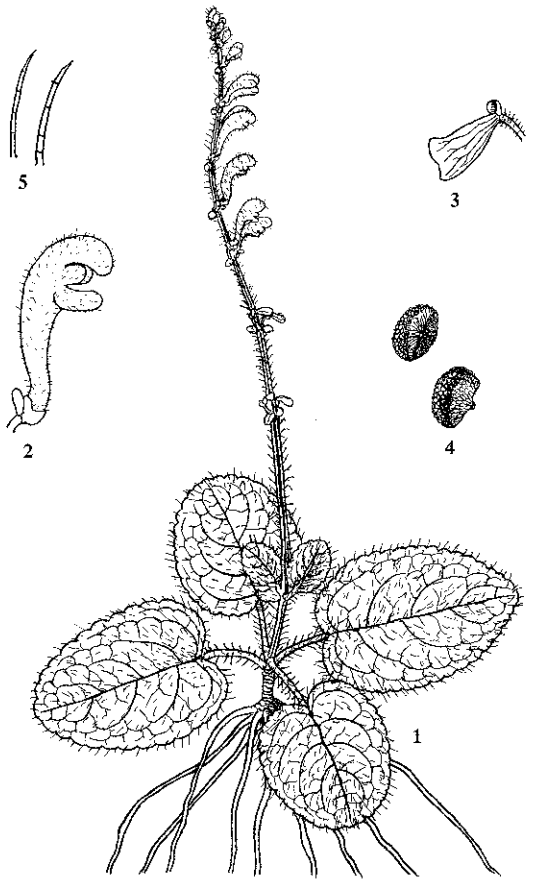


Figure 109. *Scutellaria tayloriana* Dunn
1. whole plant; *2.* flower; *3.* fruiting calyx; *4.* nutlets; *5.* muticellular hairs. (drawn by H. P. Yu)

4. Scutellaria indica L.韓信草 **(Photo 216)**

Sp. Pl. 2: 600. 1753; FHK 278. 1861; FKH 211. 1912; FRPS 65(2): 172. 1977; FOC 17: 87. 1994; FGD 3: 404. fig. 254. 1995; FTW ed. 2, 4: 532, pl. 241. 1998.

Perennial herbs, 8–28 cm tall. Stems usually dark purple, 1–few, ascending-erect from a short rhizome, puberulous, especially on angles and apex. Petioles 4–15(–28) mm, densely puberulous; leaf blade cordate-orbicular to orbicular-ovate, or elliptic, 1–2.6(–3) × 1–2.3 cm, base rounded to cordate, apex rounded to acute, margin crenate, puberulous or strigose, densely so on abaxial surface. Flowers opposite, in a terminal 1-sided raceme of 4–8(–12) cm; lower bracts leaf-like, ovate, to 1.7 cm, crenate; upper ones sessile, ovate to elliptic, 3–6 × 1–2.5 mm, margin entire, puberulent. Pedicels 2.5–3 mm, puberulent. Calyx ca. 2.5 mm, hirsute and puberulent; scutellum ca. 1.5 mm, erect, dilated to 3 mm in fruit. Corolla blue-purple, 1.3–1.8 cm, sparsely puberulent outside, pubescent on lips inside, to ca. 4.5 mm wide at throat; middle lobe of lower lip dark purple spotted, orbicular-ovate, slightly constricted at middle, apex emarginate; lateral lobes ovate. Nutlets chestnut to dark brown, ovoid, less than 1 mm in diam., tuberculate.

Locality: Common in Hong Kong. *L. T. Lo 112; Y. S. Lau 2246; Y. S. Lau 2987.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Shaanxi, Henan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; Japan, Vietnam, Cambodia, Laos, Myanmar, Thailand, India, Malaysia, Indonesia.

Ecology: Margins of forests, grasslands. Flowering & fruiting: Nov.–Mar. of the following year.

Uses: Medicinal (folklore).

21. Anisomeles R. Br. 廣防風屬

Herbs, or sometimes shrubby. Stems and branches softly pubescent or woolly. Leaves simple, dentate. Verticillasters many-flowered, forming dense or interrupted, terminal spikes or panicles. Calyx ovoid or tubular, 10-veined, apex netted, almost equally 5-toothed, straight, slightly dilated in fruit. Corolla 2-lipped; tube as long as calyx, hairy annulate inside; upper lip erect, margin entire, slightly concave; lower lip longer, spreading, 3-lobed; middle lobe largest, emarginate or 2-lobulate. Stamens exserted, in 2 pairs, lower 2 usually longer; lower anthers transversely 2-celled, upper anthers 1-celled. Style apex 2-cleft, lobes subulate, subequal. Disk cupulate, crenate. Nutlets black, subglobose, shiny.

About five or six species distributed in SE Asia, Australia; one species in China and Hong Kong.

1. **Anisomeles indica** (L.) Kuntze
廣防風 **(Fig. 110; Photos 217–218)**

Rev. Gen. Pl. 512. 1891; H. Keng, Garden's Bull. Sing. 24: 34. 1969; FOC 17: 188. 1994; FTW ed. 2, 4: 445, pl. 189. 1998.

Anisomeles ovata R. Br., Hort. Kew. ed. 2, 3: 364. 1811; FHK 278. 1861; FKH 211. 1912.

Epimeredi indica (L.) Rothm., Repert. Spec. Nov. Regni Veg. Beih., 53: 12. 1944; FRPS 66: 42, pl. 6. 1977; FGD 3: 429. 1995.

Robust herbs, or sometimes shrubby, 0.5–2 m tall; stems erect, 4-angled, sparingly hairy to densely pubescent. Leaves simple; petioles 1.5–4 cm, tomentose; leaf blade ovate to broadly ovate, 4–9 × 2.5–6.5 cm, base rounded to truncate, subcordate, less often shortly cuneate, entire, apex acute, margin irregularly serrate-dentate, hirsute or woolly on both surfaces. Verticillasters forming interrupted or dense spikes; bracts linear, 3–4 mm, pilose. Calyx campanulate, 5–7 mm, lengthening to 10 mm in fruit, shortly pedicellate, hirsute and pilose; teeth triangular-lanceolate, subequal, ciliate. Corolla purplish, ca. 1.3 mm, glabrous abaxially. Filaments hirsute. Nutlets broadly ovoid, 1.8–2 × 1.4–1.5 mm, ± compressed.

Locality: Hong Kong Island, Kau Wa Keng, Tai Po, Tin Fu Tsai, Castle Peak, Lantau Island. *Y. S. Lau 3126; S. P. Choi 160; S. Y. Hu & P. P. H. Butt 24037.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Hunan, Jiangxi, Zhejiang, Fujian, Taiwan; Vietnam, Thailand, Myanmar, Laos, Cambodia, Malaysia, Philippines.

Ecology: Wastelands, roadsides near villages, margins of forests. Flowering: Jun.–Nov.; fruiting: Sep.–Dec.

Uses: Medicinal (folklore).

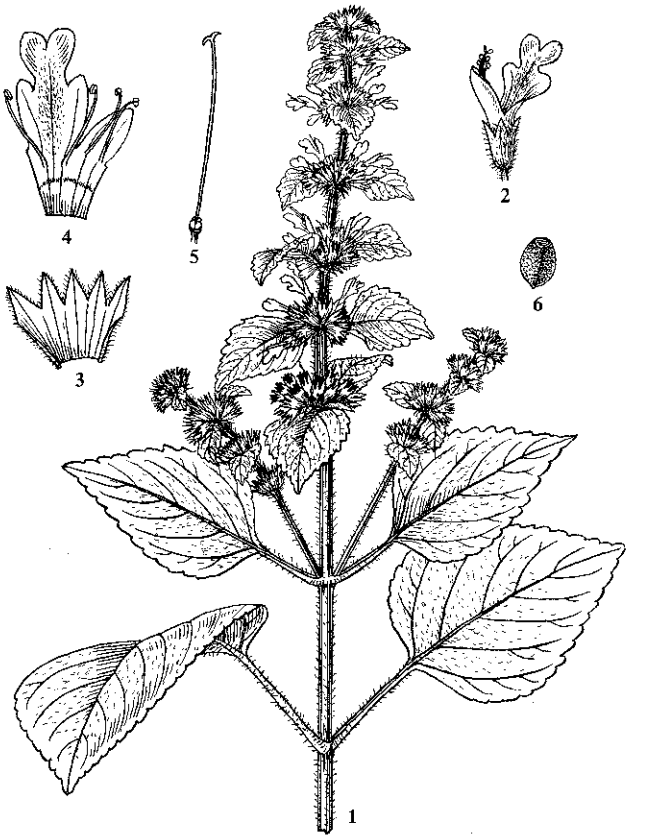


Figure 110. *Anisomeles indica* (L.) Kuntze
1. upper portion of plant; *2.* flower; *3.* calyx opened; *4.* corolla opened; *5.* pistil; *6.* nutlet. (drawn by H. P. Yu)

22. Leonurus L. 益母草屬

Erect herbs. Leaves opposite, often lobed or dissected. Verticillasters many-flowered, forming terminal spikes; bracteoles subulate or spinescent. Calyx obconical or tubular-campanulate, 5-veined and 5-toothed; teeth subulate or prickly, subequal. Corolla white, reddish, to purplish, 2-lipped; tube exserted; upper lip entire, erect, villous or glabrous; lower lip ± spreading, spotted, 3-lobed, the middle lobe deeply notched or obcordate, larger than lateral lobes. Stamens 4, in 2 pairs, ascending under the upper lip; the lower pair slightly longer; anther 2-celled, with parallel transverse cells. Disk uniform. Style equally 2-fid, lobes subulate. Nutlets smooth, triquetrous, truncate at apex.

About 20 species distributed in Africa, Asia, Europe, N & S America; 12 species in China; one species in Hong Kong.

1. **Leonurus japonicus** Houtt. 益母草 **(Fig. 111; Photo 219)**

Nat. Hist. 9: 366. 1778; FOC. 17: 163. 1994; FTW ed. 2, 4: 480, pl. 210. 1998.

Leonurus artemisia (Lour.) S. Y. Hu, J. Coll. Sci. Imp. Univ. Tokyo 2(2): 381. 1974; FRPS 65(2): 508, pl. 99: 1–7. 1977; FGD 3: 420. 1995.

Stachys artemisia Lour., Fl. Cochinch. 2: 365–366. 1790.

Leonurus sibiricus auct. non L.: FHK 276. 1861; FKH 211. 1912.

Annual or biennial herbs, 30–120 cm tall. Stems obtusely angled, furrowed, retrorse strigose. Leaves very variable in shape, the lower and basal leaves ovate in outline, base broadly cuneate, 3-palmatipartite; lobes oblong-rhombic to ovate, 2.5–6 ×

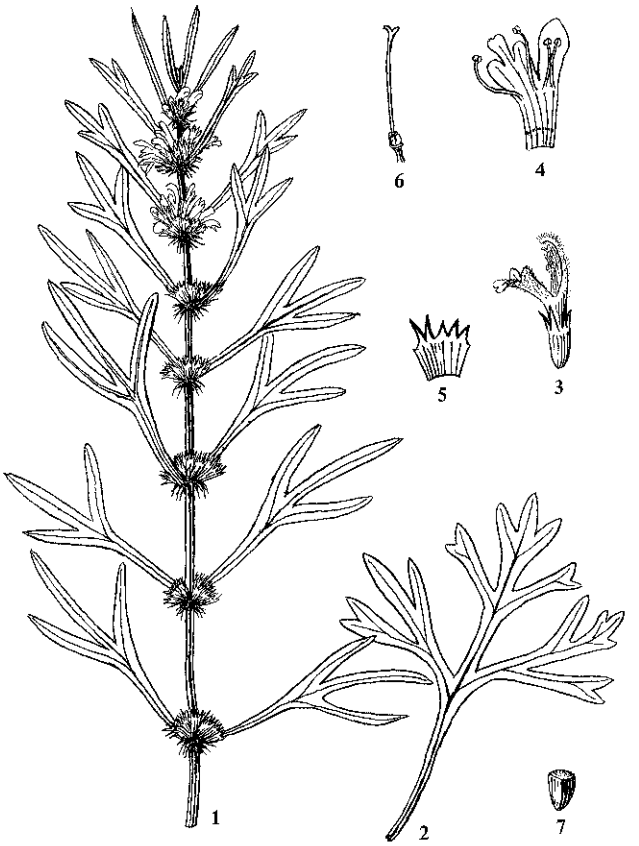


Figure 111. *Leonurus japonicus* Houtt.
1. upper portion of plant; *2.* basal leaf; *3.* flower; *4.* corolla opened; *5.* calyx opened; *6.* pistil; *7.* nutlet. (drawn by H. P. Yu)

1.5–4 cm, pinnately divided, adaxially strigose, abaxially pilose, glandular; upper leaves deeply divided into 3 or more oblong-linear to linear segments, or the uppermost sometimes linear and entire. Verticillasters 8–15-flowered, 2–2.5 cm in diam., the lower ones axillary and distant, the upper ones forming a terminal spike; bracts subulate or spinescent, 4–10 mm. Calyx tubular-campanulate, 5–6 mm, lengthening to 7–8 mm in fruit, appressed puberulent; teeth 5, subulate. Corolla red or white, 10–12 mm; tube often obliquely hairy annulate inside; upper lip erect, obovate, entire, pubescent abaxially; lower lip 3-lobed, the middle lobe obcordate, pubescent. Filaments sparsely scaly. Nutlets ellipsoidal, apex truncate, smooth.

Locality: Tai Po Kau, Tai Po, Plover Cove, Sai Kung, Yuen Long, Lantau Island. *L. T. Lo 76; P. S. Choi 461; Y. W. Lam 1553.*

Distribution: Widely distributed in all provinces of China; Korea, Japan, Vietnam, Laos, Cambodia, Myanmar, Thailand, Malaysia, Africa, America.

Ecology: Wastelands, roadsides near villages. Flowering: Jan.–May.

Uses: Medicinal (folklore).

23. Leucas R. Br. 繡球防風屬

Herbs or subshrubs. Stems erect or diffuse. Leaves entire or dentate. Verticillasters few–many-flowered, widely spaced, sometimes forming terminal, capitulate clusters. Calyx tubular to obconical, rarely dilated, 8–10-veined, straight or curved, truncate or oblique at throat; teeth 8–10, usually unequal, the posterior one the largest. Corolla usually white, rarely yellow, purple, brownish, or red, 2-lipped; tube slender, often not exserted; upper lip straight, concave, densely villous outside; lower lip longer, 3-lobed, spreading, middle lobe largest. Stamens in 2 pairs, the upper pair shorter; all ascending under upper lip; anther cells 2, ovoid, divaricate, apex confluent, often orange. Disk entire or lobed, uniform or enlarged anteriorly. Style unequally 2-cleft at apex, posterior lobe short or obsolete. Nutlets ovoid, triquetrous, subtruncate at apex.

About 100 species in Africa, Asia, Australia, Pacific islands; eight species in China; two species in Hong Kong.

The voucher specimen for a previous report of *Leucas zeylanica* (L.) R. Br. (皺面草) (FKH 212. 1912) is wanted. Dunn's treatment of the Labiatae in China (Not. Roy. Bot. Gard. Edin. No. 28: 127–208. 1915) did not list any record of this species from Hong Kong.

1a. Calyx-mouth truncate; leaves ovate ..... 1. *L. mollissima* var. *chinensis*

1b. Calyx-mouth oblique; leaves generally linear lanceolate ..... 2. *L. lavandulifolia*

1. Leucas mollissima Wall. ex Benth. var. **chinensis** Benth. 疏毛白絨草 **(Photo 220)**

Prodr. 12: 525. 1848; FRPS 65(2): 421. 1977; FOC 17: 142. 1994; FGD 3: 415. 1995.

Leucas mollissimum auct. non Wall. ex Benth.: FHK 279. 1861; FKH 212. 1912.

Annual or perennial herbs, 40–60 cm, sometimes up to 1 m tall. Stems slender, twisted, and many-branched, appressed tomentose-villous. Leaves papery; petioles short, less than 1 cm, or subsessile in upper leaves; leaf blade ovate, 1.5–4 × 1–2.3 cm, usually the leaves on the lower part of branches larger, gradually reduced in size upwards, base broadly cuneate to cordate, apex acute, margin crenate or serrate, densely appressed tomentose on both surfaces, the lower often silvery glaucous. Verticillasters axillary, globose, 1.5–2 cm in diam.; bracts linear, 2–3 mm, densely villous. Calyx cylindric, 6–7 mm, densely pubescent abaxially, 10-veined, mouth truncate; teeth 10, 5 long and 5 short. Corolla white, yellowish to pink, ca. 1.3 cm, curved, puberulent near throat abaxially; upper lip 3–4 mm; lower lip 7–9 mm, nearly flat. Nutlets ovoid, triquetrous.

Locality: Common in Hong Kong. *Y. S. Lau 3072; Y. W. Lam 780, 1067.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hubei, Hunan, Fujian, Taiwan; Japan.

Ecology: Grassy hillslopes, roadsides. Flowering & fruiting: Jun.–Dec.

Uses: Medicinal (folklore).

Notes: This species was recorded as *Leucas flaccida* R. Br. previously (Check List HK Plants 76. 1993).

2. Leucas lavandulifolia Sm. 線葉白絨草

Cycl. 20, sect. 2, pt. 40. 1812; FRPS 65(2): 426, pl. 83: 7–8. 1977; FOC 17: 143. 1994; FGD 3: 416. 1995.

Leucas linifolia (Roth.) Spreng., Syst. Veg. 2: 743. 1825; FKH 212. 1912.

Phlomis linifolia Roth., Nov. Pl. Sp. 260. 1821.

Annual herbs, 20–80 cm tall, often many-branched. Stems and branches grey pubescent. Leaves papery; petioles very short or almost obsolete; leaf blade linear-lanceolate, rarely lanceolate, 3–7 × 0.5–1.2 cm, base cuneate-attenuate, apex obtuse, margin entire or sparsely undulate-serrate, greyish puberulent on both surfaces. Verticillasters many-flowered, 1.5–2.5 cm in diam.; bracts linear, 3–4 mm, puberulous. Calyx obliquely turbinate, 5–6 mm, lengthening to 7–9 mm in fruit, puberulent or glabrescent abaxially, veins inconspicuous, mouth oblique; teeth varying from 8–10, the uppermost one the largest. Corolla white, ca. 1.5 cm; tube villous annulate inside near the middle; upper lip oblong, woolly; lower lip patent, the middle lob large, obovate. Nutlets ovoid, brown.

Locality: Chai Wan. *HK sheet 4479.*

Distribution: Guangdong, Yunnan; India to Cochichina, Malesia.

Ecology: Thickets, margins of forests. Flowering: Oct.–Dec.; fruiting: Dec.–Jan. of the following year.

24. Paraphlomis Prain 假糙蘇屬

Herbs or subshrubs, rhizomatous. Leaves simple, alternate, margin dentate. Verticillasters axillary, many-flowered, often forming globose clusters; bracteoles numerous, filiform, deciduous. Calyx tubular to obconical, 5–10-veined, ± 5-toothed; the teeth deciduous or persistent; tube slightly incurved. Corolla 2-lipped; tube hairy annulate inside, gradually dilated at apex; upper lip erect or galeate, densely hairy abaxially; lower lip spreading, 3-lobed, the middle lobe larger. Stamens 4, ascending under upper lip, the lower pair longer; filaments glabrous, without basal appendages; anther cells 2, parallel or divergent. Disk uniform, entire. Ovary apex truncate, glabrous or hairy. Style apex subequally 2-cleft, lobes subulate. Nutlets obovoid or triquetrous oblong, glabrous or hairy.

About 24 species spread over China, India, Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam; 23 species in China; one species in Hong Kong.

1. Paraphlomis javanica (Blume) Prain var. **coronata** (Vaniot) C. Y. Wu & H. W. Li
小葉假糙蘇 **(Fig. 112; Photos 221–222)**

Acta Phytotax. Sin. 13(1): 72. 1975; FRPS 65(2): 552. 1977; FOC 17: 172. 1994; FGD 3: 422. 1995.

Lamium coronatum Vaniot, Bull. Acad. Int. Geogr. Bot. 14: 174. 1904.

Phlomis rugosa Benth., Numer. List n. 2067. 1829; FKH 212. 1912.

Herbs or subshrubs, 0.5–1.5 m tall. Stems usually solitary, retrorse strigose. Leaves succulent; petioles slender, 2–8 mm; leaf blade elliptic to oblong-elliptic, 3–9(–15) × 1.5–6 cm, base rounded to subtruncate, apex acuminate to acute, margin shallowly and remotely serrate to crenate, with minute scattered hairs on both surfaces. Verticillasters many-flowered, globose, ca. 3 cm in diam., subtended by few bracteoles at base. Calyx turbinate, 8–12 mm, abruptly spreading at mouth, hairy on veins abaxially; tube slightly curved; teeth 5, lanceolate, the base triangular, often broken off in fruit. Corolla yellow or yellowish, 2–2.5 cm, pubescent annulate inside; both lips pubescent abaxially, upper lip narrow, rounded at apex; lower lip 3-lobed; the middle lob oblong, the lateral lobes lanceolate. Stylar branches subequal. Nutlets obovoid, acute and triquetrous at base.

Locality: Mount Parker, Ma On Shan, Tai Mo Shan, Ng Tung Chai. *Y. S. Lau 1338; L. T. Lo 359; Y. W. Lam 379.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Taiwan.

Ecology: Forests. Flowering: Aug.–Nov.; fruiting: Sep.–Feb. of the following year.

Uses: Medicinal (folklore).

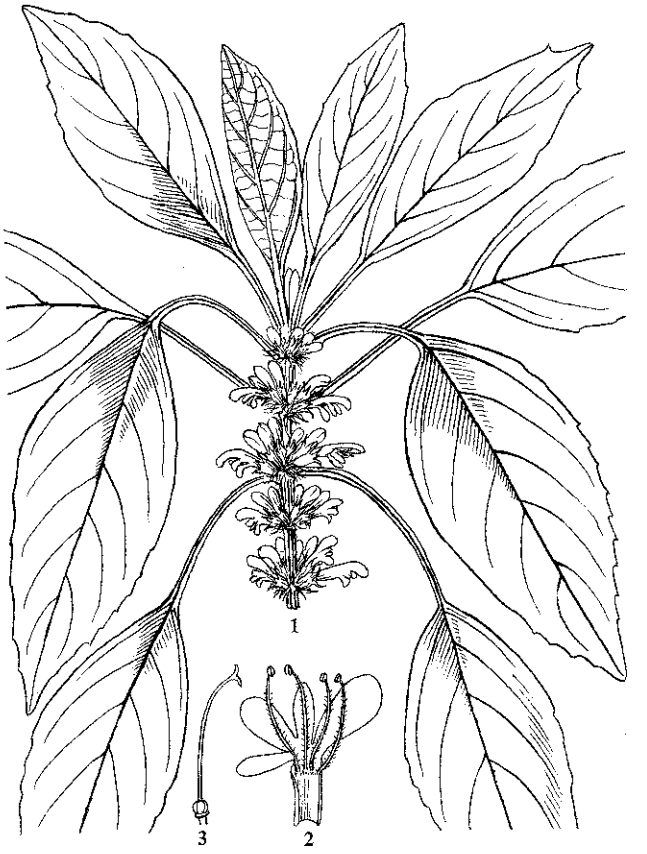


Figure 112. *Paraphlomis javanica* var. *coronata* (Vaniot) C. Y. Wu & H. W. Li
1. upper portion of plant; *2*. corolla opened; *3*. pistil. (drawn by H. P. Yu)

294. CALLITRICHACEAE 水馬齒科

XU Bing-qiang 許炳強 • XIA Nian-he 夏念和

Annual submerged, amphibious, or terrestrial herbs. Stem slender, many-branched, usually rooted at nodes. Leaves simple, opposite, decussate, exstipulate, blade obovate, linear or spatulate, notched at apex, margin entire or very rarely toothed, somewhat congested towards apex of stems reaching water surface. Plants monoecious, or rarely dioecious. Flowers imperfect, minute, solitary, axillary, unisexual; male in axil of upper part of branches and female in axil of lower part of branches, sometimes in same axil. Bracts 2, membranous, white. Perianth absent. Male flowers: stamen 1, filament slender, anther small, 2-celled, dehiscing by longitudinal slits. Female flowers: ovary sessile, bicarpellate, 4-locular; stigmas 2, erect or reflexed, papillate. Fruit schizocarps, separating into 4 nutlets; nutlets dry, winged or not.

One genus and ca. 75 species widely distributed worldwide; eight species (one endemic) in China; one species (including two varieties) in Hong Kong.

1. Callitriche L. 水馬齒屬

Morphological characters and geographical distribution are the same as those of the family. Lansdown (2006, Novon 16: 354–361) has taxonomically reviewed the genus in Asia recently.

1. Callitriche palustris L. 水馬齒

Sp. Pl. 2: 969. 1753; FRPS 45(1): 12, pl. 4: 1–5. 1980; FGD 4: 130. 2000; FOC 11: 319. 2008.

Plant submerged, with floating rosettes or on wet mud, 20–40 cm tall, monoecious. Lingulate leaves linear to narrowly expanded, 6–12 × 2–5 mm, emarginate, 1-veined, sessile; expanded leaves elliptic to ± orbicular, 3.6–9.9(–10.3) × 1.2–4.3(–4.5) mm, often 3-veined, sparsely brown spotted on both surfaces. Flowers usually represented by a carpellate flower in each axil or a staminate and carpellate flower in an axil opposed by a single carpellate flower, or more occasionally 1 staminate and up to 3 carpellate flowers opposite a single carpellate flower in an axil; solitary flowers of both sexes may occur with either a shoot or nothing in opposite axil; bracts translucent, whitish, persistent, caducous or lacking. Fruits 0.9–1.4 × 0.8–1.1 mm, sessile, higher than wide; wing 0.05–0.16 mm wide or lacking, when present wider towards apex of fruits.

Callitriche palustris var. *palustris* is not distributed in Hong Kong; two other varieties, namely var. *elegans* and var. *oryzetorum*, were recorded.

1a. Fruit black when mature, winged all around, wing wider than 0.1 mm at top ..... 1a. var. *elegans*
1b. Fruit brown when mature, wing lacking or only at top, wing narrower than 0.1 mm ..... 1b. var. *oryzetorum*

1a. Callitriche palustris var. **elegans** (Petrov) Y. L. Chang 東北水馬齒 **(Fig. 113)**

Fl. Pl. Herb. Chin. Bor.-Orient. 6: 53. 1977; FRPS 45(1): 12, pl. 4: 6–7. 1980; FOC 11: 320. 2008.

Callitriche bengalensis Petrov, Izv. Glavn. Bot. Sada S.S.S.R. 27: 358. 1928.

Callitriche stagnalis auct. non Scop.: FKH 102. 1912.

Flowers generally with a carpellate and staminate flower in one of a pair of axils opposed by a single carpellate flower in other axil, very occasionally 2 carpellate flowers and 1 staminate flower in a single axil; bracts persistent, 0.8–1.2 mm, falcate; styles erect to slightly spreading, shorter than 1.5 mm; filaments ± straight, fugacious, rarely visible in axils below rosettes, shorter than 2.2 mm; anthers ca. 0.4 × 0.3 mm. Fruit black when mature, 1–1.4 × 0.7–1.1 mm, sessile, higher than wide, widest above middle, slightly strumose, mericarps sharply reticulate, reticulations appearing ± clearly in vertical rows; wing all around, mainly toward apex, less than 0.3 mm wide.

Locality: Lam Tsuen. *S. Y. Hu & P. P. H. But 21976* (K); *K. Y. Chan 1414* (IBSC, HK).

Distribution: N Heilongjiang, Jiangxi, E Jilin, Liaoning, E Nei Mongol; Japan, E Russia.

Ecology: Along ditches, in marshes. Flowering & fruiting: All year round.

Notes: The species was reported as *C. stagnalis* Scop. previously in various local literature (Hu, Enum. Vasc. Pl. Hongk. & N.T. 39. 1972; Corlett et al., Mem. Hongk. Nat. Hist. Soc. 23: 39. 2000; Check List HK Plants 240. 2002; 83. 2004), based on a specimen from Lam Tsuen (*K. Y. Chan 1414*); the duplicate at K was cited as *C. palustris* var. *palustris* by Lansdown (Novon 16: 358. 2006).

1b. Callitriche palustris var. **oryzetorum** (Petrov) Lansdown 廣東水馬齒

Novon 16: 359. 2006; FOC 11: 320. 2008.

Callitriche oryzetorum Petrov, Izv. Glavn. Bot. Sada S.S.S.R. 27: 358. 1928; FRPS 45(1): 14. 1980; FGD 4: 130. 2000.

Flowers with a carpellate and staminate flower in each axil, very occasionally 2 carpellate flowers and 1 staminate flower in a single axil; bracts persistent, broadly ovoid, 0.58–0.9(–1) mm; styles erect to spreading, shorter than 1.7 mm; filaments straight; 1.6–2.7 mm; anthers 0.4–0.5 × 0.3–0.4 mm. Fruit brown when mature, 0.7–1 × 0.6–0.8 mm, widest near middle, smooth; wing lacking or up to 0.1 mm, only at apex.

Locality: Tai Mo Shan. *S. Y. Hu 11356* (PE).

Distribution: Fujian, Guangdong, Taiwan, Yunnan, Zhejiang; Japan.

Ecology: Running water in ditches.

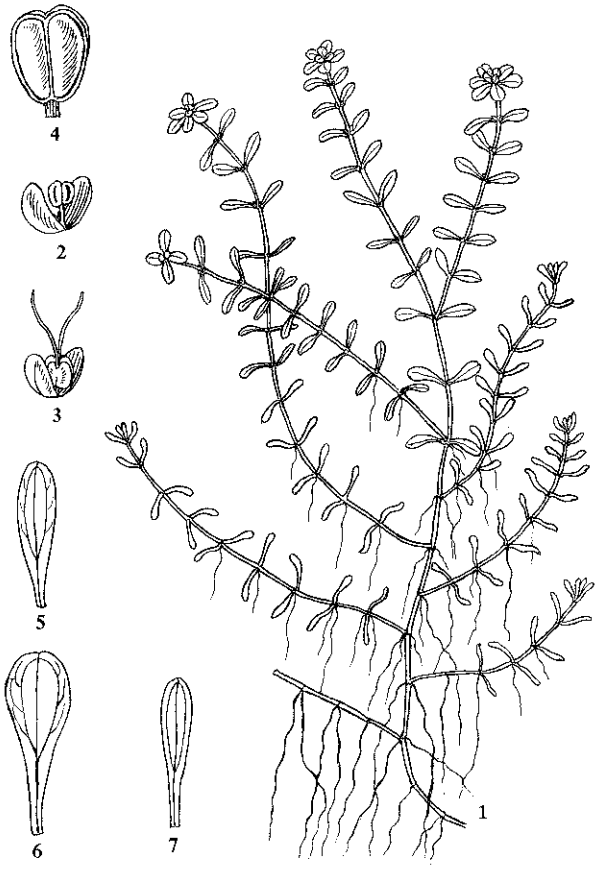


Figure 113. *Callitriche palustris* var. *elegans* (Petrov) Y. L. Chang
1. portion of plant; *2*. male flower; *3*. female flower; *4*. fruit; *5–7*. leaves. (drawn by H. P. Yu)

296. PLANTAGINACEAE 車前草科

WU De-lin 吳德鄰

Herbs, rarely small shrubs, with rhizomes. Stipules absent. Leaves simple, commonly all basal and alternate, seldom cauline and alternate or opposite, often sheathing at base. Inflorescence a bracteate heads or spikes. Flowers small, regular, bisexual, rarely unisexual or polygamous. Sepals 4, imbricate, persistent. Corolla scarious, salverform or tubiform; lobes 4, imbricate. Stamens generally 4, attached to corolla-tube and alternate with corolla-lobes; filaments slender; anthers versatile, dehiscing by longitudinal slits. Ovary superior, 2-locular; style slender with 2-lobed stigma; ovules anatropous or hemitropous, 1–40 on axile placenta in each locule, rarely 1-basal ovule. Fruit a circumscissile capsule or an achene enclosed in persistent calyx. Seeds with usually straight embryo; endosperm copious.

Three genera, 75 species distributed all the world; one genus, 20 species in China; one genus, two species in Hong Kong.

1. Plantago L. 車前草屬

Herbs annual or perennial. Leaves usually basal, rosulate, generally long-petiolate; blade broad-ovate, oblong to linear, entire or serrate, rarely pinnately or palmately divided. Inflorescences a terete spike or head, terminal on scapes. Bracts and sepals with thickened or winged midvein. Flowers bisexual, rarely polygamous or unisexual. Sepals 4, persistent. Corolla salverform; lobes 4. Stamens 4, attached to corolla-tube, usually exserted. Ovary 2- or pseudo-4-locular; ovules 2–40, on axile placentas. Capsules circumscissile; pericarp membranous. Seeds 2–many, subglobular or depressed.

About 270 species, cosmopolitan; 20 species in China; two species in Hong Kong.

1a. Leaves linear-lanceolate, elliptic-lanceolate or lanceolate, 6–20 × 0.5–4.5 cm, apex acuminate to acute ..... 1. *P. lanceolata*

1b. Leaves broad-ovate, oblong-ovate or suborbicular, 5–12 × 3.5–10 cm, apex obtuse ..... 2. *P. major*

1. Plantago lanceolata L. 長葉車前 **(Photo 223)**

Sp. Pl. 13. 1753; FKH 212. 1912; FRPS 70: 338. 2002.

Herbs perennial. Leaves basal, rosulate; petioles 7–10 cm, base sheath-like; leaf-blade papery, linear-lanceolate, elliptic-lanceolate or lanceolate, 6–20 × 0.5–4.5 cm, base narrowly cuneate, decurrent, apex acuminate to acute, margin entire or very sparsely serrulate, glabrous or sparsely pubescent on both surfaces; (3–)5(–7)-veined. Spikes cylindric or head-like, 1–5(–8) cm. Bracts ovate or elliptic, 2.5–5 mm, apex caudate, densely hirsute. Sepals 4, 2–3.5 mm, carinate, anterior 2 connate near top, posterior free. Corolla white; tube 1.5–3 mm; lobes lanceolate or ovate-lanceolate, 1.5–3 mm. Anthers white to yellowish, elliptic, 2.5–3 mm. Capsules ovoid, 3–4 mm, circumscissile. Seeds (1–)2, light brown to dark brown.

Locality: Victoria Peak, Wong Nai Chung Gap. *HK sheet 9650.*

Distribution: S, E & NE China; Europe.

Ecology: Wastelands, roadsides. Flowering: Spring to summer.

2. Plantago major L. 車前草 **(Fig. 114; Photo 224)**

Sp. Pl. 112. 1753; FHK 280. 1861; FKH 213. 1912; FGD 3: 317. 1995; FRPS 70: 324. 2002.

Herbs perennial. Leaves basal, rosulate; petioles about equaling to leaf-blade in length, base expanded; leaf blade broad-ovate, oblong-ovate or suborbicular, 5–12 × 3.5–10 cm, base decurrent, apex obtuse, margin entire or irregularly obtuse-dentate, pubescent or glabrous on both surfaces, 5–7-veined. Spikes erect, 6–20 cm. Bracts green, scarious. Sepals elliptic, 2.3–3 mm, slightly unequal, carinate. Corolla-tube constricted at throat; lobes deltoid, ca. 1.3 mm. Anthers purplish. Capsules elliptic, 3.5–4 mm, circumscissile. Seeds 8–18, dark-brown.

Locality: Pok Fu Lam, Yuen Tun Ha, Tai Po, Sheung Shui, Yuen Long, Wu Kau Tang, Sai Kung, Lantau Island. *Y. S. Lau 1946; L. T. Lo 74; P. S. Choi 357.*

Distribution: Widely distributed in Asia and Europe.

Ecology: Roadsides in rural areas, wastelands. Flowering: Feb.–Jul.

Uses: Medicinal (folklore).

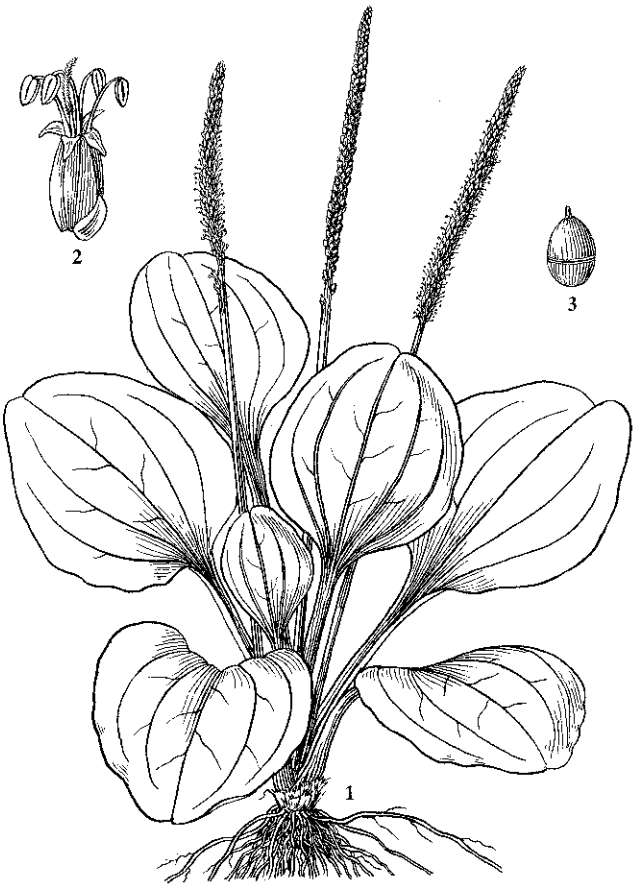


Figure 114. *Plantago major* L.
1. whole plant; *2.* flower; *3.* fruit. (drawn by H. P. Yu)

297. BUDDLEJACEAE 醉魚草科

WU De-lin 吳德鄰

Shrubs or trees, seldom herbs, often lepidote, with stellate, branching or glandular hairs. Leaves simple, opposite or less often whorled, rarely alternate, entire or more often toothed or lobed, interpetiolar stipules commonly represented by a mere line, seldom well developed. Inflorescence a cyme, rearranged in racemes, spikes or panicles. Flowers perfect or often functionally dioecious. Calyx 4(–5)-lobed, or sometimes very deeply lobed. Corolla 4(–5)-lobed, lobes imbricate or rarely valvate. Stamens 4(–5), attached to corolla-tube and alternate with the lobes (posterior one absent or represented by a small staminode). Anthers 2-celled, opening by longitudinal slits. Ovary superior or half-inferior, 2(–4)-locular; style solitary, with 2-lobed stigma; ovules numerous, borne on thickened axile placentas. Fruit septicidal capsule, rarely berry. Seeds often winged; endosperm oily.

Eight genera, 120 species distributed in tropical and warm regions; one genus, 29 species in China; one genus, two species in Hong Kong.

1. Buddleja L. 醉魚草屬

Shrubs, rarely trees, or herbs usually with stellate hairs. Branches terete or 4-angulate. Stipules interpetiolar, with various forms. Leaves opposite, rarely alternate, pinnately-veined. Inflorescence capitate, racemose, spicate or paniculate. Calyx campanulate, 4-lobed or 4-toothed. Corolla infundibular or salverform, 4-lobed. Stamens 4; anthers almost sessile. Ovary 2-locular; ovules numerous in each locule. Capsules septicidal. Seeds numerous, small, ± flattened, or obscurely winged.

About 100 species distributed in tropical and subtropical regions; 29 species in China; two species in Hong Kong.

Buddleja officinalis Maxim. (密蒙花) was also cultivated previously.

1a. Evergreen; corolla white, tube straight, 3–6 mm ..... 1. *B. asiatica*
1b. Deciduous; corolla purple, tube slightly curved, 1–1.5 cm ..... 2. *B. lindleyana*

1. Buddleja asiatica Lour. 白背枫(駁骨丹) **(Photo 225)**

Fl. Cochinch. 72. 1790; FHK 231. 1861; FKH 174. 1912; FRPS 61: 276. 1992.

Shrubs or subshrubs evergreen, 1–2 m tall. Branchlets, inflorescence and abaxial surface of leaves densely grey to yellow tomentose or villose. Leaves opposite, petioles 4–10 mm; leaf blade lanceolate, 7–18 × 1.5–4.5 cm, margin serrulate. Flowers 1–3 in cymes, rearranged in terminal and axillary panicles of 7–25 cm; pedicel 1 mm. Calyx campanulate or tubiform, 1.5–4 mm. Corolla white, sometimes greenish, tube cylindric, straight, 3–6 mm, sparsely pubescent abaxially; lobes very short. Stamens attached to upper part of corolla-tube. Ovary glabrous; style short; stigma capitate. Capsules elliptic, 3–5 × 1.5–3 mm. Seeds grey-brown, elliptic, 0.8–1 mm, shortly winged on both ends.

Locality: Wan Chai Gap, Barker Rd., Bowen Rd., Mount Davis Rd., Fei Ngo Shan, Kadoorie Farm, Cheung Chau, Lantau Island. *Y. S. Lau 972, 2014; Y. W. Lam 639.*

Distribution: Taiwan, Fujian, Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Shanxi, Hunan, Hubei, Jiangxi; tropical Asia.

Ecology: Thin forests or thickets. Flowering: Feb.–Oct.; fruiting: Mar.–Dec.

Uses: Medicinal (folklore), ornamental.

2. Buddleja lindleyana Fortune 醉魚草(百寶花) **(Fig. 115)**

Edwards's Bot. Reg. 25. 1844; FHK 231. 1861; FKH 174. 1912; FRPS 61. 308. 1992.

Shrubs deciduous, up to 2 m tall. Branches 4-angulate, slightly winged; branchlets, abaxial surface of young leaves and inflorescence brown stellate hairy. Leaves opposite, ovate, ovate-lanceolate or elliptic, 5–10 × 2–3 cm, base cuneate, apex acute or acuminate, margin entire or sparsely sinuate-toothed. Cymes rearranged in terminal racemes, slightly pendulous, 10–45 cm, tomentose; flowers turning to one side, densely glandular lepidote; pedicels ca. 1.5 mm. Calyx campanulate, 4 mm. Corolla purple; tube 1–1.5 cm, slightly curved; lobes broad-ovate or suborbicular, 3.5 × 3 mm. Stamens attached to lower part of

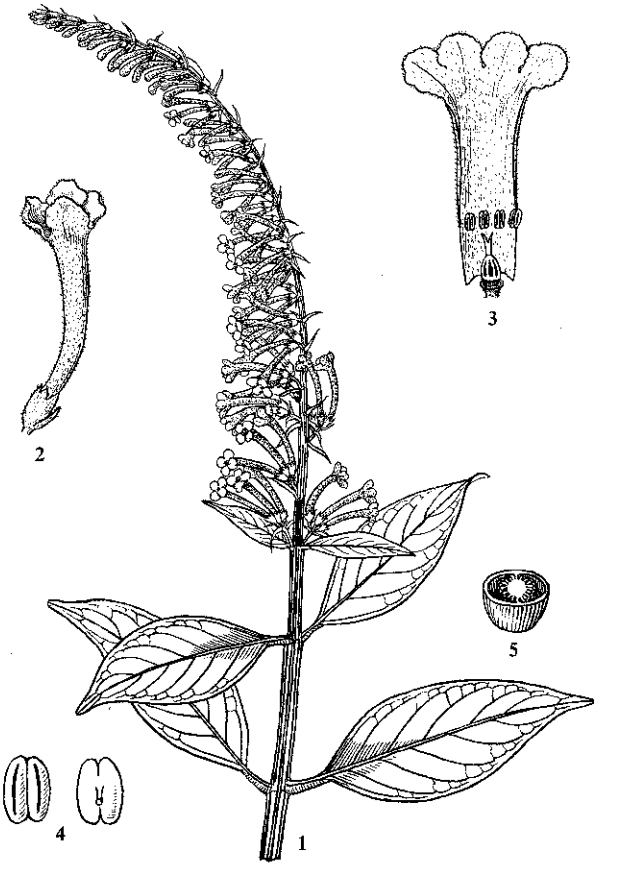


Figure 115. *Buddleja lindleyana* Fortune

1. flowering branch; *2.* flower; *3.* flower with corolla opened; *4.* dorsal and ventral views of anther; *5.* cross section of ovary. (drawn by H. P. Yu)

corolla-tube. Ovary ovoid, 1.5–2.2 mm, glabrous. Capsules oblong or elliptic, 5–6 mm, lepidote. Seeds brownish, small, without wing.

Locality: Wan Chai Gap. *HK sheet 3933.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian.

Ecology: Thin forests or thickets. Flowering: Aug.–Oct.

Uses: Medicinal (folklore), ornamental, poisonous.

298. OLEACEAE 木犀科

XU Bing-qiang 許炳強 • XIA Nian-he 夏念和

Trees or erect or scandent shrubs. Leaves opposite, rarely alternate or whorled, simple, trifoliolate, or pinnately compound, margin entire or serrate, without stipules. Inflorescences terminal or axillary, racemose, cymose, or paniculate. Flowers actinomorphic, bisexual, rarely unisexual or polygamous (plants monoecious, dioecious or polygamodioecious). Calyx 4(–15)-lobed, rarely absent. Corolla 4(–12)-lobed, rarely absent; lobes sometimes united in pairs at base or into a very short corolla-tube, imbricate or valvate in bud. Stamens 2(–4), inserted at corolla tube or hypogynous; anthers 2-celled, dehiscent longitudinally. Ovary superior, 2-loculed; ovules 2 per locule, sometimes 1 or numerous. Style 1 or absent; stigma capitate or 2-lobed. Fruit a drupe, berry, capsule, or samara. Seeds with or without endosperm, embryo straight; Cotyledons flat; radicle curved upward or downward.

About 28 genera, ca. 600 species, mainly distributed in tropical, subtropical, and temperate regions, mostly in Asia; ten genera, 160 species, six subspecies and 25 varieties (95 endemic) in China; six genera and 22 species in Hong Kong.

1a. Fruit a samara ..... 1. *Fraxinus*
1b. Fruit a drupe or a berry.
  2a. Scandent or diffuse shrubs ..... 2. *Jasminum*
  2b. Trees or erect shrubs.
    3a. Flowers in axillary fascicles ..... 3. *Osmanthus*
    3b. Flowers in panicles.
      4a. Corolla-lobes almost free to base, or united in pairs at base ..... 4. *Chionanthus*
      4b. Corolla-lobes shorter or slightly longer than the tube.
        5a. Panicles axillary; flowers polygamodioecious; fruit a drupe tube ..... 5. *Olea*
        5b. Panicles terminal; flowers bisexual; fruit a berry-like drupe ..... 6. *Ligustrum*

1. Fraxinus L. 白蠟樹屬

Trees or rarely shrubs, deciduous or rarely evergreen. Winter buds scaly, rarely naked. Leaves odd-pinnate, opposite; leaflets 3–20, margin usually serrate. Inflorescences paniculate, terminal or axillary towards end of branches, or lateral on branches of previous year; bracts linear to lanceolate, caducous or absent. Flowers small, unisexual, bisexual, or polygamous. Calyx 4-toothed or irregularly lobed, sometimes absent. Corolla white to yellowish, 4-lobed to base or absent. Stamens 2, inserted at base of corolla lobes; filaments short, exserted at anthesis. Ovules 2 in each locule, pendulous. Style short; stigma 2-lobed. Fruit a samara with apically elongate wing. Seeds usually 1(–2), ovate-oblong; endosperm fleshy; radicle erect.

About 65 species mainly distributed in temperate regions and subtropics of N hemisphere, a few spreading to tropics regions; 27 species occur in China; three species in Hong Kong.

1a. Flowers without corolla ..... 1. *F. chinensis*
1b. Flowers with corolla.
  2a. Bracts persistent; winter buds naked ..... 2. *F. griffithii*
  2b. Bracts caducous or absent; winter buds scaly or tomentose ..... 3. *F. insularis*

1. Fraxinus chinensis Roxb. 白蠟樹

Fl. Ind. 1: 150. 1820; FKH 166. 1912; FFJ 4: 364, fig. 296. 1989; FRPS 61: 30, pl. 8: 7–10. 1992; FOC 15: 277. 1996; FGD 5: 414. 2003.

Deciduous tree to 20 m tall; branchlets terete, glabrous, or initially villous; winter buds broadly ovoid or conical, brown tomentose, pubescent or glandular hairy. Leaves 12–25 cm; petiole 4–6 cm; axis puberulent or pilose at first; leaflets 3–7(–9); petiolule 2–15 mm; leaflet blade broadly ovate to lanceolate, or elliptic to obovate-lanceolate, 3–10 × 2–4 cm, terminal one somewhat larger, base blunt or cuneate, apex acuminate or acute, papery to leathery, glabrous or villous, sometimes villous along midvein abaxially, margin regularly serrate; lateral veins 7–10 on each side of midvein. Panicles terminal or lateral, 5–12 cm. Flowers dioecious, opening with leaves. Staminate flowers congested; calyx cupular, 1 mm; corolla absent; pistillate flowers lax; calyx tubular, 2–3 mm. Samara spatulate, 3–4 cm × 4–6 mm; wing decurrent to middle part of nutlet.

Locality: Cultivated. *L. T. Lo 481; F. W. Xing 9319; HK sheet 18390.*

Distribution: Widely distributed in China; Vietnam, Korea.

Ecology: Flowering: Apr.–May; fruiting: May–Sep.

Uses: Ornamental, medicinal (folklore).

2. Fraxinus griffithii C. B. Clarke 光蠟樹 **(Photos 226–227)**

Fl. Brit. India 3(9): 605. 1882; FHN 3: 217, fig. 669. 1974; FFJ 4: 363, fig. 294. 1989; FRPS 61: 10, pl. 3: 1–2. 1992; FOC 15: 274. 1996; FTW ed. 2, 4: 132. 1998; FGD 5: 413, fig. 218. 2003.

Fraxinus formosana Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 189–190. 1911.

Fraxinus guilingensis S. K. Lee & F. N. Wei, Guihaia 2(3): 130–131, fig. 3. 1982.

Tree 10–20 m tall, semi-evergreen. Branchlets greyish, with raised lenticelles; winter buds naked, scurfy-pubescent. Leaves 10–25 cm; petiole 3–8 cm; axis glabrous or puberulent; leaflets 5–7(–11); petiolule 3–8 mm, with slightly dilated joint at base; leaflet blade ovate to lanceolate, 4–12 × 1.5–5 cm, leathery or thinly leathery, adaxially glabrous, abaxially glandular dotted, slightly asymmetrical, apex acuminate, mucronulate, margin entire; lateral veins 7–9 on each side of midvein, obscure or convex abaxially. Panicles terminal, 10–25 cm, puberulent, spreading, many-flowered; leafy bracts persistent, spatulate-linear, 3–10 mm, puberulent at first. Flowers polygamous, opening after leaves. Peduncle 4–5 cm; pedicel slender, 2–4 mm. Calyx cupular, ca. 1 mm, puberulent or glabrous, shortly toothed. Corolla white; lobes navicular, ca. 2 mm. Stamens ca. equal to corolla lobes. Samara broadly lanceolate-spatulate, 2–3 cm × 4–5 mm, surface nerviform; wing decurrent to about middle of nutlet.

Locality: Sunset Peak, Keung Shan, Tong Fuk, Lantau Peak. *Y. S. Lau 1285; F. W. Xing 7350; S. C. Ng 2214.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hubei, Hunan, Fujian, Taiwan; Japan, Philippines, India, Bangladesh, Indonesia.

Ecology: Forests. Flowering: May–Jul.; fruiting: Jul.–Nov.

3. Fraxinus insularis Hemsl. 苦櫪木 **(Fig. 116; Photo 228)**

J. Linn. Soc., Bot. 26(173): 86. 1889; FFJ 4: 367, fig. 299. 1989; FRPS 61: 20, pl. 5: 5–8. 1992; FOC 15: 276. 1996; FTW ed. 2, 4: 132, pl. 49. 1998; FGD 5: 414. 2003.

Fraxinus taiwaniana Masam., Trans. Nat. Hist. Soc. Taiwan 24: 210. 1934.

Fraxinus retusa Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 4: 330. 1852; FHK 214. 1861; FKH 166. 1912.

Fraxinus retusa var. *calcicola* C. Y. Wu ex P. Y. Bai, Acta Bot. Yunnan. 5(2): 178. 1983.

Fraxinus insularis var. *henryana* (Oliv.) Z. Wei, FRPS 61: 20, pl. 5: 4. 1992.

Deciduous tree, 20–30 m tall. Winter buds broadly obovate to conical, brown scaly or tomentose, becoming dark and shiny when dry. Leaves 10–25 cm or longer; petiole 3–8 cm; leaflets 3–5(–7); petiolule slender, (0.5–)1–1.5 cm; leaflet blade ovate-lanceolate, or elliptic-lanceolate, 5–12 × 2–4 cm, thinly leathery, glabrous, base broadly cuneate or blunt, serrate or entire from below the middle, apex acuminate; lateral veins 7–11 on each side of midvein. Panicles terminal or terminal and lateral, 20–30 cm, many-flowered. Flowers polygamous, appearing after leaves. Pedicels slender, ca. 3 cm. Calyx cupular, ca. 1 × 1.5 mm; teeth truncate, upper chaffy. Corolla white; lobes spatulate, ca. 2 × 1 mm. Stamens longer than corolla; anther 1.5 mm, apex blunt; Style almost equal to stigma; stigma 2-lobed. Samara long spatulate, 2–4 cm × 3–5 mm, red to brown; wing decurrent to upper part of nutlet.

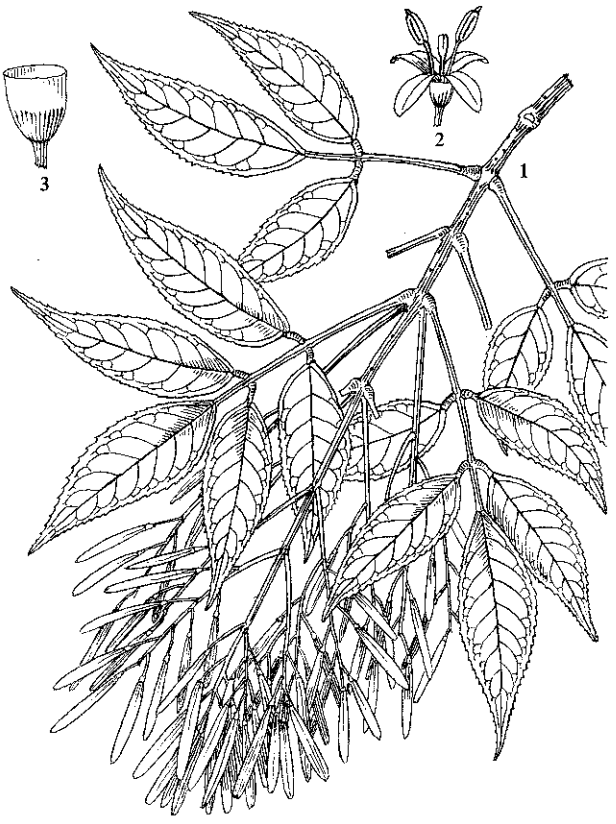


Figure 116. *Fraxinus insularis* Hemsl.
1. fruiting branch; *2.* flower; *3.* calyx. (drawn by H. P. Yu)

Locality: Happy Valley, Wong Chuk Hang, Deep Water Bay, Mount Kellet, Ma On Shan. *Y. S. Lau 656, 3061; Y. W. Lam 261.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Shaanxi, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; Japan.

Ecology: Forests. Flowering: Apr.–May; fruiting: May–Aug.

Notes: The type specimen of *Fraxinus retusa* was collected by J. G. Champion from Happy Valley Woods between 1847 and 1850.

2. Jasminum L. 素馨屬

Scandent or erect shrubs, deciduous or evergreen. Branchlets terete or quadrangular. Leaves opposite or alternate, simple, 3-foliolate, or odd-pinnate, margin entire; petiole articulate. Inflorescences dichasial, thyrsoid, sometimes racemose, paniculate, umbelliform or

capitate, rarely flowers solitary; bracts subulate or linear, sometimes leafy. Flowers bisexual, usually fragrant. Calyx campanulate, cupular, or funnelform, 4–12-lobed. Corolla white or yellow, rarely red or purple, salverform or funnelform; tube long; lobes 4–12, imbricate in bud. Stamens 2, included, inserted about middle of corolla tube; filaments short; anthers introrse. Ovary 2-locular, usually 2 ovules in each locule. Style filiform; stigma 2-lobed. Fruit a berry, didymous or one half aborted. Seed 1 in each carpel, with little or without endosperm; radicle downward.

About 300 species, mainly in temperate and tropical zones, one species in the Mediterranean region; 43 species in China; seven species in Hong Kong.

1a. Leaves 3-foliolate.
  2a. Calyx lobes leafy; corolla yellow ..... 1. *J. mesnyi*
  2b. Calyx lobes not leafy; corolla white or yellowish.
    3a. Terminal leaflet slightly larger than or equal to lateral leaflets, calyx lobes deltate ..... 2. *J. lanceolaria*
    3b. Terminal leaflet much larger than lateral leaflets, calyx lobes linear ..... 3. *J. sinense*
1b. Leaves simple.
  4a. Leaves 3- or 5-veined from base ..... 4. *J. nervosum*
  4b. Leaves pinnately-veined.
    5a. Inflorescences usually 3-flowered ..... 5. *J. sambac*
    5b. Inflorescences many-flowered.
      6a. Corolla-tube ca. 2–3 cm ..... 6. *J. elongatum*
      6b. Corolla-tube ca. 1–1.7 cm ..... 7. *J. multiflorum*

1. Jasminum mesnyi Hance 雲南黃素馨 **(Photo 229)**

J. Bot. 20(230): 37. 1882; FFJ 4: 387, fig. 322. 1989; FRPS 61: 183. 1992; FOC 15: 311. 1996; FGD 5: 430. 2003.

Jasminum primulinum Hemsl., Bull. Misc. Inform. Kew 1895(100–101): 109. 1895.

Evergreen shrubs, scandent, 1–3 m tall. Branchlets slight, 4-angled, glabrous. Leaves opposite, trifoliolate; petioles 1 cm, adaxially canaliculate; leaflets sub-leathery, narrowly ovate to ovate-lanceolate, glabrous, terminal one larger 3–5 × 1–2 cm, basally decurrent into a short petiolule (ca. 1–2.5 mm); lateral leaflets smaller, sessile, 2.5–4 × 0.7–1 cm, base cuneate, apex obtuse and mucronulate; lateral veins and veinlets obscure. Flowers solitary in axils of leaves; pedicels stout, 3–8 mm; bracts 2–5, leafy, narrowly ovate to obovate, 5 × 2 mm. Calyx campanulate, tube 2.5–5; lobes 5–8, leafy, lanceolate, 4–7 mm. Corolla yellow, 2–4.5 cm in diam.; tube 1–1.2 cm; lobes 6–8, sometimes doubled, obovate to oblong, nerviform, 1.2–1.8 cm. Fruit ellipsoidal, 6–8 mm in diam., two carpels connate at base.

Locality: Cultivated. *Y. S. Lau 2096*

Distribution: Guizhou, Yunnan, SW Sichuan, widely cultivated in China.

Ecology: Flowering: Jan.–Mar.

Uses: Ornamental.

2. Jasminum lanceolaria Roxb.

清香藤 **(Fig. 117; Photos 230–231)**

Fl. Ind. 1: 97. 1820; FHN 3: 205. 1974; FFJ 4: 387, fig. 321. 1989; FRPS 61: 197, pl. 52: 1–2. 1992; FOC 15: 314. 1996; FTW ed. 2, 4: 134. 1998; FGD 5: 430. 2003.

Jasminum lanceolaria var. *puberulum* Hemsl., J. Linn. Soc. Bot. 26: 78. 1889.

Jasminum shimadai Hayata, Icon. Pl. Formosan. 9: 70–71, pl. 5, fig. 26. 1920.

Jasminum pachyllum Hemsl., J. Linn. Soc. Bot. 26(173): 79–80. 1889; FKH 165. 1912.

Jasminum paniculatum auct. non Roxb.: FHK 216. 1861; FKH 165. 1912.

Large scandent shrubs, 5–15 m. Branchlets terete, sometimes angled, glabrous or pubescent. Leaves opposite, trifoliolate; petioles 1–4.5 cm, adaxially canaliculate; leaflet blade elliptic, ovate, or lanceolate, 5–13 × 1.5–6.5 cm, leathery, base cuneate or rounded, apex acute or acuminate; lateral veins obscure; petiolules 1–3 cm; terminal leaflet slightly larger than or equal to lateral leaflets. Compound cymes paniculate, terminal or axillary, many-flowered; bracts linear, 2–5 mm. Flowers fragrant, heterostylic; pedicels 0–5 mm, stout. Calyx tubular, 2–3 mm; lobes 5, deltate. Corolla white, salverform; tube 2–2.5 cm; lobes



Figure 117. *Jasminum lanceolaria* Roxb.
1. flowering branch; *2*. infructescence. (drawn by H. P. Yu)

4–5, ovate to oblong, 7–10 × 4 mm. Fruit globose or ellipsoidal, 0.5–1 × 0.8–1.5 cm, black when matured.

Locality: Common in Hong Kong. *Y. S. Lau 42, 1287, 1341.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Shaanxi, Gansu, Hubei, Hunan, Jiangxi, Anhui, Zhejiang, Fujian, Taiwan; Vietnam, Thailand, Myanmar, Bhutan, India.

Ecology: Thickets and margins of forests. Flowering: Apr.–Oct.; fruiting: Sep.–Mar. of the following year.

Uses: Medicinal (folklore).

3. Jasminum sinense Hemsl. 華素馨 **(Photo 232)**

J. Linn. Soc., Bot. 26(173): 80–81. 1889; FKH 165. 1912; FFJ 4: 386, fig. 320. 1989; FRPS 61: 199, pl. 52: 3–4. 1992; FOC 15: 314. 1996; FTW ed. 2, 4: 135. 1998; FGD 5: 430. 2003.

Scandent shrub, 1–8 m. Branchlets terete, densely rusty villous. Leaves opposite, trifoliolate; petioles 5–15 mm; leaflet blade ovate to ovate-lanceolate, papery; base rounded, apex acuminate to acute; rusty pubescent on both surfaces, rarely glabrous and rusty pubescent only along veins; terminal leaflet 3–10 × 2–5 cm, petiolule 0.8–3 cm; lateral leaflets smaller, 1.5–4.5 × 1–2.5 cm, petiolule 2–3 mm. Cymes terminal or axillary, many-flowered congested panicles, rarely 1-flowered in leaf axils. Flowers fragrant, heterostylic; pedicels 1–5 mm. Calyx pilose; lobes linear, 1–5 mm, enlarged in fruit. Corolla white or yellowish, salverform; tube 2–3.5 cm × 1–1.5 mm; lobes 5, oblong or lanceolate, apex acute, 7–14 mm; anthers lanceolate, 3 mm; style tenuous, 1.5–2 cm; stigma clavate. Fruit black, globose or subglobose, 8–17 mm × 6–10 mm.

Locality: Cape D'Aguilar, Tai Mo Shan, Tai Po, Lantau Island. *F. W. Xing 8952, 9929; Y. W. Lam 1741.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hubei, Hunan, Jiangxi, Zhejiang, Fujian.

Ecology: Thickets and forests. Flowering: Jun.–Oct.; fruiting: Sep.–May of the following year.

4. Jasminum nervosum Lour. 青藤仔

Fl. Cochinch. 1: 20–21. 1790; FHN 3: 207. 1974; FRPS 61: 209, pl. 54: 4–5. 1992; FOC 15: 316. 1996; FTW ed. 2, 4: 135, pl. 50. 1998; FGD 5: 434. 2003.

Jasminum elegans (Hemsl.) Yamam., Trans. Nat. Hist. Soc. Taiwan 13: 151. 1914, non Knobl. 1893.

Jasminum nervosum var. *elegans* (Hemsl.) L. C. Chia, Acta Phytotax. Sin. 2(1): 56. 1952.

Jasminum nervosum var. *villosum* (H. Lév.) L. C. Chia, Acta Phytotax. Sin. 2(1): 55. 1952.

Jasminum laurifolium auct. non Roxb.: FKH 165. 1912.

Scandent shrub, 1–5 m. Branchlets terete, glabrous or sparsely pubescent. Leaves simple, opposite; petioles 5–10 mm, articulate; leaf blade ovate to elliptic-lanceolate, 3–10 × 1.8–4 cm, papery, base broadly cuneate, rounded to subtruncate, apex acuminate to acute, glabrous or puberulous abaxially, especially on veins; veins 3 or 5 from base, outer pair usually obscure when 5-veined. Cymes terminal or axillary, 1–5-flowered; peduncle 0–12 mm, glabrous; bracts linear, 5–13 mm; pedicels 2–10 mm. Calyx glabrous, cupular, tube 2–2.5 mm; lobes 6–8, subulate to linear, 5–8 mm, often enlarged to 15 mm in fruit. Corolla white, salverform; tube 1–2 cm; lobes 8–10, linear to lanceolate, nearly as long as tube, apex acuminate to blunt. Fruit subglobose, red becoming black, 9–15 × 7–13 mm.

Locality: Cultivated. *H. C. Tang 137, 1236, 1540.*

Distribution: Taiwan, Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Taiwan; Vietnam, Laos, Cambodia, Myanmar, India, Bhutan, Sikkim, Nepal.

Ecology: Thickets and margins of forests. Flowering: Feb.–Apr.

5. Jasminum sambac (L.) Aiton 茉莉花 **(Photo 233)**

Hort. Kew. 1: 8. 1789; FHN 3: 208. 1974; FFJ 4: 385, fig. 319. 1989; FRPS 61: 218, pl. 55: 4. 1992; FOC 15: 318. 1996; FGD 5: 435. 2003.

Nyctanthes sambac L., Sp. Pl. 1: 6. 1753.

Diffuse or scandent shrubs, to 3 m. Branchlets terete, slightly compressed near nodes, pubescent to glabrous. Leaves opposite, simple; petioles 3–5 mm, pubescent, articulate; leaf blade ovate to elliptic, or sometimes obovate, 3–10 × 2.5–7 cm, base rounded, blunt or subcordate, apex acute, blunt or cuspidate, glabrous or sparsely pilose abaxially, usually with tufted hairs at vein axils, lateral veins pinnate, 5–6 on each side of midvein. Cymes terminal, usually 3-flowered; peduncle 1–4 cm, pubescent; bracts subulate, 4–6 mm; flowers very fragrant; pedicel 0.5–1 cm. Calyx cupular, glabrous or sparsely pubescent; lobes 8–9, subulate to linear, 5–8 mm. Corolla white, usually doubled; tube 0.6–1.2 cm; lobes oblong to suborbicular, 11–15 × 7–10 mm. Fruit globose, purple-black, ca. 1 cm in diam.

Locality: Cultivated. *Y. S. Lau 1114, 1850.*

Distribution: Native to India, widely cultivated.

Ecology: Flowering: May–Aug.; fruiting: Jul.–Sep.

Uses: Ornamental, additive (flavoring), material (essential oils), medicinal (folklore).

6. Jasminum elongatum (Bergius) Willd. 扭肚藤

Sp. Pl. ed. 4, 1(1): 37. 1797; FRPS 61: 211, pl. 56: 2–3. 1992; FOC 15: 317. 1996; FGD 5: 434. 2003.

Nyctanthes elongata Bergius, Philos. Trans. 61: 289, pl. 11. 1772.

Jasminum undulatum Ker-Gawl. Bot. Reg. 6: pl. 436. 1820; FKH 165. 1912.

Jasminum amplexicaule Buch.-Ham. ex G. Don, Gen. Hist. 4: 60. 1837.

Scandent shrub, 1–7 m. Branchlets terete, densely tomentose. Leaves opposite, simple; petiole 2–5 mm; leaf blade papery, ovate to lanceolate, 4–7 × 2.5–4.5 cm, base rounded, truncate, or subcordate, apex acute or obtuse and mucronulate, pubescent or glabrescent except for hairy veins abaxially, lateral veins pinnate, 3 or 5 on each side of midvein. Cymes terminal or axillary, many-flowered, congested, yellow-pubescent; bracts 1–3, linear or ovate-lanceolate, 1–5 mm, or absent. Flowers heterostylic; pedicels 1–4 mm. Calyx densely tomentose, tube 1.5–3 mm; lobes 6–8, subulate-filiform, ca. 1 cm. Corolla white, salverform; tube 2–3 cm; lobes 6–9, lanceolate, 10 × 2–3 mm. Fruit subglobose or ovoid, 10 × 5–8 mm.

Locality: Hong Kong Island. *Y. S. Lau 2551.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; Vietnam, Myanmar to Himalayas.

Ecology: Margins of forests, thickets. Flowering: Aug.–Nov.

Uses: Ornamental, medicinal (folklore).

7. Jasminum multiflorum (Burm. f.) Andrews 毛茉莉 **(Photo 234)**

Bot. Repos. 8: t. 496. 1807; FRPS 61: 213, pl. 56: 1. 1992; FOC 15: 317. 1996; FGD 5: 435. 2003.

Nyctanthes multiflora Burm. f., Fl. Ind. 5: pl. 3, fig. 1. 1768.

Scandent shrubs, 1–6 m. Branchlets terete, slender, densely yellow-pilose. Leaves simple, opposite; petiole 4–10 mm, densely pilose, articulate near base; leaf blade elliptic, ovate, 2.5–5.5 × 1.5–3 cm, base cordate or truncate, apex acuminate, acute or blunt, mucronulate, papery or thinly leathery, scattered pilose on both surfaces, or glabrous adaxially, lateral veins pinnate, 4–6 on each side of midvein, flat adaxially, raised adaxially. Cymes terminal or axillary, many-flowered, congested, peduncle densely yellow-tomentose; pedicels short or absent; bracts leafy, basal ovate, 1–3 cm, upper linear, 3–5 mm. Flowers fragrant. Calyx densely yellow-pilose; tube ca. 1 mm; lobes 6–9, subulate, 2–6 mm. Corolla white, tube 1–1.7 × 0.2–0.3 cm; lobes 7–9, oblong, 1–1.5 cm × 0.4–0.6 cm. Fruit ellipsoidal, brown.

Locality: Cultivated. *HK sheet 30544, 40752.*

Distribution: Native to SE Asia and India, widely cultivated in the world.

Ecology: Flowering: Oct.–Apr. of the following year.

Uses: Ornamental.

3. Osmanthus Lour. 木犀屬

Evergreen shrubs to small trees, dioecious or androdioecious. Leaves opposite, simple, petiolate; leaf blade entire or serrate, usually glandular dotted, ± leathery. Inflorescences cymose, fasciculate in leaf axils or in very short and axillary or terminal panicles; bracts 2, united at base, usually ciliate. Flowers bisexual, usually functional unisexual. Calyx cupular, 4-lobed. Corolla usually white or yellowish, campanulate, cylindric, or urceolate, lobed, parted, or divided almost to base; lobes 4, imbricate in bud. Stamens 2(–4), mostly attached to upper half of corolla tube; filament short; anther extrorsely dehiscent, connectives mucronate. Ovary 2-locular, with 2 pendulous ovules in each locule; stigma capitate or 2-cleft; abortive pistil subulate or conical. Fruit a drupe, elliptic or obovate; endocarp hard or bony; endosperm fleshy; radicle erect.

About 30 species, mainly distributed in E and SE Asia, a few in America; 26 species in China; four species in Hong Kong.

1a. Cymes fasciculate in leaf axils ..... 1. *O. fragrans*

1b. Cymes in short panicles.

2a. Leaf blade thick leathery, broadly elliptic to narrowly lanceolate, inflorescences compact ..... 2. *O. marginatus*

2b. Leaf blade papery or leathery, narrowly elliptic, oblanceolate, to narrowly obovate, inflorescences loose.

3a. Leaves oblanceolate, usually serrate in distal half ..... 3. *O. matsumuranus*

3b. Leaves usually narrowly elliptic or narrowly obovate, margin entire ..... 4. *O. minor*

1. Osmanthus fragrans (Thunb.) Lour. 桂花(木犀) **(Photos 235–236)**

Fl. Cochinch. 1: 29. 1790; FKH 166. 1912; FFJ 4: 373, fig. 305. 1989; FRPS 61: 107, pl. 29: 4–6. 1992; FOC 15: 292. 1996; FGD 5: 418. 2003.

Olea fragrans Thunb., Syst. Veg. ed. 14, 57. 1784.

Osmanthus longibrateatus H. T. Chang, Acta Sci. Nat. Univ. Sunyatsenia 2: 5. 1982.

Trees or shrubs, 3–12(–18) m tall. Branchlets glabrous. Petiole 8–12 mm; leaf blade elliptic to elliptic-lanceolate, 4–12 × 2–4 cm, base cuneate, apex acuminate, margin entire or usually serrulate on distal half, midvein and lateral veins (6–10 on each side of midvein) impressed adaxially, raised abaxially. Cymes fasciculate in leaf axils, 10–20-flowered. Flowers androdioecious; bracts broadly ovate, 2–4 mm; pedicel 4–10 mm, slender. Calyx ca. 1 mm. Corolla white, yellowish, or orange, 3–4 mm, 4-lobed to near base; lobes 2–3 mm; stamens attached to middle of corolla-tube; anther 1 mm, connective elongate into an obscure mucro; style 0.5 mm; stigma 2-lobed. Drupe elliptic, slightly oblique, 1–1.5 cm, purple-black when matured.

Locality: Cultivated. *HK sheet 35994, 38727, 38776.*

Distribution: Guizhou, Sichuan, Yunnan; widely cultivated.

Ecology: Flowering: Oct.–May of the following year; fruiting: Mar. of the following year.

Uses: Ornamental, material (essential oil, perfume).

2. Osmanthus marginatus (Champ. ex Benth.) Hemsl.
厚邊木犀(月桂) **(Fig. 118; Photo 237)**

J. Linn. Soc., Bot. 26(173): 88. 1889; FKH 166. 1912; FHN 3: 211. 1974; FFJ 4: 369, fig. 301. 1989; FRPS 61: 87, pl. 23: 1–3. 1992; FOC 15: 288. 1996; FTW ed. 2, 4: 142. 1998; FGD 5: 416. 2003.

Olea marginata Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 4: 330–331. 1852; FHK 215. 1861.

Shrubs or trees, 5–15 m tall. Branchlets glabrous, compressed. Petiole 1.5–2.5 cm; leaf blade broadly elliptic to narrowly lanceolate, 5–15 × 2–5 cm, thick leathery, base broadly cuneate, apex acuminate, margin entire, rarely serrate, revolute; midvein and primary veins somewhat impressed adaxially and raised abaxially. Cymes in short panicles (ca. 2 cm), congested, axillary, 10–20-flowered. Flowers dioecious, yellowish or greenish; pedicel 1–2 mm. Calyx 1.5–2 mm, 4-lobed to middle; lobes broadly deltate, ciliate. Corolla 3.5–4.5 mm; lobes oblong, ciliate, revolute. Stamens attached near top of corolla tube; anther suborbicular, connective not elongate; abortive pistil hemispheric, 0.3–0.5 mm; abortive stamens short. Ovary subglobose, 1.5 mm; style slender, 3 mm; stigma 2-lobed. Drupe elliptic or oblong, 1.8–3 × 1–1.5 cm, black when matured.

Locality: Hong Kong Island, Sha Tin, Pak Tam Chung, Long Ke, Lantau Island. *Y. S. Lau 2646, 2653; Y. W. Lam 289.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Anhui, Zhejiang, Fujian, Taiwan; Japan.

Ecology: Forests, ravines. Flowering: May–Jun.; fruiting: Jun.–Dec.

Uses: Ornamental.

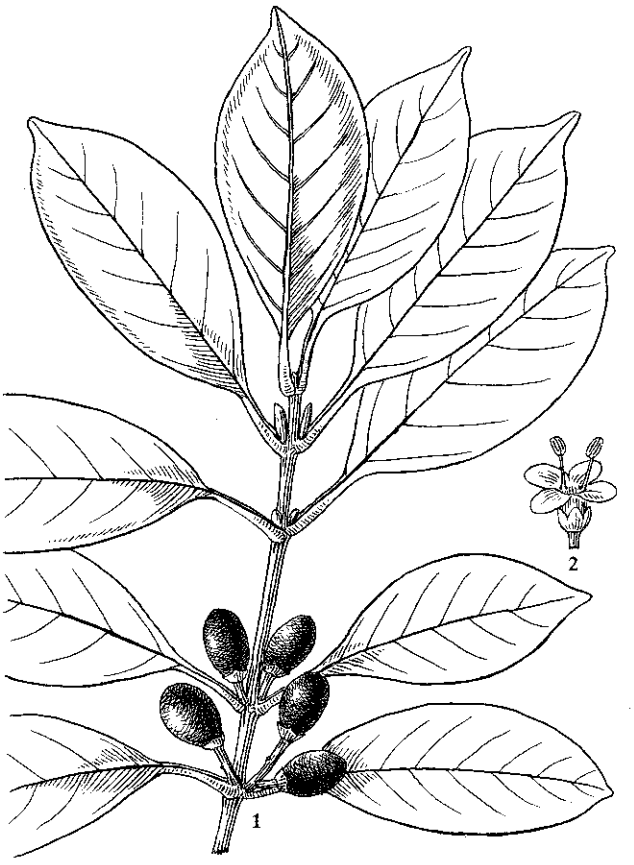


Figure 118. *Osmanthus marginatus* (Champ. ex Benth.) Hemsl. *1*. fruiting branch; *2*. male flower. (drawn by H. P. Yu)

Notes: The type specimen (*J. G. Champion 436*, K) was collected by J. G. Champion near the top of the Waterfall in the Happy Valley between 1847 and 1850.

3. Osmanthus matsumuranus Hayata 牛矢果 **(Photos 238–239)**

J. Coll. Sci. Imp. Univ. Tokyo. 30(1): 192. 1911; FHN 3: 211, fig. 665. 1974; FFJ 4: 370, fig. 302. 1989; FRPS 61: 89, pl. 23: 4–5. 1992; FOC 15: 288. 1996; FTW ed. 2, 4: 142. 1998; FGD 5: 416. 2003.

Osmanthus obouatifolius H. T. Chang, Acta Sci. Nat. Univ. Sunyatsenia 1982(2): 12. 1982.

Osmanthus maximus H. T. Chang, Acta Sci. Nat. Univ. Sunyatsenia 1982(2): 8. 1982.

Shrubs or trees, to 2–15 m tall. Branchlets glabrous, compressed. Petiole 1.5–3 cm; leaf blade oblanceolate, 5–15(–19) × 2.5–4.5(–6) cm, thin leathery to papery, base cuneate, decurrent, apex acuminate, margin usually serrate on distal half, midvein and lateral veins adaxially impressed and abaxially raised. Cymes in short panicles, axillary, 1.5–2 cm, 10–30-flowered; bracteoles deltate-ovate, 1–2 mm. Flowers dioecious, white or yellowish. Calyx lobes ciliate. Corolla 3–4 mm, 4-lobed to middle, ciliate; stamens attached near top of corolla-tube; connective not elongate; abortive pistil oblate; abortive stamens 1 mm. Ovary ovoid, 1–1.5 mm; style slender, 3 mm; stigma capitate, 2-lobed. Drupe 1.5–2.5 × 0.8–1.2 cm, elliptic, 6–8-ribbed, purple to black when matured.

Locality: Shing Mun, Ho Chung, Tai Wai, Tai Po Kau, Yuen Tun Ha, Lantau Island. *L. T. Lo 222; Y. S. Lau 811, 2878.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Jiangxi, Anhui, Zhejiang, Fujian, Taiwan; Vietnam, Laos, Cambodia, India.

Ecology: Forests and thickets. Flowering; May–Aug.; fruiting: Sep.–Dec.

Uses: Medicinal (folklore).

4. Osmanthus minor P. S. Green 小葉月桂

Notes Roy. Bot. Gard. Edinburgh 22(5): 465, pl. 13. 1958; FFJ 4: 371, fig. 303. 1989; FRPS 61: 91, pl. 23: 6. 1992; FOC 15: 289. 1996; FGD 5: 416. 2003.

Shrubs or small trees, to 2–5(–10) m tall. Branchlets glabrous. Petiole 1–2 cm, glabrous; leaf blade narrowly elliptic or narrowly obovate, 4.5–10 × 1.5–3.5 cm, thin leathery, glandular dotted, base cuneate, apex acuminate or caudate, margin entire; lateral veins 5–8 on each side of midvein, adaxially obscure, abaxially slightly raised. Cymes in short panicles, axillary, 1–1.5 cm, slender, 8–12-flowered; bracts deltate, thick, hairy abaxially; bracteoles thin, broadly ovate to lanceolate, apex tipped, crested abaxially, ciliate. Flowers dioecious, yellowish; pedicels 2 mm. Calyx 1–1.5 mm; lobes 0.5–1 mm, ciliate. Corolla 3–3.5 mm, 4-lobed to middle. Stamens attached near top of corolla-tube; connective not elongate; abortive pistil oblate, 0.5 mm. Drupe 1.5–2 × 0.8–1.2 cm, elliptic or obovate, 6–8-ribbed, black when matured.

Locality: Tai Mo Shan, Chuk Kok. *S. P. Lau 104; Y. W. Lam 1407.*

Distribution: Guangdong, Guangxi, Jiangxi, Zhejiang, Fujian.

Ecology: Forests in ravines. Flowering: May–Jun.; fruiting: Nov.–Dec.

4. Chionanthus L. 流蘇樹屬

Trees or shrubs, dioecious. Leaves simple, opposite, margin entire or serrate, petiolate. Inflorescences axillary or terminal panicles, sometimes cymes or racemes. Flowers bisexual or unisexual. Calyx 4-parted or 4-lobed. Corolla white or yellow, 4-parted; lobes almost free to base or united into a very short tube or joined in pairs at base, valvate in bud. Stamens 2(–4), inserted at base of corolla-lobes. Ovary 2-locular, with 2 pendulous ovules in each locule; style short; stigma entire or 2-cleft. Fruit a drupe; endocarp bony. Seed 1; endosperm fleshy or absent; radicle upward.

About 100 species, distributed in tropical and subtropical regions; eight species and one variety in China; two species in Hong Kong.

1a. Leaves deciduous; corolla 12–30 mm..... 1. *C. retusus*
1b. Leaves evergreen; corolla 2–8 mm..... 2. *C. ramiflorus*

1. Chionanthus retusus Lindl. & Paxton 流蘇樹 **(Fig. 119)**
Paxt. Fl. Gard. 3: 85, fig. 273. 1852; FKH 166. 1912; FFJ 4: 375, fig. 306. 1989; FRPS 61: 119, pl. 33: 1–3. 1992; FOC 15: 293. 1996; FTW ed. 2, 4: 129, pl. 48. 1998; FGD 5: 419, fig. 221. 2003.

Chionanthus serrulatus Hayata, Icon. Pl. Formosan. 3: 150–151, fig. 28. 1913.

Deciduous trees or shrubs to 20 m tall. Branchlets terete, glabrous, or pubescent when young. Petioles 0.5–2 cm, densely covered with curly hairs; leaf blade oblong, elliptic, or orbicular, sometimes ovate or obovate, 3–10 × 2–4.5 cm, base rounded to cuneate, rarely subcordate, apex blunt, sometimes retuse or acute, ± leathery, abaxially villous along midvein, adaxially villous or glabrescent except on veins; lateral veins 3 or 4 on each side of midvein, slightly raised on both surfaces. Cymose panicles terminal on lateral shoots, 3–12 cm; pedicels 0.8–1 cm, glabrous. Calyx cup-shaped, 4-parted; lobes deltoid, 1–2 mm. Corolla white, 4-parted; tube 2–4 mm; lobes linear-spatulate, 1.5–2.5 cm. Anthers long ovate, 1.5–2 mm; connectives elongate. Drupe 1–1.5 cm × 6–10 mm, blue-black or black, pruinose, ovoid.

Locality: Lantau Island. *HK sheet 18463.*

Distribution: Guangdong, Yunnan, Sichuan, Gansu, Shaanxi, Shanxi, Hebei, Henan, Jiangxi, Fujian, Taiwan; Japan, Korea.

Ecology: Forests and thickets. Flowering: Mar.–Jun.; fruiting: Jul.

Uses: Ornamental.

2. Chionanthus ramiflorus Roxb.
枝花李欖 **(Fig. 120; Photo 240)**
Fl. Ind. ed. 1, 106–107. 1820; FOC 15: 294. 1996; FGD 5: 421. 2003.

Linociera ramiflora (Roxb.) Wall. ex G. Don, Gen. Hist. 4: 52. 1837; FHN 3: 216, fig. 668. 1974; FRPS 61: 114, pl. 32: 1–3. 1992; Check List HK Plants 243. 2002; 84. 2004.

Linociera ramiflora f. *pubisepala* L. C. Chia, Acta Phytotax. Sin. 3(3): 352. 1955.

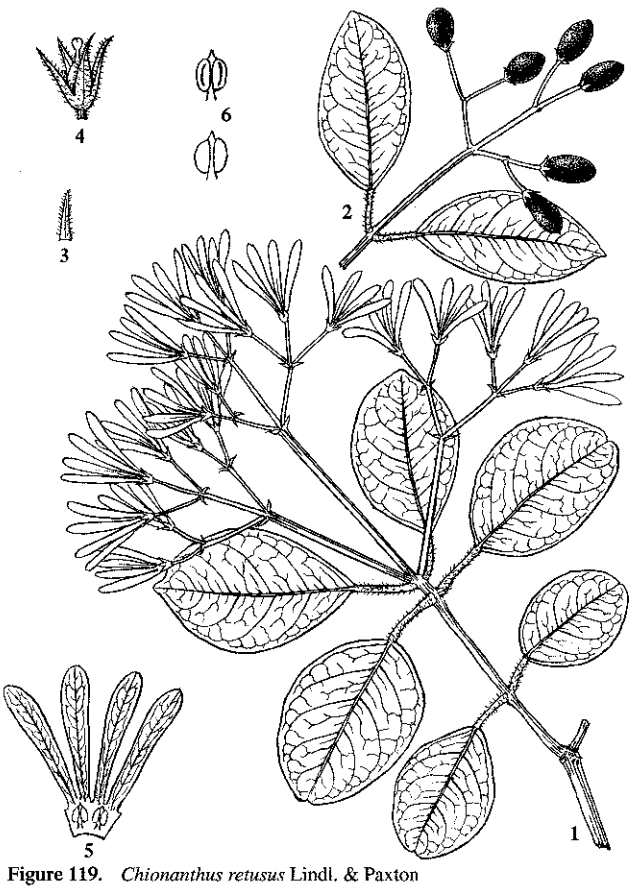


Figure 119. *Chionanthus retusus* Lindl. & Paxton
1. flowering branch; *2.* fruiting branch; *3.* bract; *4.* calyx and pistil; *5.* corolla opened; *6.* dorsal and ventral views of anther. (drawn by H. P. Yu)

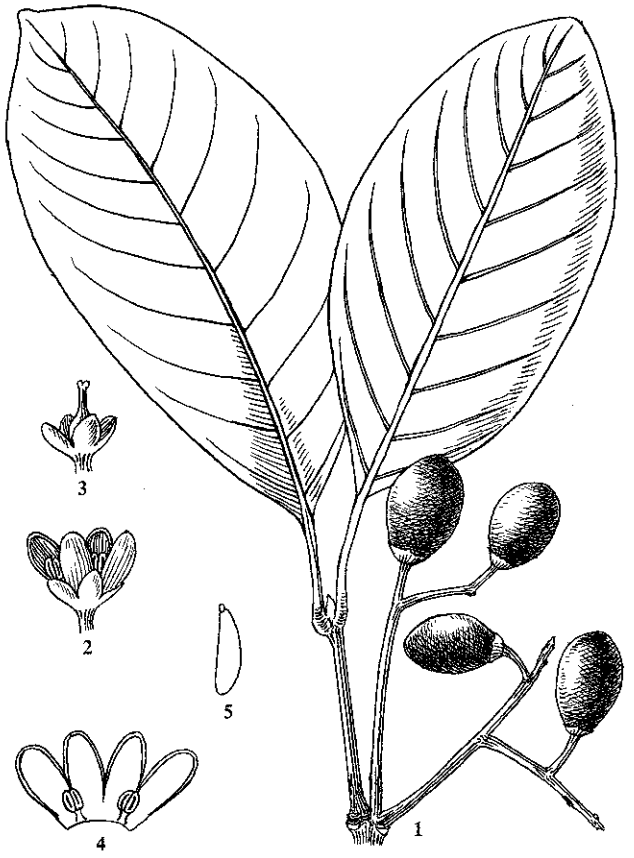


Figure 120. *Chionanthus ramiflorus* Roxb.
1. fruiting branch; *2.* flower; *3.* calyx and pistil; *4.* corolla opened; *5.* embryo. (drawn by H. P. Yu)

Trees, 6–15(–25) m tall, branchlets terete, usually compressed at nodes, lenticellate. Petiole 2–5 cm, glabrous; leaf blade elliptic, oblong-elliptic, or ovate-elliptic, rarely obovate-oblong, (5–)8–20(–30) × (2–)4–7(–12) cm, base attenuate, apex acuminate, or blunt, subleathery, glabrous, densely dotted with raised pimples adaxially; lateral veins 7–15 on each side of midvein, raised on both surfaces or obscure adaxially. Panicles usually axillary, loose, 2.5–12 cm; pedicel 1–5 mm. Calyx ca. 1 mm; lobes ovate, ca. 0.5 mm, acute or blunt. Corolla white or yellow, 2.5–5.5; lobes oblong, 2–2.5 mm, slightly united at base. Anthers elliptic. Ovary elliptic; style very short or absent. Drupe blue-black, pruinose, elliptic or long-elliptic, 1–3 × 0.5–1.5 cm.

Locality: Mount Nicholson, Ma On Shan, Ngau Ngak Shan, Wu Kau Tang. *F. W. Xing 8116, 8627; Y. W. Lam 643.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Taiwan; Vietnam, Nepal, India, Pacific islands, Australia.

Ecology: Forests and thickets in ravines. Flowering: Dec.–Jun. of the following year; fruiting: May–Mar. of the following year.

5. Olea L. 木犀欖屬

Trees or shrubs. Leaves opposite, simple, margin entire or serrate, petiolate. Inflorescences axillary or terminal panicles, sometimes racemes or umbels. Flowers small, bisexual, unisexual or polygamous. Calyx campanulate, small, 4-lobed to subtruncate. Corolla with a short tube, 4-lobed or 4-parted, or lobes absent; lobes usually shorter than tube, rarely equal or longer than tube, cucullately valvate in bud. Stamens 2, inserted at base of corolla tube, included; filaments short; anthers ovate, elliptic, or subrounded. Ovary 2-locular, with 2 pendulous ovules in each locule; style short; stigma capitate or slightly 2-cleft. Fruit a drupe, elliptic, oblong, ovate or subglobose, exocarp thin and fleshy, endocarp thick and hard. Seed 1; endosperm fleshy; radicle short, upward.

More than 40 species, mainly distributed in S and SE Asia, Pacific islands, tropical Africa, S Europe; 14 species (one cultivated) in China; one species in Hong Kong.

1. Olea tsoongii (Merr.) P. S. Green
異株木犀欖 **(Fig. 121; Photo 241)**

Kew Bull. 50(2): 338. 1995; FOC 15: 297. 1996; FGD 5: 423. 2003.

Ligustrum tsoongii Merr., Philipp. J. Sci. 21: 506. 1922.

Olea brevipes Chia, Acta Phytotax. Sin. 3. 343. 1955.

Olea dioica auct. non Roxb.: FRPS 61: 133, pl. 37: 1–3. 1992; FFJ 4: 377, fig. 309. 1989; Check List HK Plants 243. 2002; 84. 2004.

Shrubs or trees, 3–20 m tall. Branchlets terete, slightly compressed at nodes, pubescent to glabrous. Leaves leathery; petioles 3–10 mm, pubescent to finely puberulent; leaf blade oblanceolate or elliptic-lanceolate, 5–10 × 1.5–3.5 cm, base cuneate, apex acuminate or blunt, margin entire or irregularly serrate; lateral veins 5–7 on each side of midvein, obscure or slightly raised on both surfaces. Flowers polygamodioecious, usually in subumbellate groups and rearranged in axillary panicles. Corolla white or yellowish; lobes subrotund, apex cucullate. Staminate flowers: pedicels 1–5 mm, slender; calyx 1–1.5 mm; corolla 2–3.5(–4.5) mm, lobes deltate. Bisexual flowers: pedicels 0–2 mm, stout; calyx 1–1.5 mm; corolla 2–4.5 mm, lobes 0.5–1.5 mm; filament short; anthers elliptic, 0.5–1 mm; ovary elliptic with a sharp tip; stigma capitate. Drupe blue-black, elliptic or subglobose, 6–13 × 3–9 mm.

Locality: Tai Mo Shan, Ng Tung Chai, Sharp Peak, Sheung Wo Hang. *F. W. Xing 6936, 9890; Y. W. Lam 417.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Sichuan, Yunnan; Vietnam, Myanmar, India.

Ecology: Forests and thickets. Flowering: Mar.–Jul.; fruiting: May–Dec.

Uses: Medicinal (folklore).



Figure 121. *Olea tsoongii* (Merr.) P. S. Green
1. flowering branch; *2.* fruiting branch; *3.* corolla opened; *4.* drupe. (drawn by H. P. Yu)

6. Ligustrum L. 女貞屬

Deciduous or evergreen shrubs, or small trees. Leaves simple, opposite, entire. Inflorescences terminal, rarely axillary, panicles of cymes. Flowers bisexual; calyx campanulate or cupular, 4-toothed or truncate; corolla white, funnelform, 4-lobed, lobes shorter than or as long as corolla tube, valvate in bud, spreading in flower. Stamens 2, inserted on corolla tube, included or exserted; anthers oblong or ellipsoidal, sometimes suborbicular; ovary spheroidal, 2-locular, with 2 pendulous or anatropous ovules in each locule; style cylindric; stigma slightly 2-cleft. Fruit a drupe, 1–4-seeded; endosperm fleshy; radicle upward.

About 45 species mainly in warm area of Asia, few spread to Europe, Malaysia, Australia; 27 species in China; five species in Hong Kong.

1a. Leaf blade glandular dotted.
2a. Leaf blade oblong to ovate, 3.5–7.5 × 1.8–3.8 cm ..... 1. *L. liukiuense*
2b. Leaf blade small, elliptic, 1–2 × 0.8–1.2 cm ..... 2. *L. punctifolium*
1b. Leaf blade not glandular dotted.
3a. Leaf blade villous to sparsely pubescent ..... 3. *L. sinense*
3b. Leaf blade glabrous.
4a. Fruit ellipsoidal ..... 4. *L. longipedicellatum*
4b. Fruit reniform or nearly so ..... 5. *L. lucidum*

1. Ligustrum liukiuense Koidz. 台灣女貞 **(Photos 242–243)**

Bot. Mag. (Tokyo) 30: 82. 1916; FTW ed. 2, 4: 137. 1998.

Ligustrum japonicum Thunb. var. *pubescens* Koidz., Bot. Mag. (Tokyo) 30: 82. 1916.

Ligustrum amamianum Koidz., Pl. Nov. Amami-Ohsima 7. 1929; FRPS 61: 144, pl. 40: 1–2. 1992; FOC 15: 301. 1996.

Evergreen shrubs, 3–5 m tall. Branchlets terete, puberulent at first, soon glabrous, compressed near nodes. Petiole 4–8 mm, glabrous; leaf blade leathery, oblong to ovate, 3.5–7.5 × 1.8–3.8 cm, base obtuse to acute, decurrent, apex short acuminate or obtuse or acute, sometimes retuse, margin strongly revolute, glabrous, densely glandular dotted; lateral veins 5–8 on each side of midvein, impressed adaxially, slightly raised abaxially. Panicles terminal, 7–12 cm; rachis pubescent. Flowers subsessile; bract linear. Calyx ca. 1.8 mm. Corolla 4–6 mm; tube ca. as long as lobes. Stamens nearly approaching apex of corolla lobes; anthers ca. 2 mm. Fruit elliptic, 5–9 mm in diam.

Locality: Cape D'Aguilar, Victoria Peak, Tai Mo Shan, Lantau Island. *Y. S. Lau 2474; P. S. Choi 477; K. L. Yip 4493.*

Distribution: Taiwan; Japan.

Ecology: Woods on limestone mountain ridges. Flowering: Mar.–Jun.; fruiting: Jul.–Dec.

2. Ligustrum punctifolium M. C. Chang 斑葉女貞 **(Photos 244–245)**

Acta Phytotax. Sin. 23(1): 53–54, pl. 1, fig. 1. 1985; FFJ 4: 379, fig. 311. 1989; FRPS 61: 142, pl. 39: 1–3. 1992; FOC 15: 301. 1996; FGD 5: 424. 2003.

Ligustrum quihoui auct. non Carr. 1869: Merr. & Chun in Sunyatsenia 1: 79. 1930, quoad specim. Y. Tsiang 2933.

Evergreen shrubs, to 2 m tall. Branchlets terete, puberulent. Petioles ca. 2 mm; leaf blade leathery, elliptic, rarely ovate or obovate, 1–2 × 0.8–1.2 cm, base cuneate to suborbicular, apex obtuse or retuse, occasionally acute, glabrous except for midvein adaxially, sometimes puberulent, brown glandular dotted and abaxially much denser; lateral veins 2 or 3 on each side of midvein, obscure. Panicles terminal, ca. 5 × 2 cm; peduncle puberulent; pedicels 0.5–1.3 mm, glabrous. Calyx ca. 1.5 mm, glabrous, apex undulate-denticulate or truncate. Corolla 7.5–9 mm, white or yellowish; tube ca. as long as lobes. Stamens 2, reaching apex of corolla lobes; anthers oblong. Fruit subglobose, ca. 4 mm in diam.

Locality: Chung Mei, Sam A Chung, Sham Chung. *W. J. Tutcher 10927, 10950; HK sheet 36612.*

Distribution: Hainan; Vietnam.

Ecology: Tidal flood plains. Flowering: May–Sep.; fruiting: Oct.–Mar. of the following year.

Notes: The type specimen (*Y. Tsiang 2933*, IBSC) was collected from a tidal flood plain in Hong Kong on 12 Aug. 1929. Lai (2003, Porcupine No. 23: 19. 2001) provided a review of the history of discovery of this species. Listed in *Rare and Precious Plants of Hong Kong*.

3. Ligustrum sinense Lour.
山指甲 **(Fig. 122; Photos 246–247)**

FL. Cochinch. 1: 19. 1790; FHK 215. 1861; FKH 166; 1912; FFJ 4: 382, fig. 316. 1989; FRPS 61: 158, pl. 44: 1–8. 1992; FOC 15: 303. 1996; FTW ed. 2, 4: 138, pl. 51. 1998; FGD 5: 427. 2003.

Deciduous shrubs or small trees, 2–4(–7) m tall. Branchlets terete, villous to glabrescent. Petiole 2–8 mm; leaf blade papery to thinly leathery, ovate, elliptic or suborbicular, 2–7 × 1.5–3 cm, base subrounded to broadly cuneate, apex acute to obtuse, sometimes retuse, villous to sparsely pubescent or puberulous on midvein, epunctate, lateral veins 4–8 on each side of midvein, impressed adaxially, raised abaxially. Panicles terminal or axillary, 4–11 × 3–8 cm; peduncle yellowish puberulent to glabrescent; pedicels 1–3 mm. Calyx campanulate, 1 mm, glabrous or pubescent. Corolla white, 3.5–5.5 mm; tube ca. 1.5–2.5 mm,

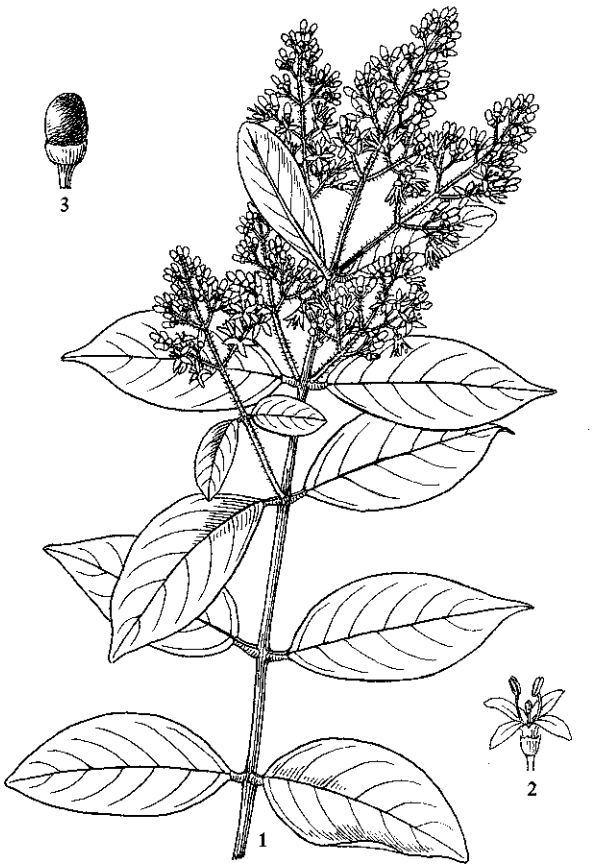


Figure 122. *Ligustrum sinense* Lour.
1. flowering branch; *2*. flower; *3*. drupe. (drawn by H. P. Yu)

lobes oblong to ovate-oblong, ca. 2–3 mm, slightly longer than tube, apex blunt. Stamens reaching apex of corolla lobes or exserted; anthers oblong, ca. 1 mm. Fruit subglobose, 5–8 mm in diam.

Locality: Common in Hong Kong and widely cultivated. *H. C. Tang 40, 104, 197.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Sichuan, Yunnan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; Vietnam. Becomes invasive in Australasia and SE USA.

Ecology: Naturalized along thickets and roadsides. Flowering: Mar.–Jun.; fruiting: Sep.–Dec.

Uses: Ornamental, medicinal (folklore).

4. Ligustrum longipedicellatum H. T. Chang 長柄女貞 **(Photo 248)**

Acta Sci. Nat. Univ. Sunyatsen. 1982: 2. 1982; FOC 15: 304. 1996, pro syn. sub *L. sinense* var. *luodianense* M. C. Chang.

Ligustrum sinense var. *luodianense* M. C. Chang, Investig. Stud. Nat. 6: 77. 1986, *p. p.* quoad syn. *L. longipedicellatum* H. T. Chang.

Shrubs or small trees, 2–10 m tall. Young branchlets terete, glabrous. Petioles 1–2 cm, glabrous; leaf blade subleathery, glabrous, oblong, 7–14 × 2.5–5.5 cm, base broadly cuneate, apex acute, adaxially lustrous; margin entire; lateral veins 8–10 on each side of midvein. Panicles terminal, 6–27 × 5–15 cm, rachis villous to glabrescent, 4-ribbed; pedicels 3–5mm, glabrous and tenuous; bracteoles leafy, lanceolate, 1–3.5 × 0.3–1.5 cm. Calyx 4-lobed, 1 mm. Corolla 3–5 mm; tube ca. 1–2 mm; lobes 2.5–3 mm. Stamens reaching apex of corolla lobes; filament ca. 5 mm; anthers ca. 1.8 mm. Ovary spheroidal, glabrous; style shorter than stamens. Fruit ellipsoidal.

Locality: Tai Mo Shan. *HK sheet 41615, 41867, 41872.*

Distribution: Guangdong.

Ecology: Forests. Flowering: Jul.–Aug.; fruiting: Oct.–Dec.

Notes: The species was considered as a synonym of *L. sinense* var. *luodianense* M. C. Chang, but it differs from the later by its oblong, glabrous leaves, and the terminal panicles.

5. Ligustrum lucidum W. T. Aiton 女貞 **(Photo 249)**

Hort. Kew. ed. 2, 1: 19. 1810; FKH 166. 1912; FFJ 4: 381, fig. 315. 1989; FRPS 61: 153. 1992; FOC 15: 302. 1996; FGD 5: 426. 2003.

Ligustrum nepalense Wall., Roxb. Fl. Ind. ed. 1, 151. 1820.

Ligustrum japonicum Thunb., Nova Acta Regiae Soc. Sci. Upsal. 3: 207. 1780; FKH 166. 1912.

Evergreen shrubs or trees, 4–8 m or taller, glabrous. Branchlets terete, lenticellate. Petiole 1–3 cm; leaf blade leathery, glabrous, ovate to long-ovate or elliptic, or elliptic to lanceolate, 6–17 × 3–8 cm, base rounded or broadly cuneate, apex acute to acuminate, margin entire; lateral veins 6–8 on each side of midvein. Panicles terminal, 10–23 cm, spreading; rachis angular in fruit. Flowers sessile or nearly so. Calyx campanulate, 1–2 mm. Corolla white, 3.5–4.5 mm; lobes elliptic, slightly longer than tube. Stamens approaching apex of corolla lobes; anthers oblong, 1–1.5 mm; style 1.5–2.5 mm; stigma clavate. Fruit 7–10 × 4–6 mm, reniform or nearly so, white farinose and red-black when matured.

Locality: Cultivated. *Y. S. Lau 2714; HK sheet 35579.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Gansu, Shaanxi, Henan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian; Korea.

Ecology: Flowering: May–Jul.; fruiting: Jul.–Oct.

Uses: Ornamental, host (lac/wax insect), medicinal (folklore).

299. SCROPHULARIACEAE 玄參科

WU De-lin 吳德鄰

Herbs, shrubs, rarely trees. Stipules absent. Leaves opposite, alternate, whorled, or basally opposite and apically alternate, simple or sometimes pinnately dissected. Inflorescences racemose, spicate, or thyrsoid paniculate, or flowers solitary. Flowers bisexual, usually zygomorphic, rarely actinomorphic. Calyx persistent, often (2–)4–5-lobed or -parted. Corolla sympetalous, limb (3–)4–5-lobed, often 2-liped, sometimes basally spurred. Stamens attached to the corolla-tube, alternate with the lobes, usually 4 or only 4 functional, the adaxial one staminodial or wanting, or sometimes only 2(–3), the abaxial pair reduced or wanting; anthers tetrasporangiate and dithecal, sometimes becoming unithecal during ontogeny, split longitudinally by slits. Disk annulate, cupular, or reduced to a gland. Ovary superior, 2-loculed, rarely apically 1-loculed; ovules numerous, rarely 2 per locule, on axile placentas; styles simple; stigma capitate, 2-lobed. Capsules septicidal, loculicidal or septifragal, sometimes opening by pores or irregularly dehiscent, rarely a berry. Seeds minute or rarely conspicuous, sometimes winged; testa often reticulate; hilum lateral or ventral; endosperm fleshy or absent; embryo straight or curved.

About 306 genera and 5850 species, cosmopolitan; 61 genera and 681 species widely distributed in China but with a greater concentration in SW China; 18 genera and 44 species in Hong Kong.

Paulownia fortunei (Seem.) Hemsl. (白花泡桐; Photo 250) was also cultivated in Hong Kong previously.

1a. Leaves abaxially glandular punctuate.
  2a. Corolla tube inconspicuous; stamens subequal, exserted ..... 1. *Scoparia*
  2b. Corolla tubular; stamens didynamous, included.
    3a. Aquatic or marsh herbs; calyx lobes subequal ..... 2. *Limnophila*

3b. Terrestrial herbs; calyx lobes unequal ..... 3. *Adenosma*

1b. Leaves abaxially not glandular punctuate.

4a. Fertile stamens 2.

5a. Flowers in racemes; stamens exserted ..... 4. *Veronica*

5b. Flowers solitary; stamens included.

6a. Plants diffusely cushion-like; leaves linear, 3–6 × 1–2 mm ..... 5. *Microcarpaea*

6b. Plants erect; leaves lanceolate, 10–20 × 3–5 mm ..... 6. *Dopatrium*

4b. Fertile stamens 4.

7a. Leaves entire.

8a. Flowers solitary or in spikes.

9a. Anther 1-celled ..... 7. *Buchnera*

9b. Anther 2-celled.

10a. Calyx tubular; corolla limb bilabiate ..... 8. *Striga*

10b. Calyx spathaceous, split on 1 side; corolla limb slightly bilabiate ..... 9. *Centranthera*

8b. Flowers in racemes.

11a. Flowers large, 3–4.5 cm, corolla limb 2-lipped, tube with gibbous base ..... 10. *Antirrhinum*

11b. Flowers small, ca. 1 cm, corolla limb not 2-lipped ..... 11. *Sopubia*

7b. Leaves serrate or divided.

12a. Leaves pinnately divided; calyx 10-ribbed ..... 12. *Siphonostegia*

12b. Leaves not pinnately divided; calyx not 10-ribbed.

13a. Dwarf shrubs; branches rush-like; leaves mostly reduced to scales on branches ..... 13. *Russelia*

13b. Herbs; branches not rush-like; leaves not reduced.

14a. Sepals free, unequal.

15a. Stems ± succulent; flower solitary, blue, purple or white ..... 14. *Bacopa*

15b. Stems not succulent; flowers in racemes, red-brown ..... 15. *Picria*

14b. Sepals connate or sometimes calyx 5-lobed almost to base.

16a. Calyx 5-winged or 5-ribbed ..... 16. *Torenia*

16b. Calyx neither 5-winged nor 5-ribbed.

17a. Basal leaves rosulate, spathulate; cauline leaves obovate-oblong ..... 17. *Mazus*

17b. Without rosulate basal leaves; cauline leaves not obovate-oblong ..... 18. *Lindernia*

1. Scoparia L. 野甘草屬

Herbs or subshrubs, many-branched. Leaves opposite or whorled, generally glandular punctate, margin entire or toothed. Flowers 1–2 in axils of leaves. Pedicels slender. Calyx 4–5-lobed; lobes imbricate, ovate to lanceolate. Corolla nearly regular; tube inconspicuous, limb subrotate, densely hairy at throat; lobes 4, imbricate. Stamens 4, subequal; anther-cells distinct, parallel or divergent. Ovary globose; ovules numerous, styles apically ± enlarged. Capsules ovoid to globose, septicidal and secondarily loculicidal; valves thin, margin involute. Seeds many, small, foveolate.

About 20 species, mostly from tropical America; one species in China and Hong Kong.

1. Scoparia dulcis L. 野甘草 **(Fig. 123; Photo 251)**

Sp. Pl. 116. 1753; FHK 252. 1861; FKH 189. 1912; FOC 18: 21. 1998; FGD 4: 382, fig. 230. 2000.

Herbs or subshrubs, 0.3–1 m tall, many-branched; branches ribbed to narrowly winged. Leaves usually in whorls of 3; leaf blade rhomboid-ovate to rhomboid-lanceolate, 3.6 × 1.5 cm, upper ones small and narrow, glandular punctate, margin toothed above middle, sometimes slightly double serrate, or subentire, apex obtuse. Flowers usually axillary, 1 or 2 per node. Pedicels 5–10 mm. Calyx lobed to base; lobes 4, ovate-oblong, ca. 2 mm, margin ciliate. Corolla white, ca. 4 mm in diam.; tube densely hairy at throat; upper lobe slightly larger than others. Stamens exserted, stigma truncate to 2-parted. Capsules 2–3 cm in diam.; columella persistent.

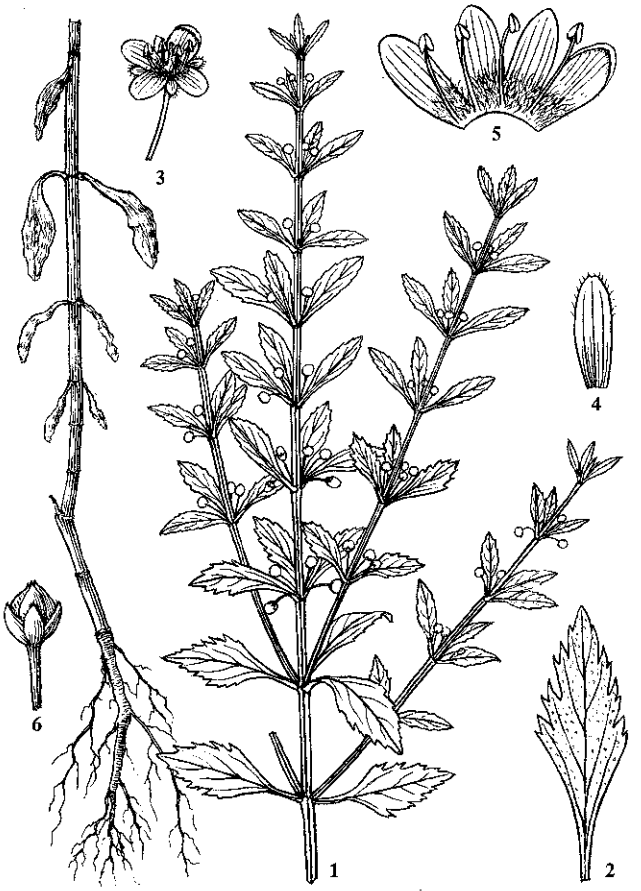


Figure 123. *Scoparia dulcis* L.

1. fruiting branch; *2.* amplification of leaf with glandular dots; *3.* flower; *4.* sepal; *5.* corolla opened; *6.* fruit. (drawn by H. P. Yu)

Locality: Naturalized in Hong Kong. *H. C. Tang 1215, 1914; Y. S. Lau 185.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; native to tropical America, now through tropics and subtropics as a weed.

Ecology: Wastelands, roadsides. Flowering & fruiting: Nearly all year round.

2. Limnophila R. Br. 石龍尾屬

Annual herbs or perennial, in marshy areas or aquatic, often aromatic when bruised, with transparent dots. Stems erect, prostrate, or creeping, simple or many-branched. Submerged leaves in aquatic species whorled, pinnately parted to capillary-multiparted, glabrous. Aerial leaves opposite to whorled, sesssile or petiolate, blade lanceolate or pinnately divided, glandular punctate, margin entire or serrate, if leaf undivided, then veins pinnate or parallel. Flowers solitary in axils of leaves, or in axillary or terminal spikes or racemes. Bracteoles 2 or absent. Calyx tubular, lobes subequal or the upper lobe larger than others. Corolla tubular or funnelform, 2-lipped; lower lip 3-lobed; upper one entire or 2-lobed. Stamens 4, included, didynamous. Anther locules stipitate. Ovary glabrous; stigma 2-lamellate. Capsules included in calyx, septicidal. Seeds minute, numerous.

About 40 species distributed in tropical to subtropical Africa, Asia, Australia, and Pacific islands; ten species in China; five species in Hong Kong.

1a. Plants with both submerged and aerial leaves.
  2a. Aerial leaves subcrenate, 3–5-veined; corolla pale purple, ca. 5 mm ..... 1. *L. heterophylla*
  2b. Aerial leaves crenate to lobed, 1–3-veined; corolla purple-blue to reddish, 6–10 mm ..... 2. *L. sessiliflora*
1b. Plants with aerial leaves only.
  3a. Flowers sessile; bracteoles absent ..... 3. *L. rugosa*
  3b. Flowers pedicellate; bracteoles present.
    4a. Pedicels 5–20 mm ..... 4. *L. aromatica*
    4b. Pedicels 3–5 mm ..... 5. *L. chinensis*

1. **Limnophila heterophylla** (Roxb.) Benth. 異葉石龍尾

Scroph. Ind. 25. 1835; FKH 186. 1912; FOC 18: 27. 1998; FGD 4: 366. 2000.

Columnea heterophylla Roxb., Fl. Ind. 3: 97. 1832.

Perennial herbs, aquatic or mesic. Aerial stems with sessile glands, pilose or nearly glabrous. Submerged leaves to 50 cm, multiparted; segments capillary. Aerial leaves opposite or whorled, oblanceolate or oblong, ca. 15 × 3 mm, base subamplexicaul, apex obtuse, margin subcrenate, glabrous, veins 3–5, parallel. Flowers sessile, in terminal spikes, or shortly pedicellate and solitary in leaf axils. Bracteoles absent. Calyx ca. 3 mm, with sessile glands, without raised veins in fruit. Corolla pale purple or pink, ca. 5 mm, glabrous. Capsules pale brown, subglobose, ca. 2.5 mm.

Locality: Wong Nai Chung, Fanling. *W. J. Tutcher 8156; HK sheet 4120, 20427.*

Distribution: Guangdong, Jiangxi, Taiwan; tropical Asia.

Ecology: Margins of ponds. Flowering: Apr.–Nov.

2. **Limnophila sessiliflora** (Vahl) Blume 石龍尾

Bijdr. Fl. Ned. Ind. 749. 1826; FKH 186. 1912; FOC 18: 26. 1998; FGD 4: 365. 2000.

Hottonia sessiliflora Vahl, Symb. Bot. 2: 36. 1791.

Herbs aquatic or terrestrial. Submerged stems slender and long, glabrous or subglabrous. Aerial stems 6–40 cm, simple or sparsely branched, hairy or rarely subglabrous. Submerged leaves 0.5–3.5 cm, multiparted; segments flattened or capillary. Aerial leaves whorled, blade elliptic-lanceolate, 5–18 × 3–4 mm, glabrous, densely glandular punctate, margin crenate to lobed; veins 1–3. Flowers sessile or rarely with a pedicel to 1.5 mm, solitary in axils of submerged and aerial leaves. Bracteoles absent or rarely present and to 1.5 mm. Calyx 4–6 mm, hairy, without raised veins in fruit; lobes ovate, 2–4 mm, apex narrowly acuminate. Corolla purple-blue to reddish, 6–10 mm. Capsules compressed, subglobose.

Locality: Fanling. *HK sheet 20433.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Henan, Liaoning, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian; Korea, Japan, India, Nepal, Bhutan, Vietnam, Malaysia, Indonesia.

Ecology: Wet places, margins of ponds. Flowering: Apr.–Nov.

3. **Limnophila rugosa** (Roth) Merr. 大葉石龍尾 **(Fig. 124; Photo 252)**

Interpr. Rumph. Herb. Amb. 466. 1917; FHN 3: 502. 1974 ; FOC 18: 27. 1998; FGD 4: 367. 2000.

Herpestis rugosa Roth, Nov. Pl. Sp. 290. 1821.

Limnophila roxburghii auct. non. G. Don: Dunn & Tutcher, FKH 186. 1912.

Perennial herbs, 10–15 cm tall, with horizontal rhizomes. Stems 1–few, ± fasciculate, erect or ascending, usually unbranched, glabrous. Leaves opposite; petiole 1–2 cm, narrowly winged; leaf-blade ovate, rhomboid-elliptic, or elliptic, 3–9 × 1–5 cm, margin crenate, abaxially hispidulous along veins, adaxially glabrous or sparsely hispidulous, veins pinnate, ca. 10 on each side of midvein.

Peduncles 0.2–3 cm. Bracts subspatulate-oblong, with flattened glands, margin entire or apically undulate-toothed and ciliate. Flowers sessile, 5–10 congested on apex of axillary short branches, usually appearing a head. Bracteoles absent. Calyx 6–8 mm, smooth, in fruiting time with 5 raised veins and flattened glands. Corolla purple-red to blue, to 1.6 cm; styles slender, pubescent, with a membranous auricle on both sides. Capsules pale brown, ovoid, ca. 5 mm.

Locality: Aberdeen, Lantau Island. *HK sheet 4122, 20440.*

Distribution: Hainan, Guangdong, Yunnan, Hunan, Fujian, Taiwan; tropical Asia.

Ecology: Grasslands, streamsides. Flowering & fruiting: Aug.–Nov.

Uses: Medicinal (folklore).

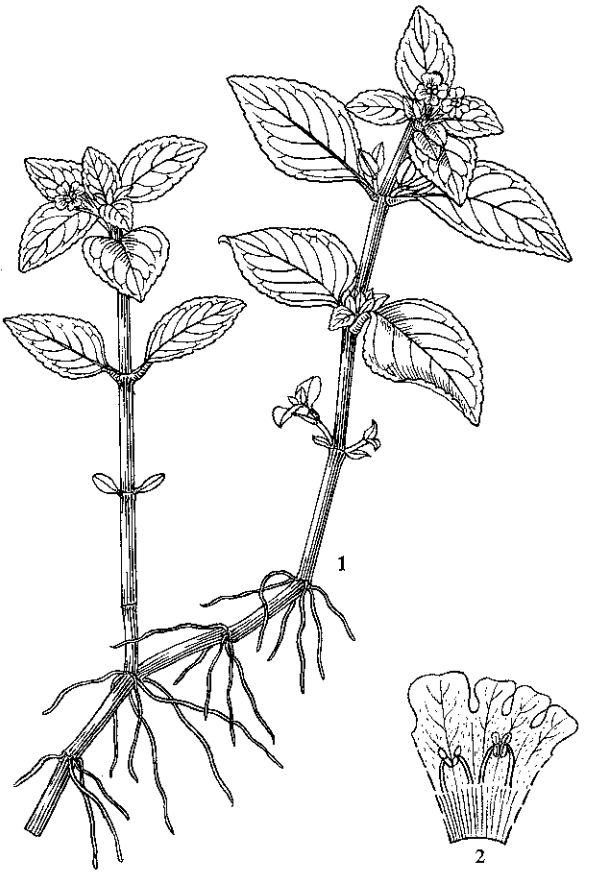


Figure 124. *Limnophila rugosa* (Roth) Merr.
1. portion of plant; 2. corolla opened (partial). (drawn by H. P. Yu)

4. Limnophila aromatica (Lam.) Merr. **(Photos 253–254)**
紫蘇草

Interpr. Rumph. Herb. Amb. 466. 1917; FHN 3: 502. 1974; FOC 18: 27. 1998; FGD 4: 368. 2000.

Ambulia aromatica Lam., Encycl. Meth. 1: 123. 1783.

Limnophila punctata Blume, Bijdr. Fl. Ned. Ind. 14. 750. 1826; FHK 248. 1861.

Limnophila gratissima Blume, Bijdr. Fl. Ned. Ind. 14. 749. 1826; FKH 186. 1912.

Annual herbs or perennial. Stems 30–70 cm tall, simple to many-branched, glabrous or glandular, base decumbent and rooting from nodes. Leaves opposite or in whorls of 3, sessile, ovate-lanceolate to lanceolate-elliptic, 1–5 × 0.3–1.5 cm, base semiamplexicaul, margin crenate and serrate; veins pinnate. Flowers solitary in leaf axils or in terminal racemes. Pedicel 0.5–2 cm, glabrous or glandular. Bracteoles linear to linear-lanceolate, 1.5–2 mm. Calyx 4–6 mm, glabrous or glandular pubescent, with raised veins in fruit. Corolla white, blue-purple or pink, 1–1.3 cm, sparsely and finely glandular, white villous adaxially; styles apex dilated. Capsules ovoid, ca. 6 mm.

Locality: Aberdeen, Tai Au Mun, Sai Kung (Sai Wan), Tsing Fai Tong, Lantau Island. *Y. S. Lau 2528, 2957; Y. W. Lam 1215.*

Distribution: Hainan, Guangdong, Jiangxi, Fujian, Taiwan; tropical Asia, Australia.

Ecology: Wet places. Flowering & fruiting: Sep.–Feb. of the following year.

Uses: Medicinal (folklore).

Notes: A morphologically similar form was described as *Limnophila aromaticoides* Yang & Yen (擬紫蘇草; Bot. Bull. Acad. Sinica 38: 285–295. 1997), which could be distinguished by its verticillate submerged leaves, white corolla with occasional pinkish colour at top of tube, and orbicularly ellipsoidal capsule; whereas *L. aromatica*, in strict sense, is characterized by its submerged leaves mostly lacking corolla (occasionally with 2–3 submerged leaves), pink or purple corolla and ellipsoidal capsule. This form is observed in Hong Kong growing and flowering together with *L. aromatica*. Other authorities, however, considered the distinguishing characters of *L. aromaticoides* fell within the range of variation of *L. aromatica* and therefore put in the synonymy of the latter (e.g. FOC 18: 28. 1998).

5. Limnophila chinensis (Osbeck) Merr. 中華石龍尾 **(Photo 255)**

Amer. J. Bot. 3: 581. 1916; FHN 3: 503. 1974; FOC 18: 28. 1998; FGD 4: 365. 2000.

Columnea chinensis Osbeck, Dagb. Ostind. Resa 230. 1757.

Limnophila hirsuta (Heyne ex Benth.) Benth., Prodr. 10: 388. 1848; FHK 248. 1861; FKH 186. 1912.

Stemodia hirsuta Heyne ex Benth., Scroph. Ind. 24. 1835.

Herbs, 5–50 cm tall. Stems basally prostrate, rooting from nodes, simple or basally branched, villous or subglabrous. Leaves opposite or in whorls of 3 or 4, sessile, ovate-lanceolate, linear-lanceolate, or rarely spatulate, 0.5–5.3 × 0.2–1.5 cm, base subamplexicaul, margin serrate, abaxially villous along veins, adaxially glabrous or sparsely villous; veins pinnate, inconspicuous. Flowers solitary in leaf axils, or in terminal panicles. Pedicel 3–5 mm, villous to subglabrous. Bracteoles ca. 2 mm. Calyx 5–7 mm, villous or subglabrous, with raised veins in fruit. Corolla purple-red, blue, or rarely white, 1–1.5 cm. Capsules compressed, broadly ellipsoidal, ca. 5 mm.

Locality: Shing Mun, Tai Mo Shan, Sai Kung (Tai Wan). *C. G. Matthew 5230; HK sheet 35392, 37908.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; tropical Asia, Australia.

Ecology: Wet places. Flowering & fruiting: Oct.–Mar. of the following year.

3. Adenosma R. Br. 毛麝香屬

Herbs, erect or creeping, frequently aromatic, blackened when dry, eglandular or glandular villose. Leaves opposite; leaf blade glandular punctate, margin serrate. Flowers in racemes, spikes or heads, sometimes solitary in axils of apical leaves. Bracteoles 2. Calyx deeply 5-lobed; upper lobe usually larger. Corolla tubular; limb 2-lipped; lower lip spreading, 3(–4)-lobed; upper lip erect, emarginate or entire. Stamens 4, didynamous, included. Anther 2-celled; cells separate, short stipitate, 1 or 2 cells of anterior anthers abortive, 2 (or 1) cells of posterior anther fertile; styles apex dilated, entire or 2-lobed. Capsules ovoid to ellipsoidal, septifragal, 4-valved, apex ± beaked. Seeds numerous, minute; testa reticulate.

About 15 species distributed in S & SE Asia, Pacific islands; four species in China; two species in Hong Kong.

1a. Pedicels 5–10 mm; corolla 9–28 mm; capsules 5–9 mm ..... 1. *A. glutinosum*
1b. Flowers sessile; corolla ca. 6 mm; capsules ca. 3 mm ..... 2. *A. indianum*

1. Adenosma glutinosum (L.) Druce
毛麝香 **(Fig. 125; Photo 256)**

Bot. Exch. Club Soc. Brit. Isles 3: 413. 1914; FHN 3: 500. 1974; FGD 4: 368. 2000; FRPS 18: 25. 1998.

Gerardia glutinosa L., Sp. Pl. 2: 611. 1753.

Digitalis sinensis Lour., Fl. Cochinch. 378. 1790.

Pterostigma grandiflorum Benth., Prodr. 10: 380. 1846; FHK 247. 1861.

Adenosma grandiflorum (Benth.) Dunn & Tutcher, FKH 185. 1912.

Herbs, 30–100 cm tall. Stems erect, purplish, terete or upper part slightly 4-angulate, densely villous with eglandular and glandular hairs. Leaves opposite or upper ones alternate; petioles 3–20 mm; leaf blade lanceolate-ovate to broadly ovate, 2–10 × 1–5 cm, base cuneate, truncate or subcordate, apex acute, margin irregularly serrate and sometimes double serrate. Flowers axillary and solitary or in leafy racemes apically on stems and branches. Bracts small. Pedicel 0.5–1.5 cm, elongating to 2 cm in fruit. Calyx 0.7–1.3 cm; lobes narrowly lanceolate. Corolla purple-red to violet, 0.9–2.8 cm; lower lip 3(–4)-lobed; upper lip ovate-orbicular, apex truncate to emarginate. Anterior anthers with 1 fertile cell; posterior anthers with 2 fertile cells; styles gradually widened and narrowly winged. Capsules ovoid, 5–9 × 3–6 mm, 2-grooved, apex beaked. Seeds brown to dark brown.

Locality: Common in Hong Kong. *H. C. Tang 561, 2026; Y. S. Lau 32.*

Distribution: Hainan, Guangdong Guangxi, Yunnan, Jiangxi, Fujian; Cambodia, India, Indonesia, Laos, Malaysia, Thailand, Vietnam, Oceania.

Ecology: Thickets, grasslands. Flowering & fruiting: Jul.–Oct.

Uses: Medicinal (folklore), ornamental.

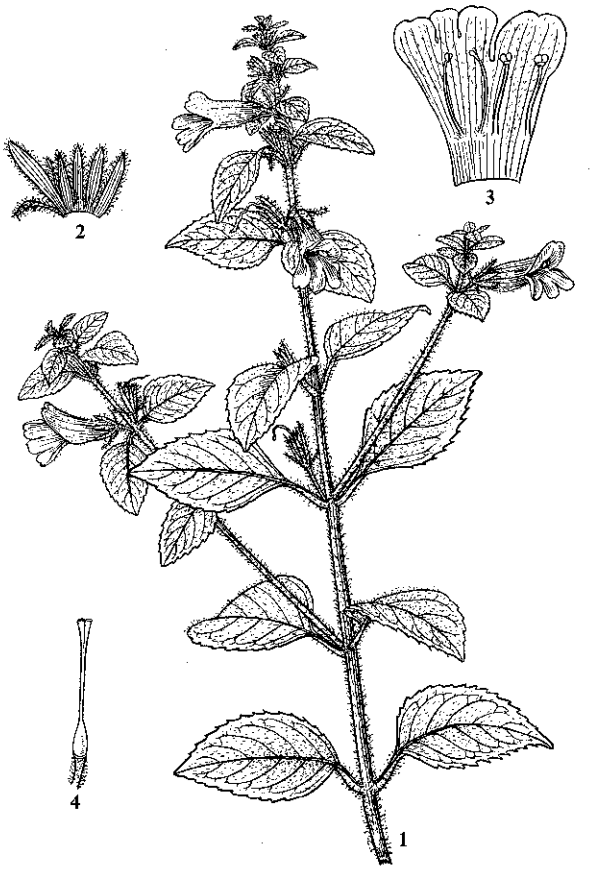


Figure 125. *Adenosma glutinosum* (L.) Druce
1. upper portion of plant; *2.* calyx opened; *3.* corolla opened; *4.* pistil. (drawn by H. P. Yu)

2. Adenosma indianum (Lour.) Merr. 球花毛麝香

Trans. Amer. Philos. Soc. n.s. 24(2): 351. 1935; FHN 3: 501. 1974; FGD 4: 369. 2000; FOC 18: 25. 1998.

Manulea indiana Lour., Fl. Cochinch. 386. 1790.

Pterostigma capitatum Benth., Scroph. Ind. 21. 1835; FHK 248. 1861.

Adenosma capicatum Benth. ex Hance, J. Bot. Linn. Soc. Bot. 13: 114. 1872; FKH 186. 1912.

Annual herbs, 20–60(–100) cm tall, wholly glandular hairy. Stems erect, branched. Petiole 2–6 mm; leaf blade ovate to narrowly elliptic, 1.5–4.5 × 0.5–1.2 cm, base broad-cuneate or acute, apex obtuse, margin serrate. Inflorescences globose to cylindric spicate, 0.7–2 cm. Bracts narrowly ovate, forming an involucre at the base of spikes. Flowers sessile. Calyx 4–5 mm; lobes narrowly ovate to oblong-lanceolate, 2–3 mm. Corolla pale purple to dark blue, ca. 6 mm, throat hairy; lower lip lobes equal, suborbicular, ca. 1 mm. Anterior anthers with 1 fertile cell; posterior anthers with 2 fertile cells. Ovary narrowly ovoid. Capsules ovoid, ca. 3 mm, 2-grooved. Seeds yellow.

Locality: Fanling. *W. J. Tutcher 8396, 11236; HK sheet 20396.*

Distribution: Guangdong, Guangxi, Hainan, Yunnan; Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Sikkim, Thailand, Vietnam.

Ecology: Grassy hillslopes. Flowering & fruiting: Sep.–Nov.
Uses: Medicinal (folklore).

4. Veronica L. 婆婆納屬

Perennial herbs, annual, or sometimes suffrutescent. Stems erect, procumbent, or creeping. Leaves mostly opposite, rarely whorled or upper ones alternate, entire or variously pinnatifid to pinnatisect. Inflorescences terminal or lateral. Calyx 4–5-lobed, divided to base, if 5-lobed, upper lobe much smaller or absent. Corolla 4-sect or 4-lobed, rarely slightly 2-lipped; tube short, rarely conspicuous; limb subrotate; lobes unequal. Stamens 2, exserted; anther-cells apically confluent. Ovary ovoid, often laterally compressed; styles persistent; stigma capitate. Capsules diverse in shape, slightly or strongly compressed laterally, 1-grooved, loculicidal. Seeds 2–50 per capsule, flattened and convex on both sides, navicular or cupular.

About 250 species cosmopolitan, mainly in Asia and Europe; 53 species in China; three species in Hong Kong.

1a. Racemes terminal; corolla 8–14 mm in diam. ..... 1. *V. persica*
1b. Racemes axillary; corolla 4–5 mm in diam.
2a. Stems and leaves glabrous ..... 2. *V. undulata*
2b. Stems densely white villose; leaves pubescent ..... 3. *V. javanica*

1. Veronica persica Poir. 阿拉伯婆婆納 **(Photo 257)**

Encycl. 8: 542. 1808; FOC 18: 70. 1998.

Veronica tournefortii C. C. Gmel., Fl. Ead. 1: 39. 1805.

Veronica didyma auct. non Tenore: Check List HK Plants 73. 1993.

Annual herbs, sometimes biennial. Stems diffuse, ca. 20–50 cm, densely pubescent with multicellular hairs, often more densely so along 2 lines. Leaves opposite, usually 3 or 4 pairs; petioles 1–8 mm; leaf blade ovate-lanceolate to suborbicular, 10–20 × 8–15 mm, evenly and sparsely pubescent on both surfaces, margin obtusely crenate-serrate. Racemes terminal, laxly flowered. Bracts alternate, leaf-like, upper ones smaller than others. Calyx 4-lobed; lobes ovate-lanceolate, 5–8 mm in fruit, sparsely pubescent, 3-veined. Corolla usually blue, rotate, 8–14 mm in diam., throat sparsely hairy; lobes ovate to orbicular. Stamens shorter than corolla. Capsules obcordate, strongly compressed, 4–6 × 6–9 mm, venation conspicuously reticulate. Seeds slightly navicular, usually 1.4–2.3 mm; testa deeply rugose dorsally.

Locality: Naturalized. *Y. S. Lau 2856; P. S. Choi 322; K. L. Yip 4384.*

Distribution: S, C, SW & E China; native to SW Asia and since the 19th century spread over most of the world.

Ecology: Grasslands on higher ground. Flowering: Feb.–May.

2. Veronica undulata Wall. ex Jack 水苦賈 **(Fig. 126)**

Fl. Ind. 1: 147. 1820; FOC 18: 79. 1998; FGD 4: 379. 2000.

Veronica anagallis-aquatica auct. non L.: FKH 190. 1912, as '*V. Anagallis*'.

Perennial herbs, rarely annual. Stems erect or procumbent at base, 10–100 cm tall, ± succulent, sparsely covered with capitate glandular hairs. Leaves sessile, amplexicaul upward; leaf blade elliptic to ovate, sometime ovate-oblong or linear-lanceolate, rarely lanceolate, 2–10 × 1–3.5 cm, margin serrate. Racemes axillary, longer than leaves. Calyx 4-lobed; lobes ovate-lanceolate, ca. 3 mm. Corolla pale blue, pale purple, or white, rotate, 4–5 mm in diam.; tube short; lobes broadly ovate, slightly unequal in width. Stamens shorter than corolla. Capsules subglobose, as long as calyx, slightly compressed, apex rounded and slightly notched. Seeds slightly flattened, convex on both sides.

Locality: Wong Nai Chung, Sha Tin. *Y. S. Lau 2965; HK sheet 4160, 4161.*

Distribution: Widely distributed in China; E Afghanistan, N India, Korea, Japan, Laos, Nepal, Pakistan, Thailand, Vietnam.

Ecology: Wet places near villages. Flowering: Feb.–Apr.; fruiting: Apr.–May.

Uses: Medicinal (folklore).

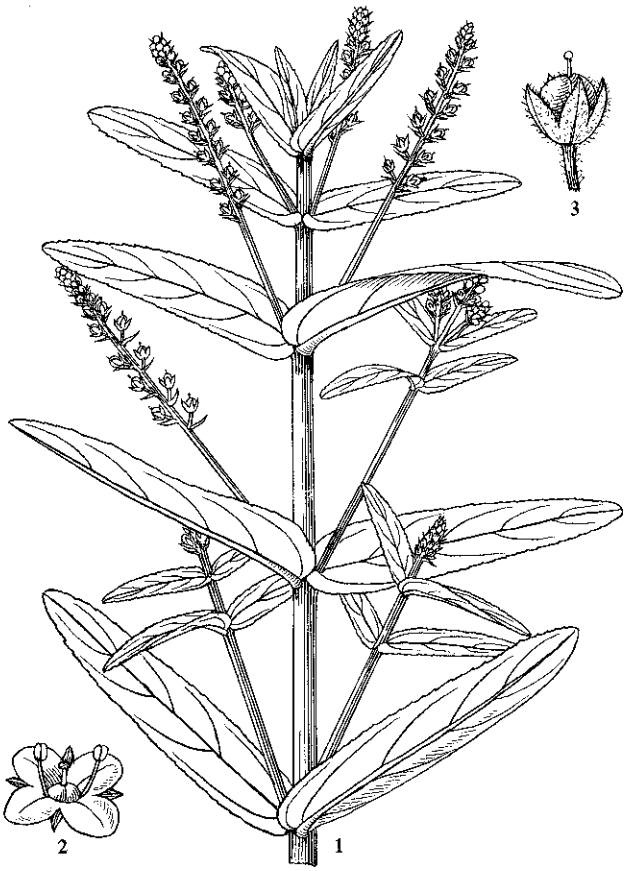


Figure 126. *Veronica undulata* Wall. ex Jack
1. upper portion of plant; 2. flower; *3*. fruit with persistent calyx and style. (drawn by H. P. Yu)

3. Veronica javanica Blume 多枝婆婆納

Bijdr. 742. 1826; FOC 18: 74. 1998; FGD 4: 380. 2000.

Annual or perennial herbs, 10–40 cm tall. Stems erect or ascending, many-branched, densely white villose. Leaves alternate; petiole 1–7 mm; leaf blade ovate to ovate-triangular, 1–4 × 1–3 cm, base ± cordate to truncate, apex obtuse, margin deeply incised dentate. Racemes axillary, initially short and subcorymbose, lengthening to 10 cm in fruit; bracts linear to oblanceolate, 4–6 mm; much longer than pedicels. Calyx 4-lobed; lobes linear-elliptic, 2–5 mm, subequal. Corolla white, pink or red-purple, rotate, ca. 2 mm; tube ca. 1.4 mm, hairy in throat. Stamens about half the length of corolla. Capsules obcordate, strongly compressed, 2–3 × 3–4 mm, notched at apex.

Locality: Sai Kung. *Y. W. Lam 1767.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Gansu, Shaanxi, Hunan, Jiangxi, Zhejiang, Fujian, Taiwan; Korea, Japan, Philippines, Indochina, Bhutan, India, Indonesia, Africa.

Ecology: Wet places near villages. Flowering: Apr.

5. Microcarpaea R. Br. 小果草屬

Annual herbs, very small, cushion-like. Stems slender, prostrate, many-branched. Leaves opposite, small, sessile. Flowers axillary., solitary, ebracteolate. Calyx campanulate, 5-ribbed, 5-fid, nearly to a third of its length; lobes deltate-ovoid, ciliate. Corolla tube short, straight; limb 2-lipped, lower lip patent, 3-lobed, upper lip entire, short, erect. Stamens 2, included; filaments filiform; anthers connivent, 1-celled. Ovary ovoid to globose; stigma inflexed, ligular. Capsules slightly flattened, 2-grooved, loculicidally 2-valved; valves entire. Seeds few, ovoid-fusiform, ± smooth.

One species distributed in E Asia, Pacific island; also in China and in Hong Kong.

1. Microcarpaea minima (K. D. Koenig ex Retz.) Merr. 小果草 **(Fig. 127)**

Philipp. J. Sci. 7(2): 100. 1912; FOC 18: 49. 2000; FGD 4: 370. 2000.

Paederota minima K. D. Koenig ex Retz., Observ. Bot. 5: 10. 1789.

Microcarpaea muscosa R. Br., Prodr. 435. 1810; FHK 253. 1861; FKH 189. 1912.

Annual herbs, cushion-like. Stems prostrate, slender, filiform, base 4-angled, many-branched, striate, glabrous. Leaves opposite, sessile, amplexicaul, linear to narrowly oblong, 3–6 × 1–2 mm, margin entire, somewhat thickened; glabrous on both surfaces, punctuate above, veins inconspicuous. Flowers solitary and axillary, sessile. Calyx campanulate, ca. 1.5 mm, lobes deltoid-ovate, sparsely ciliate. Corolla pink, 2–3 mm, upper lip erect, lower lip spreading. Stamens 2. Capsules ovoid, shorter than calyx. Seeds brownish yellow, ca. 0.3 mm.

Locality: Sha Tin, Tsiu Hang, Wu Kau Tang, Fanling. *L. T. Lo 534; Y. W. Lam 332, 1238.*

Distribution: Guangdong, Guizhou, Yunnan, Zhejiang, Taiwan; India, Indonesia, Japan, Korea, Malaysia, Thailand, Vietnam, Australia.

Ecology: Wet places. Flowering: Jul.–Oct.

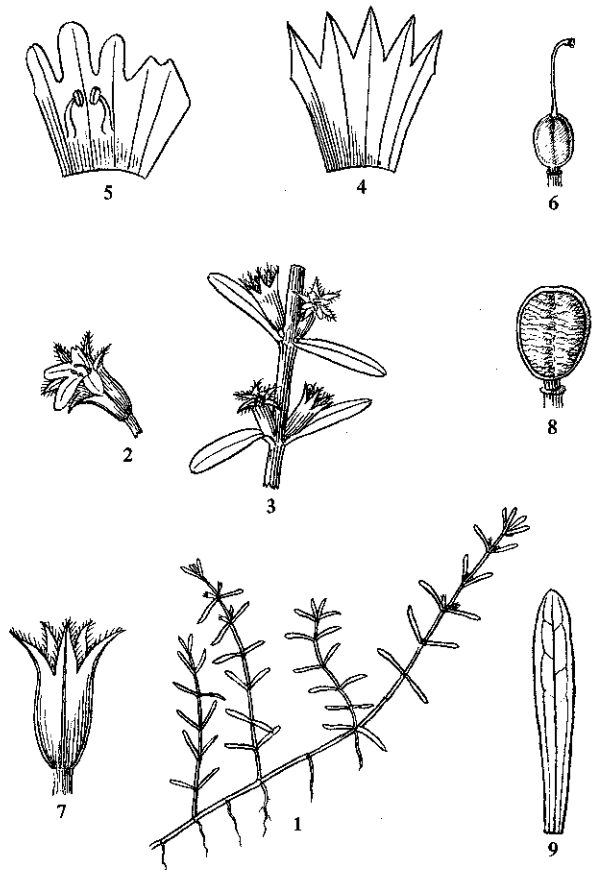


Figure 127. *Microcarpaea minima* (K. D. Koenig ex Retz.) Merr. *1.* portion of plant; *2.* flower; *3.* amplification of flowering branch; *4.* calyx opened; *5.* corolla opened; *6.* pistil; *7.* fruit with persitent calyx; *8.* fruit; *9.* leaf. (drawn by H. P. Yu)

6. Dopatrium Buch.-Ham. ex Benth. 虻眼屬

Annual herbs, slender, erect or sometimes decumbent, ± succulent. Leaves opposite, sometimes scale-like. Flowers axillary, solitary. Bracteoles absent. Calyx deeply 5-lobed; lobes subequal. Corolla-tube much longer than calyx, distally inflated; limbs 2-lipped; lower lip 3-lobed; upper lip 2-lobed, conspicuously shorter than lower lip. Fertile stamens 2, inserted on posterior side of corolla-tube; filaments filiform; anther-cells parallel; staminodes 2, small, inserted on anterior side, styles short, stigma 2-lamellate, clavate, or capitate. Ovary 2-loculed; ovules numerous. Capsules loculicidal; valves entire or apex shallowly 2-lobed. Seeds small, numerous.

About 12 species distributed in tropics of Africa, Asia, Australia; one species in China and in Hong Kong.

1. **Dopatrium junceum** (Roxb.) Buch.-Ham. ex Benth.
虻眼 **(Fig. 128; Photo 258)**

Scroph. Ind. 31. 1835; FHK 249. 1861; FKH 187. 1912; FHN 3: 499. 1974; FOC 18: 23. 1998; FGD 4: 397. 2000.

Annual herbs, to 50 cm tall. Stems succulent, erect, many-branched from base. Branches slender, longitudinally striate, glabrous. Leaves sometimes scale-like, gradually decreasing in size upward, sessile, lanceolate to subspatulate-lanceolate, to 2 cm, base amplexicaul and generally narrowly attenuate, apex acute to ± obtuse, margin entire. Flowers solitary and axillary. Pedicels slender, to 1 cm. Calyx campanulate, ca. 2 mm, 5-lobed. Corolla white, rose, or pale purple, ca. 5 mm; lower lip spreading flat; upper lip erect, short. Fertile stamens 2, staminodes 2. Capsules globose, ca. 2 mm in diam. Seeds ovoid-oblong; testa reticulate.

Locality: East Point. *W. J. Tutcher 1341.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Shaanxi, Henan, Jiangxi, Jiangsu, Taiwan; Japan, India, SE Asia, Australia.

Ecology: Marshy grounds. Flowering: Jun.–Oct.

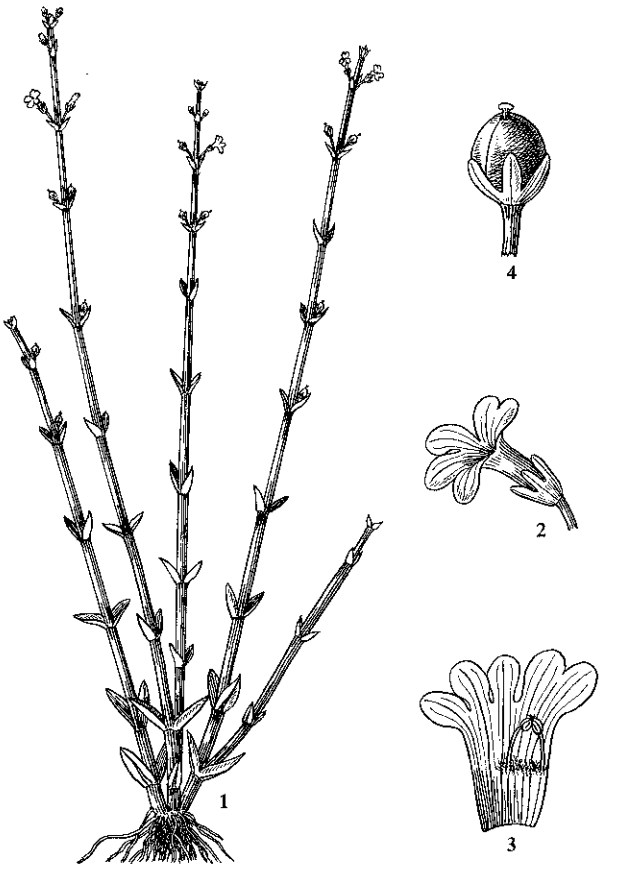


Figure 128. *Dopatrium junceum* (Roxb.) Buch.-Ham. ex Benth.
1. whole plant; *2.* flower; *3.* corolla opened; *4.* fruit. (drawn by H. P. Yu)

7. Buchnera L. 黑草屬

Herbs hemiparasitic, erect, stiff, usually drying black. Leaves basally opposite, apically alternate; leaf blade margin entire, often coarsely toothed at stem base. Inflorescence spikes or spicate racemes. Bracteoles 2. Calyx tubular, veins 10, sometimes inconspicuous; lobes 5, short. Corolla lobes 5, subequal. Stamens 4, didynamous, included. Anthers 1-celled, erect, dorsifixed, base obtuse, apex mucronate; styles apically clavate; stigma entire or incised. Capsules loculicidal; valves entire. Seeds numerous, somewhat dorsiventrally compressed.

About 60 species distributed in tropical to subtropical regions; one species in China and in Hong Kong.

1. **Buchnera cruciata** Buch.-Ham. ex D. Don
黑草(鬼羽箭) **(Fig. 129; Photo 259)**

Prodr. Fl. Nepal. 91. 1825; FHK 253. 1861; FKH 190. 1912; FOC 18: 88. 1998; FGD 4: 392. 2000.

Herbs 8–50 cm tall, with curved hairs. Stems simple or apically somewhat branched. Basal leaves rosulate; petioles inconspicuous; leaf blade obovate, 2–2.5 × 1–1.5 cm, base tapering. Stem leaves sessile, linear to linear-oblong, 1.5–4.5 × 0.3–0.5(–1.2) cm, margin often with 2–few obtuse teeth. Spikes terminal, cylindric to subquadrangular, 1–4.5 cm, lengthening to 6.5 cm in fruit. Bracts ovate, ca. 4.8 × 2.5 mm, densely villous; bracteoles linear, 2–3 mm, villous. Calyx 4–4.5 mm, villous; tube slightly curved; lobes triangular, subequal. Corolla blue-purple, narrowly tubular, somewhat curved, 6–7 mm, somewhat ribbed, villous on portion exserted from calyx, throat constricted; lobes obovate to oblanceolate, 1.5–2 × ca. 1 mm. Anthers ca. 1 mm. Ovary ovoid, 2–2.5 mm. Capsules oblong, ca. 5 mm. Seeds ± spirally striate.

Locality: Ta Kwu Ling, Kong Nga Po. *L. T. Lo 256; P. S. Choi 78; Y. W. Lam 2011.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Hubei, Jiangxi, Fujian; S & SE Asia.

Ecology: Hillslopes, wastelands. Flowering & fruiting: Apr.–Jan. of the following year.

Uses: Medicinal (folklore).

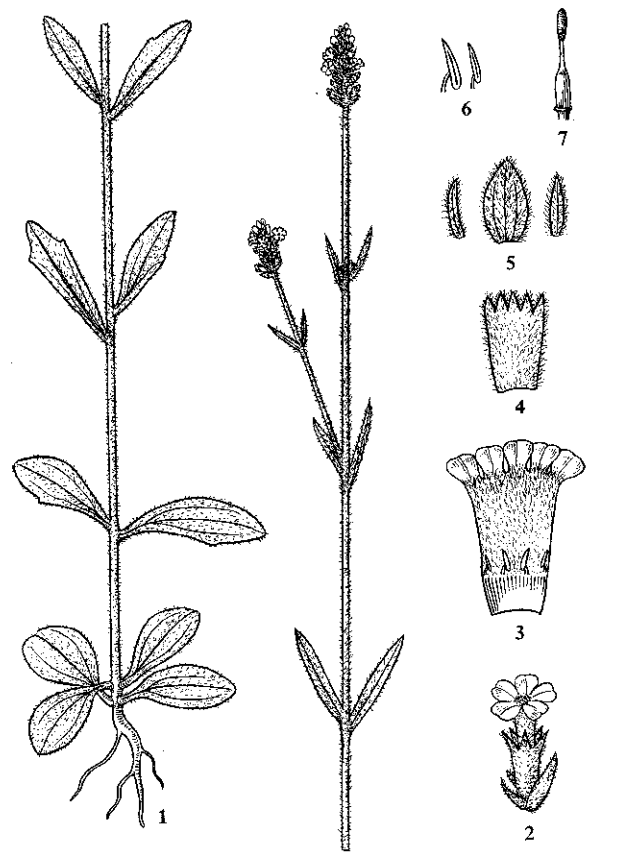


Figure 129. *Buchnera cruciata* Buch.-Ham. ex D. Don
1. upper and lower porion of plant; *2.* flower; *3.* corolla opened; *4.* calyx opened; *5.* bracts; *6.* anthers; *7.* pistil. (drawn by H. P. Yu)

8. Striga Lour. 獨腳金屬

Herbs, parasitic on roots. Leaves opposite below, alternate above, narrow, sometimes reduced to scales. Flowers axillary, solitary or in spikes, usually with a pair of bracteoles. Calyx tubular, conspicuously 5–15-ribbed, limb 5-lobed. Corolla salverform; tube curved; limb patent, weakly 2-lipped; lower lip 3-lobed; upper lip shorter than lower lip, usually emarginate or 2-fid. Stamens 4, didynamous. Anthers 1-celled, apex pointed, stigma clavate. Capsules loculicidally 2-valved. Seeds numerous, ovoid to oblong; testa reticulate.

About 20 species distributed in Africa, tropical and subtropical Asia, Oceania; four species in China; two species in Hong Kong.

1a. Plants 10–22 cm tall; calyx 10-ribbed ..... 1. *S. asiatica*
1b. Plants 30–60 cm tall; calyx 15-ribbed ..... 2. *S. masuria*

1. Striga asiatica (L.) Kuntze
獨腳金 **(Fig. 130; Photos 260–261)**

Rev. Gen. Pl. 466. 1891; FOC 18: 88. 1998; FGD 4: 393, fig. 238. 2000.

Buchnera asiatica L., Sp. Pl. 2: 630. 1753.

Striga asiatica var. *humilis* (Benth.) D. Y. Hong, FRPS 67(2): 359, 405. 1979.

Striga hirsuta Benth., Prodr. 10: 502–503. 1846; FHK 254. 1861.

Striga hirsuta var. *humilis* Benth., Prodr. 10: 503. 1846.

Striga lutea Lour., Fl. Cochinch. 1: 22. 1790; FKH 190. 1912; FTW ed. 2, 4: 627.

Annual herbs, 10–20(–30) cm tall, hirsute throughout. Stems erect, simple, rarely branched. Leaf blade linear to narrowly lanceolate, 5–20 × 1–4 mm, sometimes reduced to scales. Flowers axillary, solitary or in a spike upward. Calyx 4–8 mm, 10-ribbed; lobes 5, ± as long as the tube, subulate. Corolla usually yellow, rarely red or white; tube 0.8–1.5 cm, apically strongly curved; upper lip 2-lobed. Capsules ovoid, enveloped in persistent calyx.

Locality: Wong Nai Chung Gap, Ma On Shan, Tai Mei Tuk, Sai Kung (Sai Wan), Lamma Island, Sunset Peak. *Y. S. Lau 329, 1640; P. S. Choi 454.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Jiangxi, Fujian, Taiwan.

Ecology: Grasslands. Flowering: Jul.–Oct.

Uses: Medicinal (folklore).

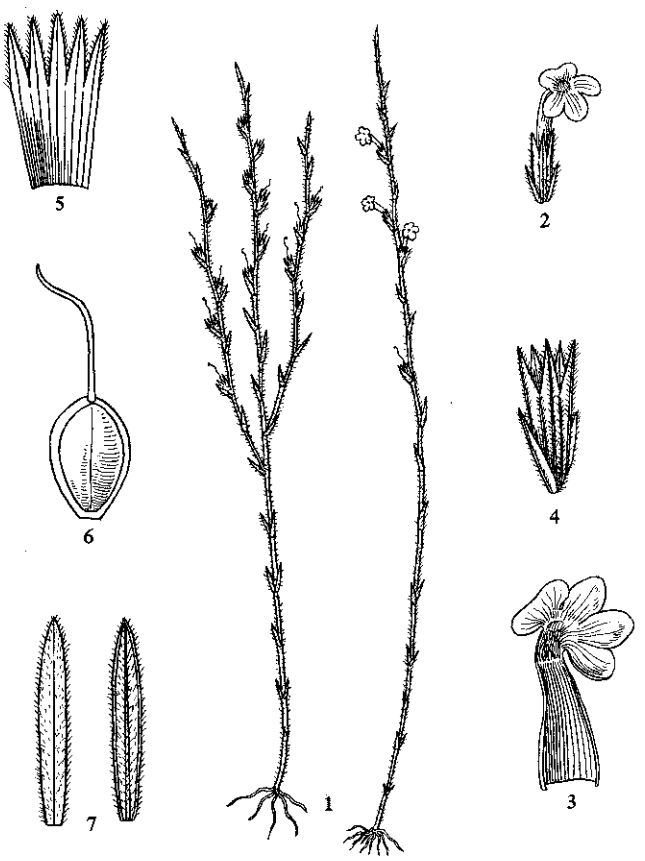


Figure 130. *Striga asiatica* (L.) Kuntze
1. whole plant; *2.* flower; *3.* corolla opened; *4.* calyx and bracts; *5.* calyx opened; *6.* fruit; *7.* leaves. (drawn by H. P. Yu)

2. Striga masuria (Buch.-Ham. ex Benth.) Benth. 大獨腳金
Compan. Bot. Mag. 1: 364. 1836; FHK 254. 1861; FKH 190. 1912; FOC 18: 88. 1998; FGD 4: 394. 2000; FTW ed. 2, 4: 627.

Buchnera masuria Buch.-Ham. ex Benth., Scroph. Ind. 41. 1835.

Perennial herbs, 30–60 cm tall, entirely hispid. Stems erect, ± quadrangular, simple or weakly branched. Leaf blade linear, 2–3 cm, longest at middle of stem. Flowers solitary, rarely in a spike. Calyx ca. 1 cm at anthesis, to 1.5 cm in fruit, 15-ribbed; lobes ca. 2 times as long as tube, linear-elliptic. Corolla pink, white, or yellow; tube to 1.2 cm, apically curved forward; upper lip ca. 1/2 as long as lower lip, apex notched. Capsules ovoid, ca. 6 mm.

Locality: Deep Water Bay. *H. F. Hance s.n.; W. A. Harland s.n.* (fide FHK 254. 1861).

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangsu, Fujian, Taiwan; India, Myanmar to Philippines.

Ecology: Grassy slopes. Flowering: Summer to autumn.

9. Centranthera R. Br. 胡麻草屬

Annual herbs. Stems prostrate or erect, quadrangular or terete. Leaves cauline, opposite to alternate above, sessile. Flowers axillary, solitary or forming lax spikes or racemes; Bracteoles 2. Calyx spathaceous, split on 1 side, shortly 3–5-lobed. Corolla funnelform, swelling below throat or distally and gradually expanding, somewhat 2-lipped; lobes 5, subequal, erect or spreading. Stamens 4, didynamous, included, thecae subequal or one theca smaller and sterile; filaments usually hairy. Ovary ovoid; stigma biflabellate. Capsules loculicidally 2-valved; valves entire. Seeds numerous; testa spirally striate or reticulate.

About nine species distributed in tropical and subtropical Asia and Australia; three species in China; two species in Hong Kong.

1a. Stems branched at or above middle; bracts shorter than or rarely as long as corolla; corolla 1.5–4 cm ..... 1. *C. cochinchinensis*

1b. Stems much branched at base; bracts longer than corolla; corolla 0.9–1.3 cm..... 2. *C. tranquebarica*

1. Centranthera cochinchinensis (Lour.) Merr.
胡麻草 **(Fig. 131)**

Trans. Amer. Philos. Soc. 24(2): 353. 1935; FHN 3: 512. 1974; FOC 18: 85. 1998; FGD 4: 395. 2000.

Digitalis cochinchinensis Lour., Fl. Cochinch. 378. 1790.

Centranthera hispida auct. non. R. Br.: FHK 254. 1861; FKH 190. 1912.

Centranthera brunoniana auct. non Wall.: FKH 190. 1912; FGZ 592. 1956.

Herbs, (13–)30–60 cm tall. Stems erect, simple or few-branched, hispid. Leaves opposite, rarely alternate, sessile, linear-lanceolate, 2–3 cm × 3–4 mm, margin entire and subrevolute, hispid on both surfaces. Bracts shorter than or rarely as long as corolla. Flowers borne above middle of stem. Calyx spathaceous, 7–10 mm, densely hispid, apex shallowly 3-lobed. Corolla reddish white with yellow stripes, 3.5–4 cm; lower lip 3-lobed, orbicular, upper lip orbicular, 2-lobed. Stamens 4, filaments woolly. Ovary glabrous. Capsules ovoid, 4–8 mm, apex mucronate. Seeds yellow, small, spirally striate.

Locality: Wan Chai, Mount Violet, Ma On Shan, Yung Shue O. *Y. S. Lau 2787, 3260; Y. W. Lam 423.*

Distribution: Areas S of Changjiang; tropical Asia, Australia.

Ecology: Grassy hillslopes. Flowering & fruiting: Jul.–Oct.

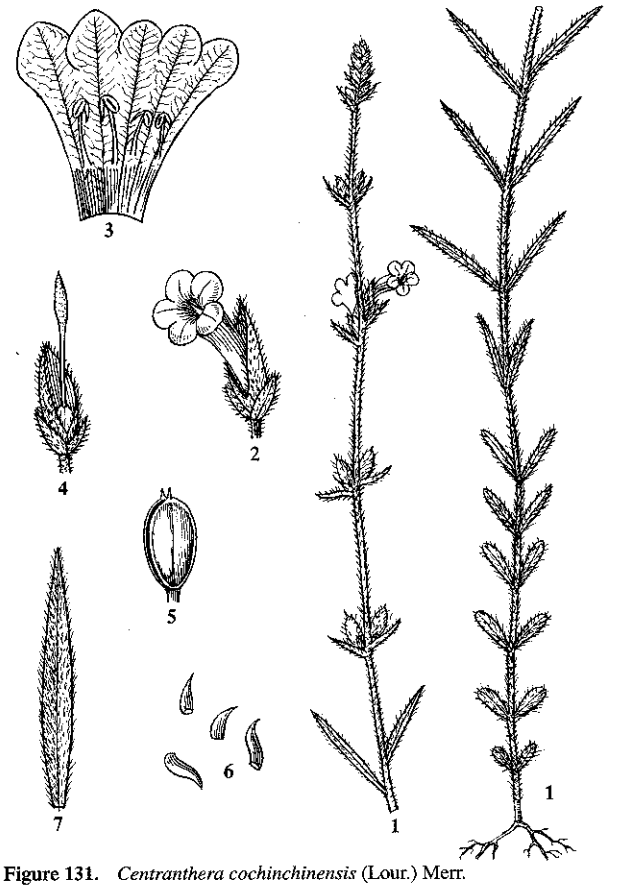


Figure 131. *Centranthera cochinchinensis* (Lour.) Merr.
1. upper and lower portion of plant; *2.* flower; *3.* corolla opened; *4.* calyx , bracteoles and pistil; *5.* fruit; *6.* seeds; *7.* leaf. (drawn by H. P. Yu)

2. Centranthera tranquebarica (Spreng.) Merr. ex Merr. & Chun 矮胡麻草

Sunyatsenia 5: 182. 1940; FOC 18: 85. 1998; FGD 4: 395, fig. 239. 2000.

Razumovia tranquebarica Spreng., Mant. Prim. Fl. Hal. 45. 1807.

Centranthera tonkinensis Bonati, Not. Syst. Lecomte 1: 337. 1911; FGD 4: 395. 2000.

Centranthera humifusa Wall., Scroph. Ind. 50. 1835; Rep. Bot. & Forest. Dep. Hongk. (1916) 22. 1917.

Herbs, 5–30 cm tall. Stems erect or prostrate, slender, branched from base. Leaves linear-lanceolate, 8–25 × 2–3 mm, glabrous on both surfaces or abaxially short hairy. Bracts longer than corolla. Calyx ovate, ca. 3 mm at anthesis, hispidulous. Corolla yellow, brown striate, 9–13 mm; throat densely black punctate; lower lip lobes suboblong, ca. 3 mm; upper lip lobes suborbicular, 3 × 2 mm. Stamens 2–5 mm; filaments white lanose-villous. Ovary oblong, 3 × 2.5 mm, glabrous. Capsules subglobose, 4–5 × ca. 4 mm, as long as persistent calyx. Seeds yellow, cylindric-conical, ca. 1 mm; testa reticulate.

Locality: Shau Kei Wan, Fanling. *W. J. Tutcher 11444; HK sheet 39461.*

Distribution: Hainan, Guangdong, Guangxi, Fujian; tropical Asia.

Ecology: Grasslands, roadsides. Flowering & fruiting: Sep.–Oct.

10. Antirrhinum L. 金魚草屬

Perennial herbs, somewhat woody at base, rarely dwarf shrubs. Leaves simple, entire, pinnately-veined, usually opposite below and alternate above. Flowers zygomorphic, in terminal, bracteate racemes, or solitary in leaf-axils. Calyx deeply and ± equally 5-lobed. Corolla glandular-pubescent outside; tube cylindric, produced abaxially at base into a short pouch; limb 2-lipped, lower lip 3-lobed, with a prominent palate at base, upper lip 2-lobed. Stamens 4, didynamous, included. Stigma capitate. Capsules with 2 unequal loculi, adaxial longer, narrower above, and opening by an apical pore, abaxial shorter, and with 2 apical pores. Seeds numerous, reticulate-rugose.

About 20 species distributed in Mediterranean region; one species cultivated in China and in Hong Kong.

1. Antirrhinum majus L. 金魚草 **(Fig. 132; Photo 262)**
Sp. Pl. 617. 1753; D. A. Webb in T. G. Tutin & V. H. Heywood, Fl. Europ. 3: 223. 1972.

Perennial herbs. Stems up to 150 cm, erect or straggling, glabrous. Leaves linear to ovate, 10–70 × 1–25 mm, base distinctly cuneate. Inflorescence glabrous or glandular-pubescent. Pedicels 2–10 mm. Bracts ovate, 2–10 mm. Calyx-lobes ovate-oblong to suborbicular, 6–8 mm. Corolla usually pink or purple, 3–4.5 cm. Capsules oblong, 10–14 mm, glandular-pubescent or glabrous.

Locality: Cultivated. *K. Y. Chan 1428* (CUHK); *S. Y. Hu 9646* (CUHK); *H. T. Shun 28* (CUHK).

Distribution: Native to Mediterranean region, widely cultivated.

Ecology: Flowering: Summer to autumn.

Uses: Ornamental (aquarium).

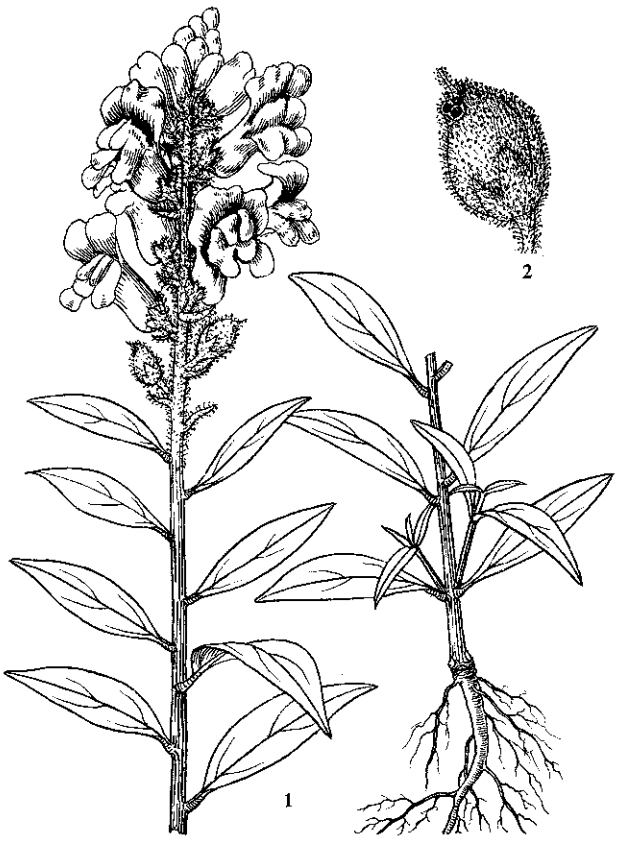


Figure 132. *Antirrhinum majus* L.
1. upper and lower portion of plant; *2*. fruit. (drawn by H. P. Yu)

11. Sopubia Buch.-Ham. ex D. Don 短冠草屬

Annual herbs or perennial, or subshrubs. Stems erect to ascending; branches opposite, rarely 3 in a whorl apically. Leaves opposite below, alternate above, or verticillate, narrow, often pinnatisect with linear or filiform segments. Flowers solitary and axillary, or in terminal racemes, shortly pedicellate; pedicels 2-bracteolate. Calyx campanulate, or tubular, 5-toothed or shortly 5-lobed. Corolla pink, rose-violet to white, cream or yellow, subrotate, with 5 subequal, usually entire lobes; tube short. Stamens 4, didynamous, not completely included; filaments short, curved; anthers at least one pair, connivent, 2-celled, one cell fertile, poricidal, the others smaller, stipitate, empty. Ovary ovoid to globose. Stigma tongue-shaped. Capsule ovoid or oblong, loculicidally 2-valved; valves entire or 2-fid. Seeds numerous, oblong or obovoid, testa reticulate.

About 40 species from Himalayas to Indochina, Indo-Malaysia, New Guinea and Australia; two species in China; one species in Hong Kong.

1. Sopubia matsumurae (T. Yamaz.) C. Y. Wu 毛果短冠草(短冠草)
Novon 9 (2): 288. 1999.

Petitmenginia matsumurae T. Yamaz., J. Jap. Bot. 25: 214. 1950.

Sopubia lasiocarpa P. C. Tsoong, FRPS 67(2): 405. 1979; FOC 18: 87. 1998.

Sopubia stricta auct. non (Benth.) G. Don: Rep. Bot. & Forest. Dep. Hongk. (1913): M21. 1914; (1914): M34. 1915.

Annual herbs, to 38 cm tall. Stems erect, basally terete, apically branched and ribbed, with short crisp hairs. Leaves opposite or subalternate on upper part of stem; leaf blade linear, to 5 cm × 1.5 mm, adaxially hispidulous, margin revolute. Racemes sparsely flowered, forming a large panicle. Pedicels 1.5–2 mm, pubescent. Bracteoles 2, attached near base of calyx. Calyx ca. 1.5 mm, inflated to 3.5 mm in fruit, 10-veined; lobes narrowly triangular, subequal, outside hispidulous, inside glabrous, apex acute. Corolla purplish, ca. 1 cm; tube ca. 7 mm; lobes obovate, subequal. Capsules 5–6 mm, much longer than persistent calyx, hispidulous, apex deeply concave, to 2/5 of capsule length. Seeds dark brown, irregularly oblong.

Locality: Fanling. *W. J. Tutcher 10554*.

Distribution: Hunan, Jiangsu, Zhejiang.

Ecology: Open fields. Flowering: Autumn.

Notes: This species was recorded as *Sopubia stricta* G. Don and *S. lasiocarpa* P. C. Tsoong previously (Check List HK Plants 73. 1993; 248. 2002; 85. 2004).

12. Siphonostegia Benth. 陰行草屬

Annual herbs. Stems erect, basally woody, apical many-branched. Leaves opposite, sessile or short petiolate; leaf blade pinnately parted or dissected. Racemes terminal; bracts foliaceous, parted to entire. Flowers opposite, sparse. Pedicel short. Bracteoles 2, linear. Calyx tube campanulate, 4–8 times longer than wide, membranous, 10-veined; lobes 5, subequal, sublanceolate. Corolla tube slender, straight, as long as or slightly longer than calyx tube; limb 2-lipped; lower lip as long as upper, 3-lobed; lobes ovate-triangular, subequal, apex acute, with two petaloid plaits; upper lip galeate, bowed. Stamens didynamous, slightly exserted. Ovary 2-loculed. Style slightly exserted. Capsules black to black-brown, enclosed by persistent calyx. Seeds numerous, oblong-ovoid; seed coat reticulate, wing thick, fleshy, hyaline.

Four species distributed in Asia; two species in China and in Hong Kong.

1a. Plants densely hairy, eglandular; leaves broadly ovate, 2-pinnatisect; calyx lobes 2.2–2.5 mm ..... 1. *S. chinensis*
1b. Plants densely glandular hairy; leaves narrowly triangular-ovate, nearly palmately 3-parted; calyx lobes 6–10 mm .....2. *S. laeta*

1. Siphonostegia chinensis Benth.
陰行草 **(Fig. 133; Photo 263)**
In Hook. & Arn., Bot. Beechey Voy. 203. 1837; FKH 191. 1912; FOC 18: 211. 1998.

Annual herbs, 30–60(–80) cm tall, black when dry, densely tawny hairy. Branches ± angled, densely pubescent. Leaves sessile or short petiolate; leaf blade broadly ovate, 0.8–5.5 × 0.4–6 cm, densely pubescent, 2-pinnatisect; pinnae 3 pairs, lowermost pair 2-pinnately parted; pinnules 1–3, linear to linear-lanceolate, 1–2 mm wide, margin entire. Racemes few-flowered; bracts pinnately parted or pinnatisect. Calyx tube 1–1.5 cm, densely pubescent; lobes green, subequal, linear-lanceolate to oblong, 2.2–2.5 mm, outside densely pilose, inside pubescent, margin entire or 1–2-toothed. Corolla tube 1.2–1.4 cm; lower lip yellow, lobes ovate; upper lip red-purple, apex truncate. Filaments basally ciliolate. Ovary narrowly ovoid, ca. 4 mm. Capsules ovoid-oblong, ca. 1.5 cm × 2.5 mm, apex suboblique and apiculate. Seeds black, ca. 0.8 mm.

Locality: Hong Kong Island, Lamma Island. *Y. S. Lau 1536; Y. W. Lam 1022; HK sheet 20719.*

Distribution: Widely distributed in China; Russia, Korea, Japan.

Ecology: Grassy hillslopes. Flowering & fruiting: Jun.–Sep.

Uses: Medicinal (folklore).

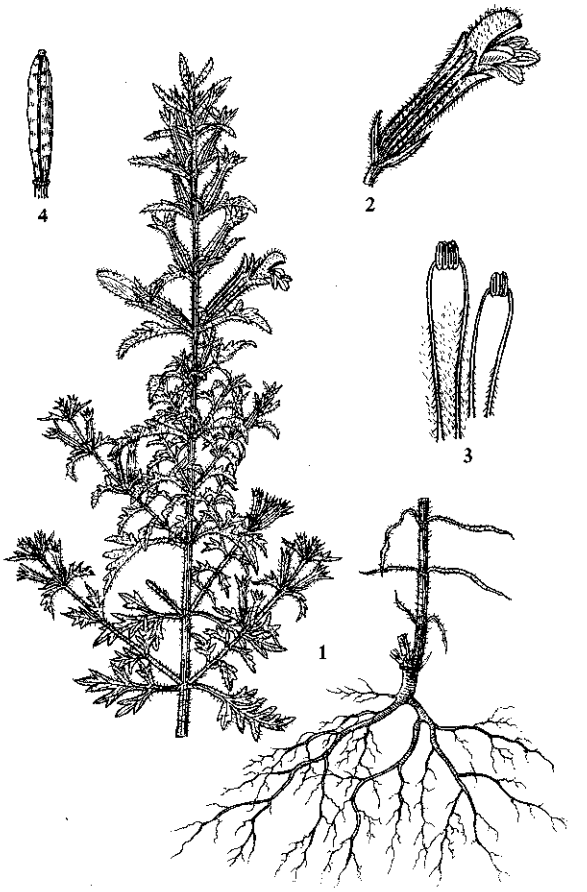


Figure 133. *Siphonostegia chinensis* Benth.
1. upper and lower portion of plant; *2.* flower; *3.* stamens; *4.* fruit. (drawn by H. P. Yu)

2. Siphonostegia laeta S. Moore 腺毛陰行草
J. Bot. 18: 5. 1880; FOC 18: 211. 1998.

Herbs, 30–70 cm tall, erect, blackish when dry, densely glandular hairy. Branches 3–5 pairs. Leaves short petiolate; leaf blade narrowly triangular-ovate, 1.5–2.5 × 0.8–1.5 cm, densely glandular hairy, nearly palmately 3-parted; median pinna larger than others, rhomboid-ovate, pinnately parted, with 3–6 ovate pinnules; lateral pinnae oblique triangular-ovate. Bracts foliaceous, as long as or shorter than calyx, rhomboid-ovate to ovate-lanceolate, densely glandular hairy, margin ± pinnately parted to subentire, apex acuminate. Pedicel 2–3 mm. Bracteoles 3–5 mm. Calyx tubular-campanulate; tube 1–1.5 cm; lobes 6–10 mm, margin entire. Corolla yellow, sometimes galea purplish; lower lip as long as galea, lobes triangular-ovate, ciliate with long multicellular hairs. Filaments densely pubescent. Ovary narrowly ovoid, 2–3 mm. Capsules 1.2–1.3 cm × 3.5 mm. Seeds yellow-brown, 1–1.5 mm.

Locality: Deep Water Bay, Lady Clementi's Ride. *Y. S. Lau 2519; P. S. Choi 534.*

Distribution: Anhui, Jiangsu, Zhejiang, Fujian, Guangdong, Guangxi, Hunan, Jiangxi.

Ecology: Grassy hillslopes. Flowering & fruiting: Jul.–Sep.

13. Russelia Jacq. 爆仗竹屬

Perennial suffrutescent herbs or dwarf shrubs, glabrous except for inflorescence. Stems erect or often recurved or pendent, quadrangular or terete. Leaves cauline, opposite or verticillate, sessile or petiolate, linear-lanceolate to ovoid, acuminate, with entire or dentate margin, sometimes reduced to small scales. Flowers usually distinctly pedicellate. Calyx deeply 5-lobed. Corolla bright red, cylindric, limb 2-lipped, lobes rounded, tube cylindric. Stamens 4, included. Ovary ovoid to globose, with long hyaline inner hairs. Seeds numerous, ovoid, testa exalate.

About 52 species distributed in tropical America; one species commonly cultivated in Hong Kong.

1. Russelia equisetiformis Schltr. & Cham.
爆仗竹 **(Fig. 134; Photo 264)**
Linnaea 6: 377. 1831; L. H. Bailey, Man. Cult. Pl. 899. 1949; FGZ 592. 1956.

Shrubs, 0.3–2 m tall, many-branched and glabrous; branches verticillate, slender, green, rush-like, striate, pendulous at top. Leaves small, ovate or linear-lanceolate, less than 1.5 cm, mostly reduced to scales on branches. Flowers in racemose-cymes; calyx light green, ovate or cup-like, 3 mm; corolla scarlet, 2.5 cm, tube slightly expanded at top, lobes ovate or oblong-ovate, ca. 3 mm.

Locality: Cultivated in gardens. *H. C. Tang 191; Y. S. Lau 1904, 2200.*

Distribution: Widely cultivated in S China; native to Mexico.

Ecology: Flowering: Summer to autumn.

Uses: Ornamental.

14. Bacopa Aubl. 假馬齒莧屬

Herbs, erect or creeping. Leaves opposite, sessile or subsessile. Flowers solitary, axillary or in terminal racemes. Bracteoles 1 or 2, or absent. Sepals 5, entirely free, upper 1 largest, lateral 2 smallest. Corolla-tube tubular, limb patent, conspicuously or obscurely 2-lipped; lower lip 3-lobed; upper lip 2-lobed. Stamens 4, didynamous or equal in length, included. Anther-cells parallel, free. Ovary ellipsoidal to globose or ovoid, glabrous, stigma dilated, capitate or 2-lobed. Capsules ovoid or globose, 2-grooved, 4-valved. Seeds numerous, minute.

About 60 species distributed in tropical and subtropical regions, mainly in America; three species in China; two species in Hong Kong.

1a. Bracteoles 2; corolla blue, purple, or white, 8–10 mm; stamens didynamous ..... 1. *B. monnieri*
1b. Bracteoles absent; corolla white, 3–4 mm; stamens equal in length ..... 2. *B. repens*

1. Bacopa monnieri (L.) Pennell
假馬齒莧 **(Fig. 135; Photo 265)**
Proc. Acad. Nat. Sci. Philadelphia 98: 94. 1946; FOC 18: 21. 1998.

Lysimachia monnieri L., Cent. Pl. II, 2: 9. 1756.

Bacopa monnieri (L.) Wettst., Nat. Pflanzenfam. IV(3b): 77. 1891, *nom. illeg.*; FHN 3: 498. 1974; FRPS 67(2): 87. 1979; FGD 4: 383. 2000; Check List HK Plants 244. 2002; 84. 2004.

Herpestis monnieri Kunth, Nov. Gen. Sp. (quarto ed.) 2: 366. 1818; FHK 249. 1861; FKH 187. 1912.

Herbs creeping; stems ± succulent, glabrous. Leaves sessile, oblong-oblanceolate, 0.8–2 cm × 3–6 mm, apex rounded, margin entire or rarely dentate. Flowers axillary; pedicels 0.5–3.5 cm. Bracteoles 2, linear. Sepals 5, ca. 5 mm, unequal. Corolla blue, purple, or white, 8–10 mm, obscurely 2-lipped. Stamens didynamous. Stigma capitate. Capsules narrowly ovoid, enveloped in persistent calyx. Seeds yellow-brown, ellipsoidal, truncate at one end, longitudinally striate.

Locality: Tai Long Wan, Sha Tin, Plover Cove, Lai Chi Wo, Luk Keng, Kat O. *Y. S. Lau 1994, 2150, 3118.*

Distribution: Guangdong, Guangxi, Yunnan, Fujian, Taiwan; widespread in tropics and subtropics.

Ecology: Wet places. Flowering: May–Oct.

Uses: Medicinal (folklore).

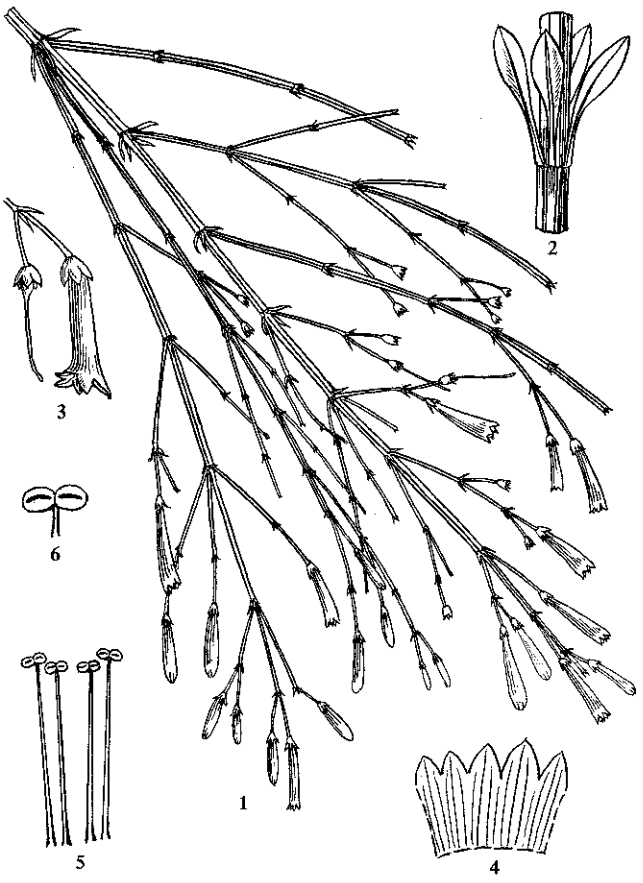


Figure 134. *Russelia equisetiformis* Schltr. & Cham.
1. flowering branch; *2.* amplification of branch; *3.* flower; *4.* upper portion of corolla; *5.* stamens; *6.* anther. (drawn by H. P. Yu)

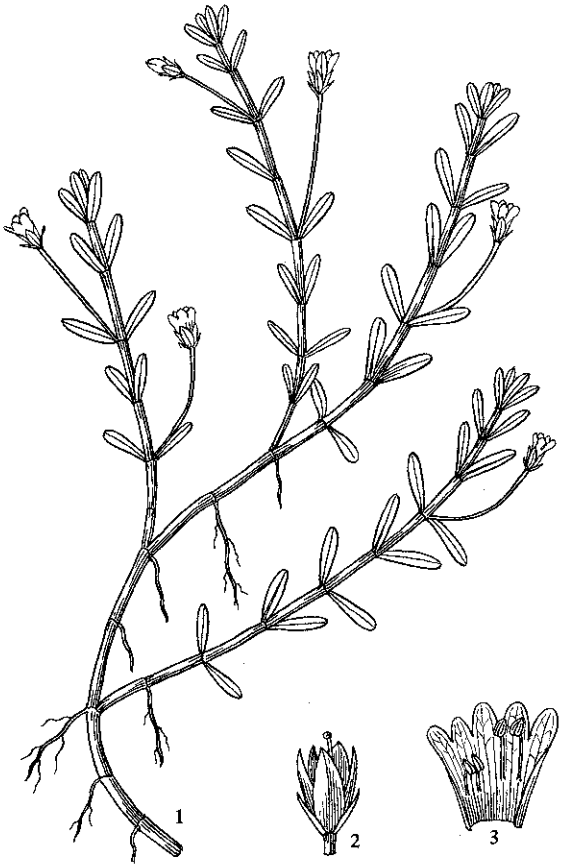


Figure 135. *Bacopa monnieri* (L.) Pennell
1. portion of plant; *2.* bractleoles and calyx; *3.* corolla opened. (drawn by H. P. Yu)

2. Bacopa repens (Sw.) Wettst. 田玄參

Nat. Pflanzenfam. IV(3b):76. 1895; FOC 18: 22. 1998.

Gratiola repens Sw., Prodr. 14. 1788.

Sinobacopa aquatica D. Y. Hong, Acta Phytotax. Sin. 25(5): 395. 1987.

Herbs creeping. Stems succulent, rooting at nodes. Leaves sessile, obovate to obovate-lanceolate, 1.2–2.5 × 0.7–1.3 cm, margin entire. Flowers axillary, pendulous; pedicels 1–2 cm. Bracteoles absent. Sepals 4 or 5, 3–4 mm, unequal, margin ciliate. Corolla white, almost as long as sepals; lobes obovate; upper lip lobed to middle, lobes narrowly obovate. Stamens equal in length, ca. 1.2 mm, inserted at throat; filaments as long as anthers. Anthers ± sagittate. Stigma 2-parted. Capsules globose, ca. 1.7 mm in diam. Seeds columnar-oblong, ca. 0.5 mm; testa reticulate.

Locality: Tai Mong Tsai, Sai Keng, Tsiu Hang, Peng Chau, Lantau Island. *Y. S. Lau 1443; Y. W. Lam 982, 2227.*

Distribution: Hainan, Guangdong, Fujian; N & S America.

Ecology: Wet places, watersides. Flowering: Jul.–Aug.

15. Picria Lour. 苦玄參屬

Annual herbs. Stems creeping or diffuse. Leaves opposite, petiolate, margin crenate. Flowers in terminal or axillary racemes. Bracts small; bracteoles absent. Sepals 4, spreading; lower and upper ones large and further enlarged in fruit, base cordate; lateral lobes narrow. Corolla limb strongly 2-lipped; lower lip longer than upper lip, spreading, 3-lobed; upper lip base wide, apex emarginate. Stamens 4, included, anterior pair reduced to staminodes; posterior pair fertile. Anthers coherent, cells distinct, divaricate. Stigma 2-lamellate. Capsules included in calyx, septicidal, valves separating from wide placental axis. Seeds numerous; testa rugose and scrobiculate-reticulate.

One species distributed in S and SE Asia; it also occurs in China and in Hong Kong.

1. Picria felterrae Lour. 苦玄參 **(Fig. 136)**

Fl. Cochinch. 2: 393. 1790; FHN 3: 504. 1974; FOC 18: 29. 1998; FGD 4: 384. 2000.

Herbs, to 1 m tall, rooting from lower nodes. Petioles 0.5–2 cm; leaf blade ovate to sometimes suborbicular, to 5.5 × 3 cm, base cuneate, rounded, or truncate, margin crenate-serrate, abaxially hispid on veins, adaxially short hispid; lateral veins 4 or 5 on each side of midvein. Racemes 4–8-flowered. Pedicels to 1 cm. Sepals oblong-ovate, to 1.4 × 1 cm in fruit, veins conspicuously reticulate; lower and upper sepals enlarged in fruit, 2 lateral ones linear. Corolla red-brown, ca. 1.2 cm; tube ca. 6.5 mm, constricted at middle; limb strongly 2-lipped; lower lip ca. 6.5 mm, upper lip erect, ca. 4.5 mm. Anterior stamens 2, reduced, posterior stamens 2, fertile. Capsules ovoid, 5–6 mm. Seeds numerous.

Locality: Fung Yuen. *Y. W. Lam 872, 873; HK sheet 38610.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan; India, Myanmar, Indochina, Thailand, Philippines.

Ecology: Thickets, grassy fields. Flowering: Summer to autumn.

Uses: Medicinal (folklore).

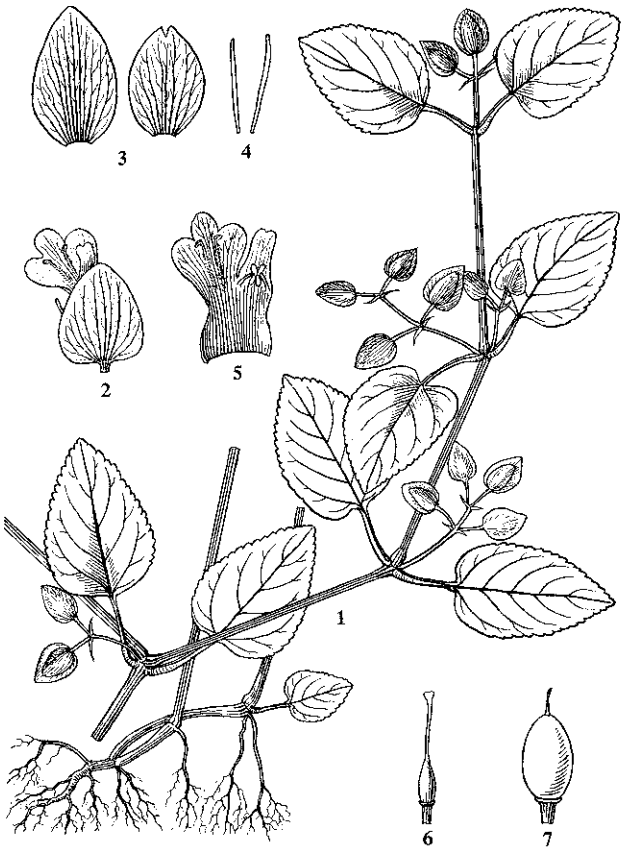


Figure 136. *Picria felterrae* Lour.

1. upper and lower portion of plant; *2.* flower; *3.* anterior and posterior sepals; *4.* lateral sepals; *5.* corolla opened; *6.* pistil; *7.* fruit. (drawn by H. P. Yu)

16. Torenia L. 蝴蝶草屬

Herbs glabrous or villous, rarely hispidulous. Leaves opposite, usually petiolate. Inflorescences racemose or in axillary umbellate fascicles, rarely dichotomous and terminal flowers reduced, or 1-flowered. Flowers pedicellate. Calyx ribbed or winged, usually 5-lobed. Corolla 2-lipped; lower lip 3-lobed, lobes subequal; upper lip erect, apex entire, emarginate, or 2-lobed. Stamens 4; anterior filaments with appendages, or less often without appendages; posterior stamens included. Anthers connivent in pairs, cells often apically confluent. Ovary usually with short coarse hairs at apex; styles apically 2-lamellate. Capsules oblong, included in persistent calyx, opening by pores. Seeds numerous, scrobiculate.

About 50 species distributed in tropical Africa and Asia; ten species in China; seven species in Hong Kong.

1a. Calyx ribbed or narrowly winged, wings at anthesis 0.5–1 mm wide.

2a. Plants hirsute; corolla 1.2–1.4 cm ..... 1. *T. benthamiana*

2b. Plants pilose, hirtellous, or villous; corolla 0.8–1.2 cm.
3a. Inflorescence usually dichotomous; plants creeping or ascending ..... 2. *T. biniflora*
3b. Inflorescence racemose; plants erect or sometimes diffuse ..... 3. *T. flava*
1b. Calyx broadly winged, wings at anthesis 1–3 mm wide.
4a. Filaments without appendages ..... 4. *T. fournieri*
4b. Filaments with appendages.
5a. Flowers in racemes ..... 5. *T. fordii*
5b. Flowers in fascicles or solitary.
6a. Corolla purple-red to blue-red, 1.5–2.5 cm; appendages of filaments 1–2 mm ..... 6. *T. asiatica*
6b. Corolla blue to blue-purple, 2.5–3.9 cm; appendages of filaments 2–4 mm ..... 7. *T. concolor*

1. Torenia benthamiana Hance 毛叶蝴蝶草 **(Photos 266–267)**

Ann. Sci. Nat., Bot., ser. 4, 18: 226. 1862; FKH 188. 1912; FHN 3: 510. 1974; FOC 18: 38. 1998; FGD 4: 376. 2000.

Torenia hirsuta auct. non. Lam.: FKH 188. 1912.

Herbs creeping, densely white hirsute, rooting from lower nodes. Branches numerous. Petiole ca. 1 cm; leaf blade ovate to ovate-cordate, 1.5–2.2 × 1–1.8 cm, margin crenate. Inflorescences axillary, usually 3–5 in fascicles, or racemose, rarely 1-flowered. Pedicels 3 cm in fruit. Calyx slender, 6–9 mm at anthesis, to 1.5 cm in fruit, 5-ribbed, somewhat 2-lipped. Corolla purple-red, pale blue-purple, or whitish, 1.2–1.4 cm; lower lip ca. 4 mm, 3-lobed, middle lobe slightly larger than lateral lobes; upper lip oblong, ca. 5 × 4 mm. Filaments of anterior stamens with appendages of 1.5–2 mm. Capsules narrowly ellipsoidal, ca. 10 × 3 mm.

Locality: Deep Water Bay, Tai Po, Fung Yuen, Fanling, Tai O. *Y. S. Lau 1650; Y. W. Lam 839, 876.*

Distribution: Hainan, Guangdong, Guangxi, Fujian, Taiwan.

Ecology: Wastelands, wet places. Flowering & fruiting: Aug.–May of the following year.

2. Torenia biniflora T. L. Chin & D. Y. Hong 二花蝴蝶草 **(Photo 268)**

FRPS 67(2): 399. 1979; FOC 18: 38. 1998, FGD 4: 376. 2000.

Annual herbs, sparsely hirtellous. Stems to 50 cm, creeping or ascending, rooting from lower nodes. Petioles 6–10 mm; leaf blade ovate to narrowly ovate, 2–4 × 1–2.5 cm, margin coarsely toothed. Inflorescences axillary, usually dichotomous, sometimes racemose, 2–8-flowered. Pedicels 6–12 mm in fruit. Calyx tubular, ca. 1 cm, 5-winged; wings unequal, 0.5–1 mm wide; lobes 5, 3–4 mm. Corolla yellow, rarely white and faintly blue, ca. 1.1 cm. Filaments of anterior stamens with appendages of 3 mm. Capsules ellipsoidal, ca. 7 × 3 mm.

Locality: Mount Parker, Tai Mo Shan, Ma On Shan. *Y. W. Lam 1373, 1453; F. W. Xing 9861.*

Distribution: Hainan, Guangdong, Guangxi.

Ecology: Secondary forests. Flowering: Jul.–Oct.

3. Torenia flava Buch.-Ham. ex Benth. 黄色蝴蝶草 **(Fig. 137)**

Scroph. Ind. 38. 1835; FHK 250. 1861; FKH 187. 1912; FHN 3: 510. 1974; FOC 18: 38. 1998; FGD 4: 377. 2000.

Annual herbs, erect, to 50 cm tall. Stems many-branched, 4-angled, villose. Petiole 5–13 mm; leaf blade ovate to elliptic, 3–5 × 1–2 cm, base cuneate, margin crenate, sparsely pilose on both surfaces or abaxially glabrous except for veins. Racemes terminal, 10–20 cm. Bracts oblong-ovate, 5–8 mm. Calyx narrowly cylindric, ca. 8 × 2 mm, enlarged to 10–15 × 3–5 mm in fruit, villous, 5-ribbed; lobes 5, narrowly lanceolate. Corolla yellow; tube 1–1.2 cm; lower lip shallowly 3-lobed, lobes suborbicular, subequal; upper lip slightly larger than lower lobes, margin entire or apex emarginate. Filaments of anterior stamens with appendages of ca. 1 mm. Capsules narrowly ellipsoidal.

Locality: Tai Mo Shan, Sai Kung. *Y. S. Lau 2363; HK sheet 40640.*

Distribution: Hainan, Guangdong, Guangxi, Taiwan; S to SE Asia.

Ecology: Grasslands. Flowering & fruiting: Jun.–Sep.

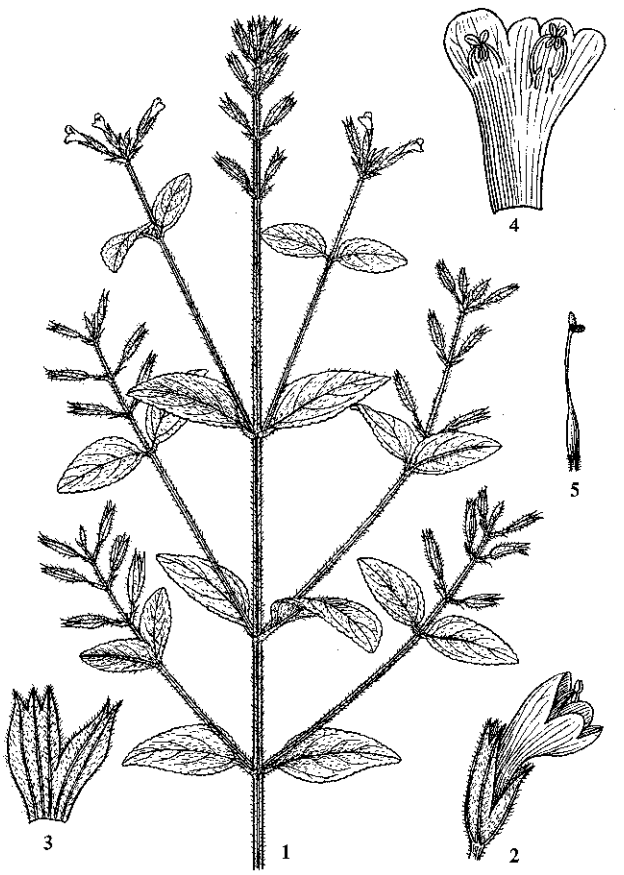


Figure 137. *Torenia flava* Buch.-Ham. ex Benth.

1. upper portion of plant; *2.* flower; *3.* calyx opened; *4.* corolla opened; *5.* pistil. (drawn by H. P. Yu)

4. Torenia fournieri Linden ex E. Fourn.
藍豬耳 **(Fig. 138; Photos 269–270)**
Ill. Hort. 23: 129. 1876; FOC 18: 39. 1998; FGD 4: 376, fig. 226. 2000.

Herbs 15–50 cm tall. Stems erect, 4-angled, simple or branched above middle, subglabrous. Petioles 1–2 cm; leaf blade obong-ovate to ovate, 3–5 × 1.5–2.5 cm, subglabrous, margin coarsely serrate. Racemes often terminal. Bracts linear, 2–5 mm. Pedicels 1–2 cm. Calyx ellipsoidal, 1.3–1.9 cm, green or purple-red at apex and margin, 5-winged; wings 2–3 mm wide; lobes subtriangular, 1.5–1.7 cm. Corolla 2.5–4 cm; tube pale violet, upper side yellow; lower lip purple-blue, middle lobe with a yellow patch near base, lobes oblong to suborbicular, ca. 10 × 8 mm, subequal; upper lip pale blue, erect, broadly obovate, 1–1.2 × 1.2–1.5 cm, emarginate. Filaments of anterior stamens without appendages. Capsules narrowly ellipsoidal, ca. 12 × 0.5 mm. Seeds yellow.

Locality: Cultivated or naturalized. *Y. S. Lau 1633, 1654, 1953.*

Distribution: Cultivated or naturalized in S China; native to Vietnam.

Ecology: Flowering & fruiting: Jun.–Oct.

Uses: Ornamental.

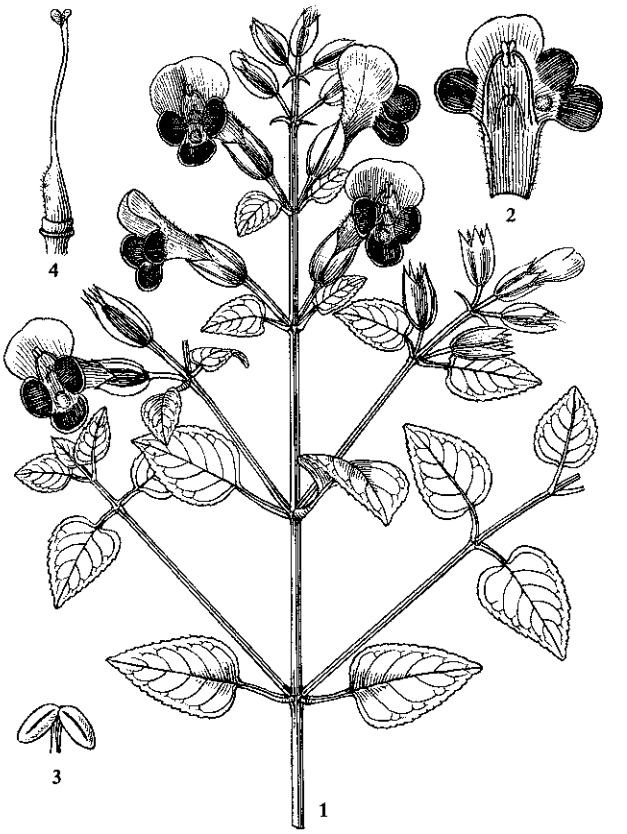


Figure 138. *Torenia fournieri* Linden ex E. Fourn.
1. flowering branch; *2.* corolla opened; *3.* stamen; *4.* pistil. (drawn by H. P. Yu)

5. Torenia fordii Hook. f. 紫斑蝴蝶草(紫斑翼萼) **(Photo 271)**
Bot. Mag. 111, pl. 6797B. 1885; FOC 18: 38. 1998; FGD 4: 377. 2000.

Herbs, 25–40 cm tall, villous. Stems erect, stout. Petioles 1–1.5 cm; leaf blade broadly ovate to ovate-triangular, 3–5 × 2.5–4 cm, sparsely white hairy, base abruptly constricted and broadly cuneate, margin coarsely triangular acute-serrate. Racemes terminal. Bracts oblong-ovate, 5–10 mm, margin ciliate. Pedicels ca. 1 cm, lengthening to 2 cm in fruit. Calyx obovate-fusiform, ca. 12 × 5–7 mm, ca. enlarged to 1.8 × 0.8 cm in fruit, 5-winged; wings unequal in width; lobes 5, subequal. Corolla yellow, 1.5–1.8 cm; lower lip lobes rotund, ca. 3–3.5 mm, middle lobe apically orange-coloured, lateral lobes distally blue; upper lip ca. 4 × 5 mm, emarginate. Filaments of anterior stamens with tooth-like appendages. Capsules cylindric, 9–11 × 2–3 mm, compressed, 4-furrowed.

Locality: Ng Tung Chai, Shing Mun, Sai Kung. *L. T. Lo 183; Y. S. Lau 2512; Y. W. Lam 877.*

Distribution: Guangdong, Jiangxi, Hunan, Fujian.

Ecology: Margins of forests. Flowering & fruiting: Jun.–Oct.

6. Torenia asiatica L. 光葉蝴蝶草(光葉翼萼)
Sp. Pl. 2: 619. 1753; FOC 18: 39. 1998.

Torenia glabra Osbeck, Dagbok Ostind. Resa. 210. 1757; FHN 3: 510. 1974; FRPS 67(2): 161. 1979; Check List HK Plants 249. 2002; 86. 2004.

Torenia benthamiana auct. non Hance: FKH 188. 1912.

Herbs creeping to suberect, rooting from nodes. Branches numerous, long, slender. Petioles 2–8 mm; leaf blade triangular-ovate, narrowly ovate, or obovate-orbicular, 1.5–3.2 × 1–2 cm, glabrous or sparsely villose, base abruptly constricted, subtruncate to broadly cuneate, margin crenate-serrate. Flowers axillary and solitary or in fascicles. Pedicels 0.5–2 cm. Calyx 2-lipped, 0.8–1.5 cm, further lobed into 5 small lobes in fruit, 5-winged; wings more than 1 mm wide, ± decurrent. Corolla purple-red to blue-red, 1.5–2.5 cm, exceeding calyx by 0.4–1 cm. Filaments of anterior stamens with linear appendages of 1–2 mm. Capsules 1–1.3 cm. Seeds yellow, ca. 0.4 mm.

Locality: Mui Tsz Lam. *Y. W. Lam 518.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Hubei, Jiangxi, Zhejiang, Fujian; Japan, Vietnam.

Ecology: Shady places. Flowering & fruiting: Aug.–Jan. of the following year.

7. Torenia concolor Lindl. 單色蝴蝶草(單色翼萼) **(Photo 272)**
Edwards's Bot. Reg. 32: pl. 62. 1846; FKH 187. 1912; FOC 18: 39. 1998; FGD 4: 375. 2000.

Torenia rubens Benth. ex Maxim., Prodr. 10: 410. 1846; FHK 250. 1861 (including var. *grandiflora*).

Annual herbs. Stems 4-angled. Branches ascending or erect, rooting at lower nodes. Petioles 2–10 mm; leaf blade triangular-ovate, narrowly ovate, or rarely ovate-orbicular, 1–4 × 0.8–2.5 cm, glabrous or villous, base broadly cuneate to subtruncate, margin serrate

or crenate-serrate, apex obtuse to acute. Flowers axillary or terminal, solitary or in fascicles. Pedicels 2–3.5 cm, lengthening to 5 cm in fruit. Calyx 1.2–1.7 cm, enlarged to 2.3 cm in fruit, base decurrent; wings 5, slightly more than 1 mm in wide; lips narrowly triangular with 5 small lobes evident in fruit. Corolla blue to blue-purple, 2.5–3.9 cm, exceeding calyx lobes. Filaments of anterior stamens with filiform of appendages, 2–4 mm. Capsules 1.5–1.8 cm.

Locality: Hong Kong Island, Shing Mun, Tai Mo Shan, Tai Po Kau. *W. J. Tutcher 11443; Y. S. Lau 2357; Y. W. Lam 1122.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Taiwan; Ryukyu Islands, Laos, Vietnam.

Ecology: Grasslands, margins of forests. Flowering & fruiting: May–Nov.

17. Mazus Lour. 通泉草屬

Herbs, relatively small. Stems erect or procumbent and rooting from lower nodes. Leaves in a rosette or opposite, often upper leaves alternate; petioles winged. Racemes ± secund. Bracts small; bracteoles present or absent. Flowers small, pedicellate. Calyx infundibular or campanulate, 5-lobed. Corolla blue to violet, tubular, strongly 2-lipped; palate with 2 longitudinal plaits; lower lip 3-lobed; upper lip 2-lobed. Stamens 4, didynamous, inserted on corolla tube, included. Anther-cells divergent, apically connivent. Ovary hairy or glabrous, styles glabrous, stigma 2-lamellate. Capsule ± compressed, included in cupular persistent calyx, loculicidal. Seeds small, numerous, ellipsoidal, testa reticulate.

About 30 species distributed in Asia to Australia; 25 species in China; one species in Hong Kong.

1. Mazus pumilus (Burm. f.) Steenis
通泉草 **(Fig. 139; Photos 273–274)**

Nova Guinea n. s. 9(1): 31. 1958; FOC 18: 46. 1998.

Lobelia pumilus Burm. f., Fl. Ind. 186. 1768.

Mazus japonicus (Thunb.) Kuntze, Rev. Gen. 2: 462. 1891; FRPS. 67(2): 187. 1979; FGD 4: 372. 2000.

Lindernia japonica Thunb., Fl. Jap. 253. 1784.

Mazus rugosus Lour., Fl. Cochinch. 385. 1790; FHK 247. 1861; FKH 185. 1912.

Annual herbs, erect or decumbent, 10–20 cm tall, glabrous or sparsely pubescent. Stems few, few-branched, rooting from prostrate nodes. Basal leaves rosulate, caducous; leaf blade spatulate to oblanceolate, 2–6 × 1–1.3 cm, base decurrent, margin dentate or lobed; stem leaves opposite or few alternate, usually smaller. Racemes terminal, usually 3–10-flowered, laxly flowered. Pedicels 5–12 mm. Calyx campanulate, 3–8 mm, not enlarged in fruit; lobes ovate, as long as tube. Corolla white, purple or blue, 1–1.2 cm; lower lip 3-lobed, middle lobe smaller than lateral lobes, obovate; upper lip 2-lobed, lobes ovate. Ovary glabrous. Capsules globose, ca. 3 mm in diam.

Locality: Tai Wai, Tai Lam Chung, Lantau Island. *Y. S. Lau 822; L. T. Lo 529; Y. W. Lam 840.*

Distribution: Widely distributed in China; Russia, Korea, Japan, Vietnam, Philippines.

Ecology: Wet grasslands, wastelands, margins of forests. Flowering & fruiting: Feb.–Oct.

Uses: Medicinal (folklore).



Figure 139. *Mazus pumilus* (Burm. f.) Steenis
1. whole plant; *2.* flower; *3.* calyx opened; *4.* corolla opened; *5.* pistil. (drawn by H. P. Yu)

18. Lindernia All. 母草屬

Herbs erect, prostrate, or creeping. Leaves opposite; petiolate or sessile; leaf blade often toothed or rarely entire; veins pinnate or palmate. Inflorescences terminal or axillary, racemose, sometimes pseudo-umbellate, rarely paniculate, or flowers solitary. Flowers opposite or alternate, often pedicellate. Bracteoles absent. Calyx lobes 5, equal or subequal, parted or split on 1 side. Corolla 2-lipped; lower lip larger than upper ones, extended, upper lip erect. Stamens 4, all fertile or anterior reduced and filaments with appendages. Anthers coherent or apex of anterior cells pointed or spurred. Styles mostly 2-laminate, apex often enlarged. Seeds small, numerous.

About 70 species widely distributed throughout warm regions of the world; 29 species in China; ten species in Hong Kong.

In addition, a cultivar under the name *Lindernia rotundifolia* 'Aurea' (迷你虎耳草; Photos 275–276) has also been recorded in various localities in Hong Kong.

1a. Flowers solitary.

2a. Capsules as long as or only slightly longer than persistent calyx.

3a. Leaves sessile; calyx 5-toothed in flowering time ..... 1. *L. crustacea*
3b. Leaves petiolate; calyx 5-toothed almost to base in flowering time ..... 2. *L. procumbens*
2b. Capsules 2–3 times as long as persistent calyx.
4a. Capsules linear, more than 3 times as long as persistent calyx ..... 3. *L. micrantha*
4b. Capsules linear-ovoid, 2 times as long as persistent calyx.
5a. Stems creeping; leaf blade triangular-ovate or oblong, base truncate to subcordate ..... 4. *L. anagallis*
5b. Stems erect or somewhat ascending; leaf blade narrowly ovate to ovate-lanceolate, base subamplexicaul ..... 5. *L. hyssopioides*
1b. Flowers in racemes.
6a. Capsules as long as or shorter than persistent calyx.
7a. Leaf blade ovate, cordate or occasionally orbicular; capsules ovoid-globose, as long as persistent calyx ..... 6. *L. pusilla*
7b. Leaf blade rhomboid-ovate to rhomboid-lanceolate; capsules ellipsoidal, shorter than persistent calyx ..... 7. *L. oblonga*
6b. Capsules 2 times or more as long as persistent calyx.
8a. Leaf margin without conspicuous mucronate teeth ..... 8. *L. antipoda*
8b. Leaf margin with conspicuous mucronate teeth.
9a. Leaves petiolate, margin acute-serrate; corolla 10–14 mm ..... 9. *L. ruellioides*
9b. Leaves sessile or shortly petiolate, margin aristate-serrate; corolla 7 mm ..... 10. *L. ciliata*

1. Lindernia crustacea (L.) F. Muell.
母草 **(Fig. 140; Photo 277)**

Syst. Census Austral. Pl. 1: 97. 1882; FHN 3: 507. 1974; FOC 18: 32. 1998; FGD 4: 388. 2000.

Capraria crustacea L., Mant. Pl. 1: 87. 1767.

Vandellia crustacea (L.) Benth., Scroph. Ind. 35. 1835; FHK 251. 1861; FKH 188. 1912.

Annual herbs, 10–20 cm tall, many-branched. Branches widely spreading, subquadrangular, deeply sulcate, glabrous. Petioles 1–8 mm; leaf blade triangular-ovate to broadly ovate, 1–2 × 0.5–1.1 cm, base broadly cuneate to rounded, apex obtuse to subacute, margin shallowly crenate to serrate, abaxially pilose along veins to subglabrous, adaxially subglabrous. Flowers axillary and solitary. Pedicels slender, 0.5–2.2 cm, subglabrous. Calyx 3–5 mm, 5-toothed, often splitting into 5 lobes after anthesis, outside sparsely pubescent. Corolla purple, 5–8 mm; tube slightly longer than calyx; lower lip 3-lobed, middle lobe larger and slightly longer than upper lip; upper lip ovate, sometimes shallowly 2-lobed. Stamens didynamous, styles fugacious. Capsules broadly ellipsoidal, almost as long as persistent calyx. Seeds pale yellow-brown, subglobose, scrobiculate.

Locality: Hong Kong Island, Kwai Chung, Shing Mun, Tsiu Hang, Ta Kwu Ling, Peng Chau, Lantau Island, Ping Chau. *Y. W. Lam 840, 1075, 2541.*

Distribution: Areas S of Changjiang, Henan; a common weed widely distributed in tropical and subtropical regions of the world.

Ecology: Moist areas, rice fields, grasslands. Flowering & fruiting: May–Oct.

Uses: Medicinal (folklore).

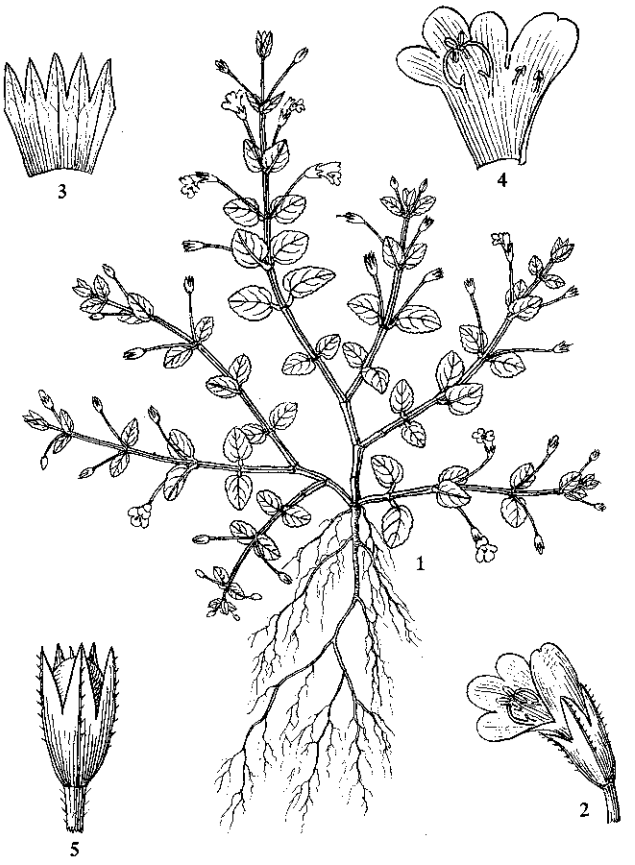


Figure 140. *Lindernia crustacea* (L.) F. Muell.
1. whole plant; *2.* flower; *3.* calyx opened; *4.* corolla opened; *5.* fruit. (drawn by H. P. Yu)

2. Lindernia procumbens (Krock.) Borbás 陌上菜 **(Photo 278)**

Békés Vámegye 80. 1881; FOC 18: 32. 2002.

Anagalloides procumbens Krock., Fl. Siles. 2(1): 398, pl. 26. 1790.

Lindernia procumbens (Krock.) Philcok, Taxon 14: 30. 1965; FGD 4: 389. 2000; Check List HK Plants 247. 2002; 85. 2004.

Herbs erect, caespitose, 5–20 cm tall, basally many-branched. Leaves sessile; leaf blade elliptic or oblong, somewhat rhomboid, 1–2.5 × 0.6–1.2 cm, apex obtuse to rounded, margin entire or weakly obtusely toothed. Flower axillary, solitary. Pedicels slender, 1.2–2 cm, longer than subtending leaf. Calyx lobed almost to base; lobes linear-lanceolate, ca. 4 mm, outside sparsely pubescent. Corolla pink to purple, 5–7 mm, tube ca. 3.5 mm; lower lip ca. 3 mm, 3-lobed, middle lobe rounded and longer than other lobes, upper lip ca. 1 mm, 2-lobed. Stamens 4, all fertile; filaments of anterior stamens with a small glandular appendage; stigma 2-lobed. Capsules globose to ovoid-globose, as long as or slightly longer than persistent calyx. Seeds oblong, testa reticulate.

Locality: Chuen Lung, Pak Nai, Sheung Shui, Ta Kwu Ling, Peng Chau. *L. T. Lo 258; Y. W. Lam 390, 998.*

Distribution: Widely distributed in China; Asia, S Europe.

Ecology: Wet places along streams. Flowering: Jul.–Oct.; fruiting: Sep.–Nov.

3. Lindernia micrantha D. Don 狹葉母草

Prodr. Fl. Nepal. 85. 1825; FOC 18: 35. 1998.

Lindernia angustifolia (Benth.) Wettst., Nat. Pflanzenfam. 4(3b): 79. 1891; FHN 3: 507. 1974; FRPS 67(2): 141. 1979; FGD 4: 388. 2000; Check List HK Plants 246. 2002; 85. 2004.

Vandellia angustifolia Benth., Scroph. Ind. 37. 1835; FKH 188. 1912.

Annual herbs, to 40 cm tall. Stems usually erect, branches ascending, glabrous. Leaves sessile, linear to linear-lanceolate, 1–4 cm × 2–8 mm, margin entire or somewhat irregularly serrate, glabrous. Flowers solitary, axillary. Pedicels to 3.5 cm in fruit. Calyx to 4 mm in fruit, lobed to base; lobes lanceolate. Corolla purple, blue purple, or white, ca. 6.5 mm, lower lip slightly longer than upper lip, spreading flat, 3-lobed; upper lip 2-lobed. Filaments of anterior stamens with a linear appendage; posterior anthers with connective of lower locule produced into a long tail. Capsules linear, to 1.4 cm, more than 3 times as long as persistent calyx. Seeds brownish, oblong.

Locality: Shing Mun, Plover Cove, Tung Chung. *L. T. Lo 305; Y. W. Lam 1534, 1580.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Hunan, Hubei, Henan, Jiangxi, Anhui, Fujian; Japan, Vietnam, Korea, Laos, Cambodia, Indonesia, Myanmar, India, Nepal, Sri Lanka.

Ecology: Farmlands, wet places along streams. Flowering: May–Oct.; fruiting: Jul.–Nov.

4. Lindernia anagallis (Burm. f.) Pennell 長蒴母草(長果母草) **(Photo 279)**

J. Arnold Arbor. 24(3): 252. 1943; FHN 3: 506. 1974; FOC 18: 35. 1998; FGD 4: 389. 2000.

Ruellia anagallis Burm. f., Fl. Ind. 135. 1768.

Lindernia cordifolia (Colsm.) Merr., Enum. Philipp. Fl. Pl. 3: 437. 1923; FGZ 598. 1956.

Gratiola cordifolia Colsm., Prodr. Desc. Grat. 15. 1793.

Vandellia pedunculata Benth., Scroph. Ind. 37. 1835, & DC., Prodr. 10: 416. 1846; FKH 188. 1912.

Annual herbs, 10–40 cm. Stems creeping, striate, glabrous, rooting from nodes. Leaves shortly petiolate to subsessile; leaf blade triangular-ovate, ovate, or oblong, 0.4–2 × 0.7–1.2 cm, base truncate to subcordate, apex rounded to acute, margin shallowly crenate. Flowers axillary, solitary. Pedicels 6–10 mm, to 2 cm in fruit. Calyx ca. 5 mm, basally connate; lobes lanceolate. Corolla white or light purple, 0.8–1.2 cm; lower lip slightly longer than upper lip, spreading flat, 3-lobed, lobes subequal; upper lip ovate, 2-lobed, filaments of anterior stamens basally with a clavate appendage, stigma 2-lobed. Capsules linear-ovoid, ca. 2 times as long as persistent calyx. Seeds ovoid, tuberculate.

Locality: Aberdeen, Tai Wai, Chuen Lung, Tai Po, Fanling, Sai Kung. *H. C. Tang 2473; Y. S. Lau 2260; HK sheet 4130.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Fujian, Taiwan; S & SE Asia, Australia.

Ecology: Margins of forests, streamsides, wet places. Flowering: Apr.–Sep.; fruiting: Jun.–Nov.

Uses: Medicinal (folklore).

5. Lindernia hyssopioides (L.) Haines 尖果母草

Bot. Bilhar Orissa 4: 666. 1922; FHN 3: 509. 1974; FOC 18: 37. 1998; FGD 4: 387. 2000.

Gratiola hyssopioides L., Mant. Pl. 174. 1771.

Bonnaya hyssopoides (L.) Benth., Scroph. Ind. 34. 1835.

Ilysanthes hyssopoides (L.) Benth., Prodr. 10: 419. 1846; FHK 252. 1861; FKH 188. 1912.

Herbs, to 30 cm tall. Stems erect or somewhat ascending, simple, striate. Leaves sessile, subamplexicaul, narrowly ovate to ovate-lanceolate, 5–15 × ca. 4 mm, margin entire or with 2 or 3 pairs of inconspicuous small teeth, veins 3, parallel. Flowers in axils of upper leaves, solitary. Pedicels 0.5–3 cm, slender, ascending in flower, spreading to reflexed after flowering. Calyx ca. 3 mm, lobed to base; lobes lanceolate. Corolla red, purple, or white, with 2 convex lines at throat, 0.9–1.1 cm; lower lip 3-lobed, lobes subequal; upper lip deeply 2-lobed, lobes narrowly triangular-ovate. Fertile stamens 2, posterior; staminodes 2, anterior; filaments short, divided, styles apex 2-lamellate. Capsules linear-ovoid, ca. 6 mm, 2 times as long as persistent calyx. Seeds yellow-brown, oblong, obscurely ribbed.

Locality: Hong Kong Island. *Y. S. Lau 2750; HK sheet 4134.*

Distribution: Hainan, Guangdong, Yunnan; Vietnam, India to Indonesia.

Ecology: Wet places. Flowering & fruiting: May–Oct.

6. Lindernia pusilla (Willd.) Bold. 細莖母草 **(Photo 280)**

Zakfl. Java 165. 1916; FHN 3: 505. 1974; FOC 18: 33. 1998; FGD 4: 386. 2000.

Gratiola pusilla Willd., Sp. Pl. 1: 105. 1797.

Vandellia scabra Benth., Scroph. Ind. 36. 1835; FHK 251. 1861; FKH 188. 1912; Philcox, Kew Bull. 22: 41. 1968.

Annual herbs, 6–30 cm tall, sometimes long stoloniferous. Stems suberect, subglabrous or hairy, densely coarsely hairy on nodes. Leaves shortly petiolate below, sessile above; leaf blade ovate, cordate, or occasionally orbicular, to 1.2 cm, sparsely covered with appressed coarse hairs, base cuneate to subcordate, margin subcrenate or entire. Inflorescences terminal, subumbellate-racemose, 3–5-flowered. Pedicels slender, 0.8–1.5 cm. Calyx deeply lobed; lobes lanceolate, coarsely hairy outside. Corolla purple, ca. 9 mm; lower lip ca. 5.5 mm, much longer than upper lip; upper lip broadly ovate, emarginate; filaments of anterior stamens slender, base

geniculate, stigma 2-lamellate. Capsules ovoid-globose, almost as long as persistent calyx. Seeds oblong, tuberculate.

Locality: Aberdeen, Sha Tin, Shing Mun, Fung Yuen, Mui Tsz Lam, Ho Chung, Tai O. *Y. S. Lau 2749; Y. W. Lam 519, 875.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Taiwan; India to Malaysia, Africa.

Ecology: Margins of forests, wet places. Flowering & fruiting: May–Sep.

7. Lindernia oblonga (Benth.) Merr. & Chun 棱萼母草 **(Photo 281)**

Sunyatsenia 5: 180. 1940; FHN 3: 507. 1974; FOC 18: 32. 1998; FGD 4: 388. 2000.

Vandellia oblonga Benth., Scroph. Ind. 35. 1835; FHK 251. 1861; Hance, Ann. Sci. Nat. ser. 4, 15: 227. 1861.

Torenia oblonga Hance ex Maxim., Mel. Biol. 9: 411. 1875; FKH 187. 1912.

Perennial herbs. Stems erect or sometimes procumbent and ascending, subquadrangular, median internodes to 6 cm. Leaves short petiolate below, sessile and subamplexicaul above; leaf blade rhomboid-ovate to rhomboid-lanceolate, 5–20 × 3–8 mm, base broadly cuneate, apex subacute to rounded, margin often with few irregular undulate sinuses or small teeth, or entire. Racemes lax, usually less then 10-flowered; bracts lanceolate. Pedicels slender, 0.7–2.5 cm. Calyx narrowly campanulate, lobed to 1/4 length; lobes triangular-ovate, apex acute and recurved, midvein evident. Corolla purple to purple-blue, to 1.3 cm or more; tube ca 7 mm; lower lip 3-lobed; upper lip 2-lobed, stigma broadly 2-lamellate. Capsules ellipsoidal, shorter than persistent calyx. Seeds numerous.

Locality: Cape D'Aguilar, Tai Long Sai Wan, Long Ke, Beaufort Island, Lamma Island. *S. P. Lau 157; Y. W. Lam 782, 1031.*

Distribution: Hainan, Guangdong; Vietnam, Laos, Cambodia.

Ecology: Sandy soil. Flowering & fruiting: May–Sep.

8. Lindernia antipoda (L.) Alston

泥花草 **(Fig. 141; Photo 282)**

Handb. Fl. Ceyl. 6 (Suppl.): 214. 1931; FHN 3: 508. 1974; FOC 18: 36. 1998; FGD 4: 389. 2000.

Ruellia antipoda L., Sp. Pl. 635. 1753.

Bonnaya veronicifolia (Retz.) Spreng., Syst. Veg. 41. 1824; FHK 252. 1861; FKH 189. 1912.

Annual herbs, to 30 cm tall. Stems suberect or prostrate basally, many-branched, channeled. Petiole short and wide; leaf blade oblong, oblong-lanceolate, or linear-lanceolate, 0.8–4 × 0.6–2 cm, base cuneate and decurrent, apex acute to rounded, margin obscurely to sharply serrate or subentire. Racemes terminal, to 15 cm, 2–20-flowered. Pedicels to 1.5 cm, ascending, spreading, to deflexed in fruit. Calyx lobed to base; lobes lanceolate, hispidulous along midvein and edges. Corolla purple, purplish white, or white, to 1 cm; tube to 7 mm; lower lip 3-lobed, lobes subequal; upper lip 2-lobed. Fertile stamens 2, posterior; filaments unappendaged. Reduced stamens 2, anterior; filaments slightly curved, glandular, stigma 2-lamellate. Capsules cylindric, 2 times or more as long as persistent calyx. Seeds brown, irregularly triangular-ovoid; testa reticulate.

Locality: Happy Valley, Shing Mun, Sha Tin, Fanling, Tai Lam Chung, Sai Kung, Lantau Island. *Y. S. Lau 2529, 2548; Y. W. Lam 1216.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Hubei, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan.

Ecology: Margins of forests, streamsides, wet places or farmlands. Flowering & fruiting: Spring to autumn.

Uses: Medicinal (folklore).

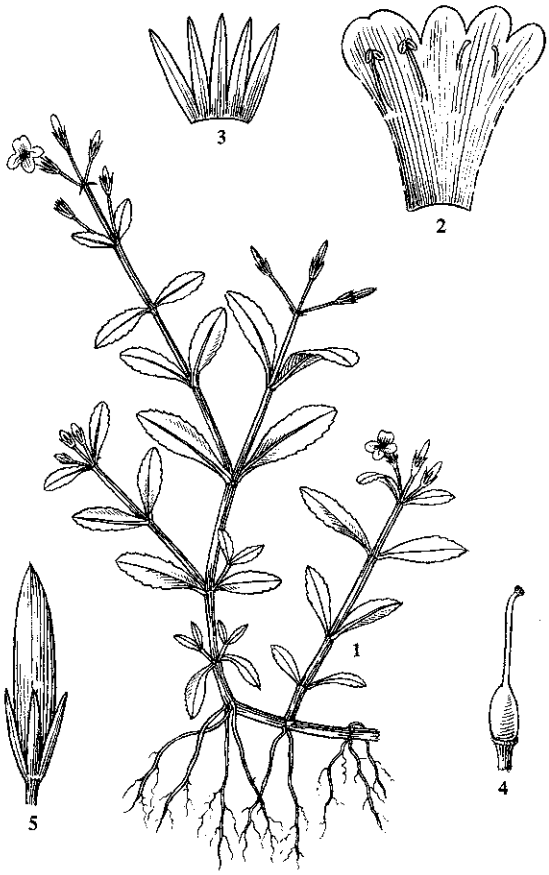


Figure 141. *Lindernia antipoda* (L.) Alston

1. portion of plant; *2.* corolla opened; *3.* calyx opened; *4.* pistil; *5.* fruit. (drawn by H. P. Yu)

9. Lindernia ruellioides (Colsm.) Pennell 旱田草 **(Photos 283–284)**

Brittonia 2: 182. 1936; FHN 3: 509. 1974; FOC 18: 36. 1998; FGD 4: 390. 2000.

Gratiola ruellioides Colsm., Prodr. Desc. Grat. 12. 1793.

Annual herbs, 10–15 cm tall; stolons to 30 cm. Stems usually branched, subglabrous, rooting from nodes. Petioles 0.3–2 cm; leaf blade oblong, elliptic, ovate-oblong or orbicular, 1–4 × 0.6–2 cm, scabrous, pubescent to subglabrous, base subamplexicaul or broadly cuneate, apex obtuse to acute, margin above base densely and regularly acute-serrate. Racemes terminal, 2–10-flowered; bracts lanceolate-linear. Pedicels short, distally gradually thicker, glabrous. Calyx ca. 6 mm, to 10 mm in fruit, base connate; lobes linear-lanceolate, glabrous. Corolla purple-red, 1–1.4 cm; tube 7–9 mm; lower lip 3-lobed, lobes subequal or middle lobe slightly larger than other lobes; upper lip 2-lobed. Fertile stamens 2, posterior, without appendages; sterile stamens 2, anterior; stigma flattened. Capsules conical, ca. 2 times as long as persistent calyx. Seeds brown, ellipsoidal.

Locality: Fung Yuen, Ng Tung Chai, Plover Cove. *Y. S. Lau 2513; Y. W. Lam 887; HK sheet 40248.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Hubei, Hunan, Jiangxi, Fujian, Taiwan; India to Indonesia, Philippines.

Ecology: Wet places, streamsides. Flowering & fruiting: Jun.–Oct.

Uses: Medicinal (folklore).

10. Lindernia ciliata (Colsm.) Pennell 刺齿泥花草

Brittonia 2: 182. 1936; FHN 3: 508. 1974; FOC 18: 36. 1998; FGD 4: 390. 2000.

Gratiola ciliata Colsm., Prodr. Desc. Grat. 14. 1793.

Bonnaya brachiata Link & Otto, Icon. Pl. Select. 25, pl. 11. 1820; FKH 189. 1912.

Ilysanthes serrata (Roxb.) Urban, Ber. Deutsch. Bot. Ges. 2: 436. 1884; FGZ 602. 1956.

Gratiola serrata Roxb., Fl. Ind. ed. Carey & Wall. 1: 139. 1820.

Annual herbs, to 20 cm tall. Stems diffuse, many-branched. Branches decumbent. Leaves sessile or short petiolate; leaf blade oblong to lanceolate-oblong, 0.7–4.5 × 0.3–1.2 cm, glabrous, base amplexicaul, apex acute to obtuse, margin densely aristate-serrate. Racemes terminal. Bracts lanceolate, ca. 1/2 as long as pedicels. Calyx ca. 5 mm, lobed to base; lobes narrowly lanceolate, with a spine-like tip. Corolla light purple or white, ca. 7 mm; tube to 4.5 mm; lower lip almost as long as upper lip, often unequally 3-lobed, middle lobe larger than other lobes; upper lip ovate. Fertile stamens 2, posterior; sterile stamens 2, anterior, forming prominent plaits on base of lower lip. Capsules cylindric, ca. 3 times as long as persistent calyx, apex mucronate. Seeds irregularly triangular.

Locality: Aberdeen, Fanling. *W. J. Tutcher 9599; Y. W. Lam 1076; HK sheet 4135.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Xizang, Fujian, Taiwan; tropical Asia, Australia.

Ecology: Margins of forests, wet places. Flowering & fruiting: Jul.–Sep.

Uses: Medicinal (folklore).

301. MYOPORACEAE 苦槛蓝科

XIA Nian-he 夏念和

Shrubs or small trees. Stipules absent. Leaves simple, alternate, rarely opposite, entire or toothed, often with glandular or lepidoid hairs. Flowers bisexual, regular or not, axillary, solitary or in cymes. Calyx 5-lobed. Corolla often 2-labiate, 5-lobed, lobes imbricate. Stamens 4, rarely 5 or more, borne on corolla lobes. Anther 2-celled, longitudinal slits. Ovary superior, 2-locular, (1–)2-several-ovuled each locule, or the locule subdivided into 3–10 uniovulate compartments; style simple. Fruit a drupe or separating into 1-seeded drupe-like segments. Seeds with ± straight embryo, endosperm scanty or absent.

Three genera, 235 species mostly distributed in Australia, Pacific islands, few in tropical America; one genus and one species in China and in Hong Kong.

1. Myoporum Bank & Sol. ex G. Forst. 苦槛蓝属

Shrubs. Leaves alternate, rarely opposite, entire or toothed, with scattered glands. Flowers solitary or in cymes, axillary. Calyx 5-lobed, persistent. Corolla white or pink with purple maculae, campanulate or funnelform, 5(–7)-lobed. Stamens 4(–7). Ovary 2-locular, 1–2-ovuled in each locule or the locule subdivided into 3–10 uniovulate compartments. Drupe small, slightly fleshy or dry. Seeds 1–2 in each locule.

About 28 species distributed in Australia and tropical Asia; one species in China and in Hong Kong.

1. Myoporum bontioides (Siebold & Zucc.) A. Gray
苦槛蓝 **(Fig. 142; Photo 285)**

Proc. Amer. Acad. Art. & Sci. 6: 52. 1862; Dunn & Tutcher, FKH 200. 1912; Z.Y. Li, FRPS 70: 311. 2002.

Pentacoelium bontioides Siebold & Zucc., Abh. Akad. Wiss. Math. Phys. 4(3): 151, t. 3, B. 1846.

Polycoelium chinense A. DC., DC. Prodr. 11: 706. 1847.

Shrubs, evergreen, 50–80 cm tall. Petioles 1–1.5 cm. Leaves alternate; leaf blade narrow-elliptic, lanceolate or oblong, 6–10

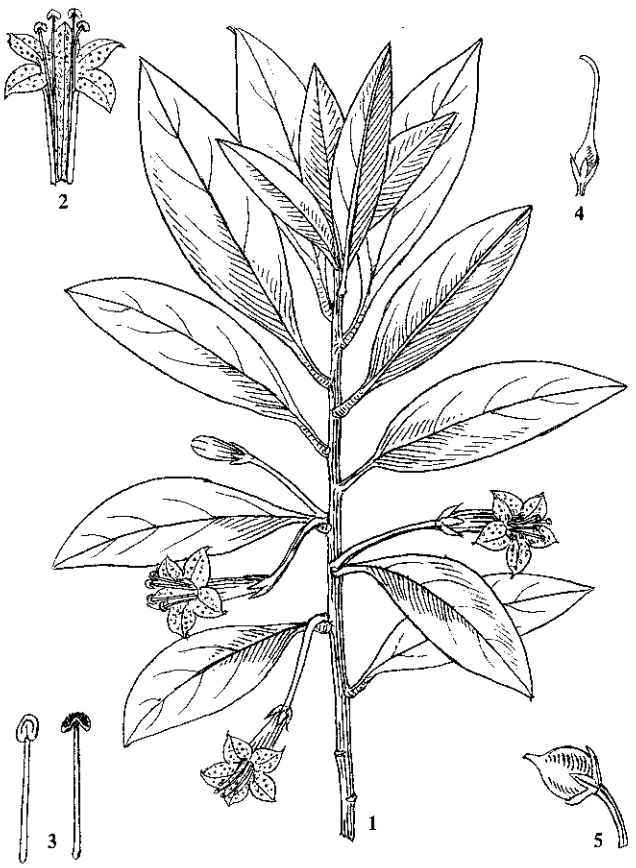


Figure 142. *Myoporum bontioides* (Siebold & Zucc.) A. Gray
1. flowering branch; *2.* corolla opened; *3.* stamens; *4.* calyx and pistil; *5.* fruit. (drawn by H. P. Yu)

× 2–3 cm, base attenuate and decurrent, apex acuminate and mucronate, margin entire. Flowers solitary, axillary. Pedicels 1.5–2 cm. Calyx 5-lobed, lobes ovate-elliptic or deltoid-ovate, 4–5 mm. Corolla white with purple-blue spots, campanulate, 2–2.2 cm, 5-lobed, lobes ovate to oblong, 8–10 mm. Stamens 4, on inside of corolla-tube, filaments 15–18 mm. Ovary with 5–8 compartments. Drups purple-red, globular, 1–1.5 cm, glabrous, 5–8-angulate when dry.

Locality: Tai Po, Chung Pui, Sheung Wo Che. *U. A. On 630; H. C. Tang 2509; Y. S. Lau 681.*

Distribution: Hainan, Guangdong, Guangxi, Jiangxi, Hunan, Fujian, Taiwan, Zhejiang, Anhui, Jiangsu, Sichuan, Yunnan, Guizhou.

Ecology: Grasslands. Flowering & fruiting: Nov.–Apr. of the following year.

Uses: Medicinal (folklore).

302. OROBANCHACEAE 列當科

XING Fu-wu 邢福武 • WANG Fa-guo 王發國

Parasitic herbs, without chlorophyll; stems usually simple. Leaves scale-like, spirally or subimbricately arranged. Inflorescences racemose or spicate, rarely 1-flowered; bract 1, usually similar to leaves; bracteoles 0–2. Flowers bisexual, subsessile or pedicellate. Calyx tubular, cupular, or campanulate, 4–5-toothed or lobed. Corolla bilabiate, usually curved, sometimes tubular-campanulate with 5 subequal lobes; upper lip entire, emarginate or 2-lobed; lower lip 3-lobed. Stamens 4, didynamous, inserted at base of corolla tube; filaments slender; anthers often in pairs, 2-celled, longitudinally dehiscent, sometimes 1 cell fertile and another sterile or reduced to spur. Pistil 2–3-carpellate; ovary superior; 1-locular, usually with 4 parietal placentas; ovules 2–4 or many, anatropous. Style long; stigma inflated, discoid, peltate, or 2–4-lobed. Capsule usually opening by 2 or 3 valves; seeds minute, 2–4 or many.

About 15 genera and 150 species in tropical, subtropical and temperate regions of the world; nine genera and 40 species in China; one genus and one species in Hong Kong.

1. Aeginetia L. 野菰屬

Herbs fleshy, with very short and simple stems. Flowers large, solitary or clustered at stem apex, without bracteoles; pedicel more than 5 cm long, erect. Calyx spathe-like, apex acute or obtuse to rounded. Corolla tubular or campanulate, indistinctly bilabiate; subequally 5-lobed. Stamens 4, included; anthers adherent, 1 cell fertile, another reduced into a spur. Carpels 2; ovary usually 1-locular and parietal placentas 2 or 4, occasionally imperfectly 2-locular and placentas axile. Style slightly curved; stigma fleshy, peltate. Capsule dehiscing by 2 valves. Seeds many.

About four species in tropical and subtropical Asia; three species in China; one species in Hong Kong.

1. Aeginetia indica L. 野菰 **(Fig. 143; Photo 286)**

Sp. Pl. 2: 632. 1753; FHK 257. 1861; FKH 191. 1912; Hook. f., Fl. Brit. Ind. 4: 320. 1884; FRPS 69: 77, pl. 21: 1–8. 1990; FTW ed. 2, 4: 713, pl. 327. 1998; FOC 18: 240. 1998; FGD 4: 399, fig. 242. 2000.

Plant 20–35 cm tall. Root slightly fleshy. Stems very short, unbranched or branched from near base. Scales deltoid, 5–10 mm, apex acuminate, glabrous. Flowers usually solitary, 3–5 cm. Pedicels usually erect, 15–24 cm, glabrous. Calyx 2–3.5 cm, apex acute or acuminate. Corolla pinkish purple, indistinctly bilabiate, tubular-campanulate, 2–4.5 cm; tube slightly curved; lobes subentire. Filaments purple, 7–9 mm, glabrous; anthers yellow. Ovary 1-locular; parietal placentas 4; style 1–1.5 cm; stigma pale yellow. Capsule conical, or long ovoid-globose, 2–3 cm; seeds yellow, ellipsoidal.

Locality: Hong Kong Island, Tai Mo Shan, Tai Po, Sai Kung. *Y. S. Lau 1004, 1270; HK sheet 41662.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; Bangladesh, Bhutan, Cambodia, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Vietnam.

Ecology: Thin forests, hillslopes. Flowering: Jul.–Nov.

Uses: Medicinal (folklore).

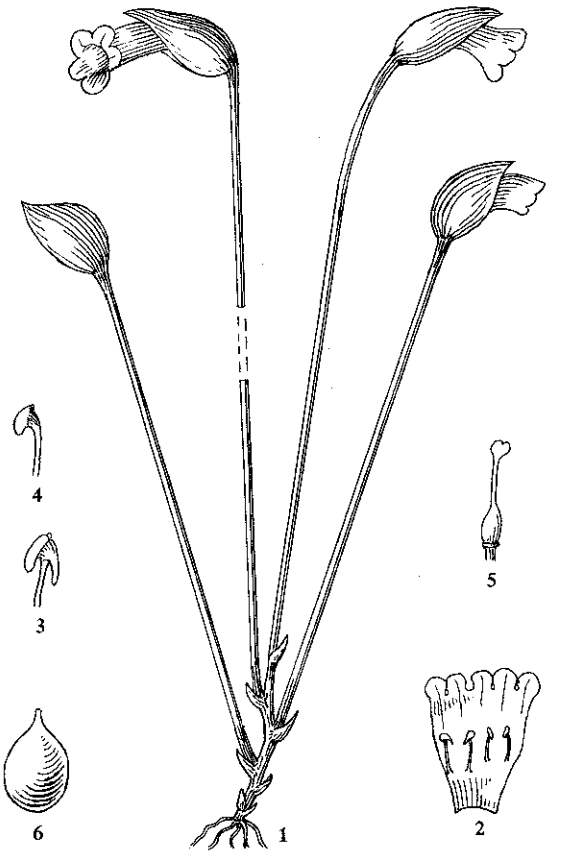


Figure 143. *Aeginetia indica* L.

1. whole plant; *2*. corolla opened; *3–4*. stamens; *5*. pistil; *6*. fruit. (drawn by H. P. Yu)

303. GESNERIACEAE 苦苣苔科

ZHENG Yong-li 鄭永利

Herbs, shrubs, or rarely trees. Leaves opposite or rarely alternate, basal or rarely whorled, usually simple, rarely shallowly to deeply lobed, pinnately or rarely palmately veined; stipules absent. Flowers perfect, usually in axillary cymes or racemes, rarely solitary. Calyx actinomorphic, rarely zygomorphic, 4(−5)-lobed. Corolla gamopetalous, zygomorphic, rarely actinomorphic, usually 2-lipped. Fertile stamens 2 or 4(−5), epipetalous; anthers free or coherent, thecae 2, parallel, divergent, or divaricate; staminodes 1−3 or absent. Disk ring-like to cupular, rarely absent. Ovary superior (species of Hong Kong), linear or oblong, rarely ovate, 1-loculed, with two parietal entire or lobed placentas protruding ± into the cavity but not united in the axis; ovules numerous, anatropous; style simple, with an entire or lobed stigma. Fruit usually a capsule, loculicidal, septicidal, or circumscissile, or rarely a berry, indehiscent. Seeds numerous, with or without albumen; embryo straight, cotyledons equal or unequal after germination.

About 133 genera and 3000 species widely distributed in tropical and subtropical regions of both hemispheres; 58 genera and 463 species in China; seven genera and seven species in Hong Kong.

1a. Fruit a berry, ovoid to spherical ..... 1. *Rhynchotechum*
1b. Fruit a capsule, narrowly oblong.
2a. Capsule twist ..... 2. *Boea*
2b. Capsule straight.
3a. Fertile stamens 2.
4a. Erect herbs, 10−30 cm tall, leaves opposite ..... 3. *Didymostigma*
4b. Stemless herbs, leaves basal ..... 4. *Chirita*
3b. Fertile stamens 4.
4a. Climbing herbs ..... 5. *Aeschynanthus*
4b. Erect or stemless herbs
5a. Anther thecae parallel, not confluent at apex; corolla tube 1−4 times longer than limb; ovary oblong ..... 6. *Oreocharis*
5b. Anther thecae subparallel, confluent at apex; corolla tube slightly shorter than limb; ovary ovoid or conical ..... 7. *Boeica*

1. Rhynchotechum Blume 線柱苣苔屬

Subshrubs, densely villose when young. Leaves opposite, rarely alternate; leaf blade oblong or elliptic, surfaces sericeous to hirsute or woolly, glabrescent. Inflorescences axillary, many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base. Corolla white to reddish or purple, zygomorphic; tube campanulate tubular, not swollen, shorter than limb; limb indistinctly 2-lipped; adaxial lip 2-lobed, abaxial lip 3-lobed. Stamens 4, adnate to corolla tube near base, included; anthers basifixed, free, thecae parallel, confluent at apex, dehiscing longitudinally; staminode absent or 1, adnate to adaxial side of corolla tube. Disk ring-like or absent. Ovary ovoid, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, depressed globose, undivided. Berry ovoid to spherical, indehiscent. Seeds spherical, glabrous, unappendaged.

About 13 species in SE Asia and Pacific islands; four to five species in China; one species in Hong Kong.

1. Rhynchotechum ellipticum (Wall. ex D. Dietr.) A. DC. 線柱苣苔 **(Fig. 144; Photo 287)**

Prodr. 9: 285. 1845; FKH 192. 1912; FRPS 69: 558. 1990; FOC 18: 394. 1998; FGD 6: 287, pl. 158. 2005.

Corysanthera elliptica Wall. ex D. Dietr., Syn. Pl. 3: 582. 1843

Rhynchotechum formosanum Hatus., J. Jap. Bot. 15: 132. 1939; FRPS 69: 559. 1990; FOC 18: 394. 1998; Check List HK Plants 251. 2002; 86. 2004.

Subshrubs, 0.5−2 m tall, apically densely depressed rust-brown woolly. Leaves opposite; petiole 1−4 cm, densely appressed rust-brown woolly; leaf blade elliptic to obovate, 6.5−v32 ×

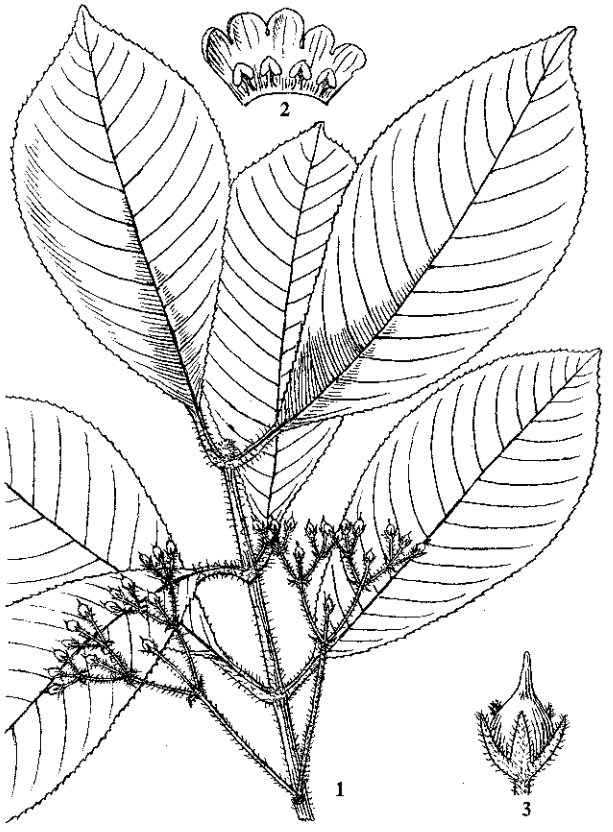


Figure 144. *Rhynchotechum ellipticum* (Wall. ex D. Dietr.) A. DC.
1. fruiting branch; *2*. corolla opened; *3*. fruit. (drawn by H. P. Yu)

2.5–10 cm, base cuneate to attenuate, apex abruptly acuminate to acute, margin denticulate, adaxially rust-brown to brown woolly, glabrescent, abaxially densely rust-brown woolly, glabrescent except along veins, lateral veins 13–26 pairs, almost parallel. Cymes 5–30-flowered; peduncle 2.5–3.5 cm, densely appressed rust-brown villous; bracts narrowly lanceolate, 5–10 mm; pedicels 5–10 mm. Calyx 5-sect from base; segments lanceolate, ca. 3 mm, abaxially rust-brown villous, adaxially glabrous. Corolla white or pink, 4–5 mm, glabrous; tube ca. 2 mm; adaxial lip ca. 2 mm; abaxial lip ca. 2 mm, ovate, apex rounded. Stamens 4, adnate to corolla base, glabrous; filament 5–8 mm; anthers spherical, ca. 1 mm; staminode 1, 0.2–0.3 mm. Pistil glabrous; ovary conical, ca. 1 mm; style ca. 4 mm; stigma 1. Berry white, 5–6 mm, widely spherical.

Locality: Tai Mo Shan, Fung Yuen, Tai Po Kau, Lantau Peak, Sunset Peak. *Y. W. Lam 1753; F. W. Xing 7008; HK sheet 31562.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Fujian, Taiwan; Vietnam, Cambodia, Laos, Thailand, Malaysia, Myanmar, India, Bhutan, Nepal.

Ecology: Dense forests, shaded streamsides, rocky areas in valleys. Flowering: May–Sep.; fruiting: Oct.–Feb. of the following year.

2. **Boea** Comm. ex Lam. 旋蒴苣苔屬

Herbs, perennial, rhizomatous, stemless or stemmed. Leaves opposite, sometimes spirally arranged or basal; leaf blade villous to puberulent. Inflorescences lax, axillary, umbel-like, 1–many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from near base. Corolla white, blue, or purple, zygomorphic, tube campanulate to broadly campanulate; limb distinctly or indistinctly 2-lipped; adaxial lip 2-lobed, shorter than abaxial lip; abaxial lip 3-lobed. Stamens 2, adnate to abaxial side of corolla tube near base, included; anthers dorsifixed, coherent, thecae divaricate, confluent at apex; staminodes 2 or 3. Disk inconspicuous. Ovary oblong, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft, stigma 1, undivided. Capsule straight, narrowly oblong; valves 2, spirally twisted. Seeds unappendaged.

About 20 species in Australia, China, E India, Malaysia, Myanmar, Philippines, Polynesia, Vietnam; three species in China; one species in Hong Kong.

1. **Boea hygrometrica** (Bunge) R. Br. 旋蒴苣苔 **(Fig. 145)**

Pl. Jav. Rar. 120. 1840 [On Cyrtandreae 120. 1839]; FRPS 69: 474. 1990; FOC 18: 368. 1998; FGD 6: 283. 2005.

Dorcoceras hygrometrica Bunge, Enum. Pl. China Bor. 54. 1833.

Herbs, perennial, stemless. Leaves basal and rosulate; petiole to 0.5 cm; leaf blade suborbicular to ovate, 1.5–4 × 1–2.5 cm, base cuneate to truncate, apex rounded, margin dentate to crenulate, adaxially white villous, abaxially densely white to brownish woolly; venation palmate, nearly parallel; veins 3–9. Cymes umbel-like, 2–5-flowered; peduncle 5–18 cm, puberulent to pubescent; bracts linear to lanceolate, 1–3 mm long; pedicels 1–3cm, pubescent. Calyx campanulate, 5-sect from near base; segments narrowly lanceolate, 2–3 mm, apex obtuse, margin entire, abaxially puberulent, adaxially glandular puberulent. Corolla blue-purple, 1–1.5 cm, abaxially sparsely pubescent; tube ca. 5 mm, 6–10 mm in diam.; limb distinctly 2-lipped; adaxial lip lobes ca. 4 mm; abaxial lip lobes equal, obovate or ovate, 5–6 mm. Stamens 2, adnate to corolla tube near middle; filaments ca. 1 mm, glabrous; anthers coherent in pairs at apex, anther thecae obovate, ca. 2 mm; staminodes 3. Pistil pubescent; ovary oblong, ca. 5 mm; style ca. 4 mm, glabrous; stigma 1, terminal. Capsule oblong, 3–3.5 cm, pubescent, twisted. Seeds ovate.

Locality: Wu Kau Tang. *W. J. Tutcher 10926.*

Distribution: Guangdong, Guangxi, Yunnan, Sichuan, Shaanxi, Shanxi, Hebei, Henan, Hubei, Hunan, Jiangxi, Anhui, Shandong, SW Liaoning, Zhejiang, Fujian.

Ecology: Rocks in ravines and forests. Flowering: Apr.–Jun.

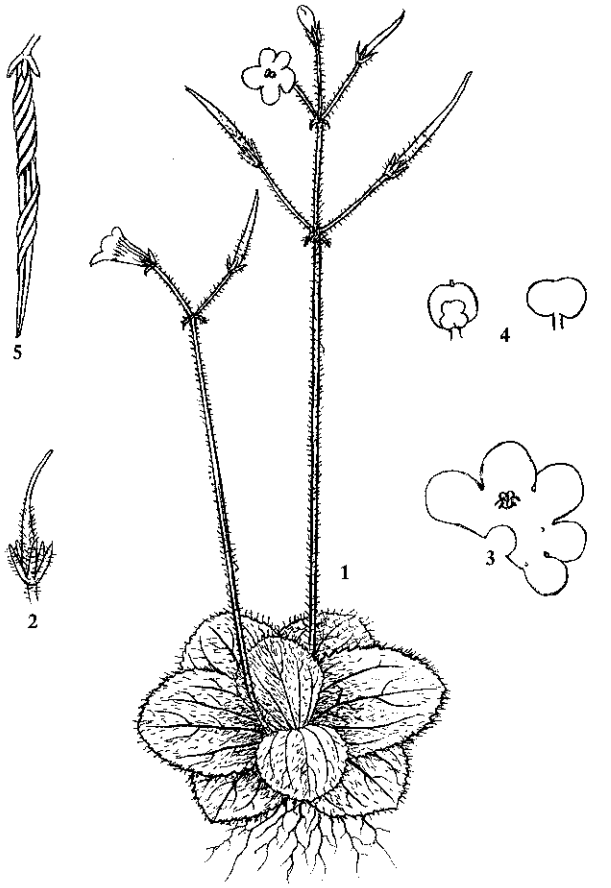


Figure 145. *Boea hygrometrica* (Bunge) R. Br.
1. flowering plant; *2.* calyx and pistil; *3.* corolla opened; *4.* stamens; *5.* fruit. (drawn by H. P. Yu)

3. **Didymostigma** W. T. Wang 雙片苣苔屬

Herbs, annual or perennial. Stems erect, simple or branched. Leaves opposite; leaf blade ovate. Inflorescences lax, axillary, 2–10-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments narrowly lanceolate. Corolla purplish, zygomorphic; tube slender funnelform, not swollen, longer than limb; limb 2-lipped; adaxial lip 2-lobed, much shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 2, adnate to abaxial side of corolla tube middle; anthers basifixed, coherent at apex, thecae parallel, not confluent at apex, dehiscing longitudinally; staminodes 2 or 3. Disk ring-like. Ovary linear; placentas 2, parietal, slightly projecting inward, 2-cleft; stigmas 2, equal, undivided. Capsule straight, linear, dehiscing loculicidally to base; valves 2,

straight. Seeds ellipsoidal, unappendaged, glabrous.

Two species endemic to China, one species in Hong Kong.

1. Didymostigma obtusum (C. B. Clarke) W. T. Wang
雙片苣苔 **(Fig. 146; Photo 288)**

Acta Phytotax. Sin. 22: 189. 1984; FRPS 69: 273. 1990; FOC 18: 292. 1998; FGD 6: 261, pl. 144. 2005.

Chirita obtusa C. B. Clarke, Monogr. Phan. 5: 114. 1883.

Roettlera obtusa (C. B. Clarke) Kuntze, Revis. Gen. Pl. 2: 476. 1891.

Herbs, perennial. Stems erect, simple or branched, 10–30 cm tall, pubescent to densely pubescent. Leaves opposite; petioles 1–4 cm, villose; leaf blade ovate, 2–12 × 1.5–7 cm, base sometimes slightly oblique, broadly cuneate to rounded, apex acute to obtuse, margin crenate, adaxially pubescent, abaxially sparsely pubescent often with purple tinged spotted; lateral veins 5–8 pairs. Cymes axillary, 2–10-flowered; peduncle 2–4 cm, pubescent; bracts 2, lanceolate-linear, 3–6 mm, pubescent; pedicels ca. 1 cm. Calyx 5-sect from base; segments linear, 7–10 mm, villose. Corolla white or purple-blue, 3.5–5 cm, abaxially pubescent; tube slightly funnelform-tubular, 3–3.5 cm, ca. 1 cm in diam.; adaxial lip 2-lobed, lobes 5–7 mm; abaxial lip 3-lobed, lobes 0.9–1.2 cm, rounded. Stamens 2, glabrous, adnate to abaxial side of corolla tube near base, included; filaments slightly tortuous, ca. 1 cm; anther ca. 2 mm; staminodes 2, ca. 5 mm. Disk ring-like, entire. Pistil sparsely pubescent; ovary linear, ca. 2 cm; style ca. 1 cm; stigma 2. Capsule 4–8 cm. Seeds ellipsoidal.

Locality: Tai Mo Shan, Kap Lung, Ng Tung Chai, Tai Po Kau, Ho Pui. *L. T. Lo 416; Y. W. Lam 1149; HK sheet 35341.*

Distribution: Hainan, Guangdong, Guangxi, Fujian.

Ecology: Forests, shaded streamsides. Flowering & fruiting: Jun.–Oct.

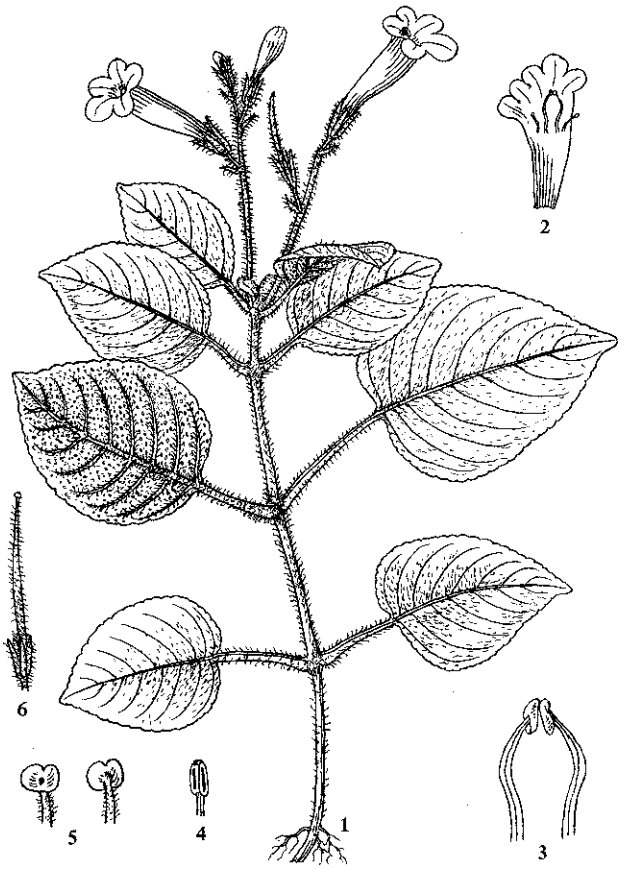


Figure 146. *Didymostigma obtusum* (C. B. Clarke) W. T. Wang
1. flowering plant; *2.* corolla opened; *3.* stamens; *4.* anther; *5.* stigmas; *6.* fruit. (drawn by H. P. Yu)

4. Chirita Buch.-Ham. ex D. Don 唇柱苣苔屬

Herbs, perennial, often rhizomatous, stemless or with simple or branched stems. Leaves basal or opposite on stems, unequal to equal in a pair. Inflorescences umbel-like, axillary, 1–many-flowered cymes; bracts (1–)2(–3), opposite. Calyx actinomorphic or slightly zygomorphic, 5-sect from base or (3–)5-lobed. Corolla purple, blue, white, yellow, pink or purple-red, zygomorphic; tube funnelform-tubular to campanulate or cylindric, longer than limb; limb 2-lipped; adaxial lip 2-lobed, shorter than abaxial lip; abaxial lip 3-lobed, lobes equal or central lobe longer. Stamens 2, adnate to abaxial side of corolla tube near or above middle, included; anthers dorsifixed, coherent, thecae divaricate, confluent at apex, dehiscing longitudinally; staminodes 1–3 or absent. Disk ring-like. Ovary linear, 1-loculed; placentas 2, parietal, rarely 2-loculed, abaxial locule sterile, or placenta 1, axile, projecting inward, 2-cleft; stigma 1, abaxial, obtriangular to oblong, 2-lobed to undivided. Capsule straight, linear to very narrowly ovoid, dehiscing loculicidally to base; valves 2 or 4, straight. Seeds elliptic, glabrous, unappendaged.

About 140 species distributed in tropical regions of Asia; 104 species in China; one species in Hong Kong.

1. Chirita sinensis Lindl.
唇柱苣苔 **(Fig. 147; Photos 289–290)**

Edward's Bot. Reg. 30: pl. 59. 1844; FHK 259. 1861; FKH 194. 1912; FRPS 69: 382. 1990; FOC 18: 334. 1998; FGD 6: 273. 2005.

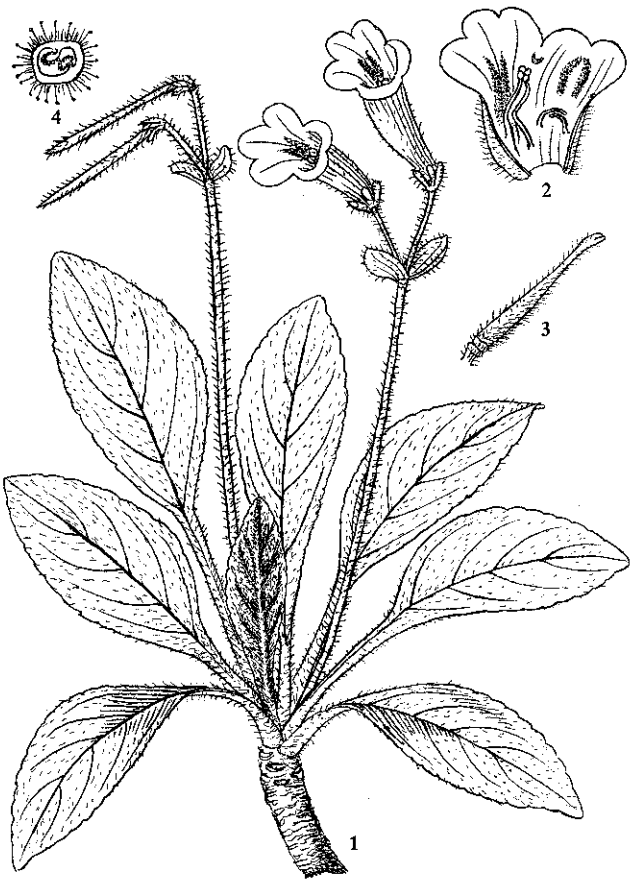


Figure 147. *Chirita sinensis* Lindl.
1. portion of plant; *2.* corolla opened; *3.* pistil; *4.* cross section of ovary. (drawn by H. P. Yu)

Didymocarpus sinensis (Lindl.) H. Lév., Compt. Rend. Hebd. Seances Acad. Sci. 34: 427. 1906.
Chirita sinensis Lindl. var. *angustifolia* Dunn, J. Bot. 45(539): 403. 1907; FGD 6: 274. 2005.

Herbs, perennial, stemless. Leaves basal; petiole 4–8 × 1 cm, villose; leaf blade papery, ovate to oblong, (4–)5–10 × (2–)3.5–8 cm, base attenuate to cordate, apex obtuse or rounded, margin repand to crenate, appressed pubescent and pilose, glandular; lateral veins 3–5 pairs, inconspicuous. Cymes axillary, 2–6-flowered; peduncle 8–14 cm, villose; bracts 2, ovate, 1–3 × 0.5–2 cm, apex obtuse, margin entire or crenulate, villous; pedicel 1–1.5 cm, densely pilose. Calyx 5-sect from base; segments equal, ovate, 4–5 mm, outside puberulent to pilose, inside glabrous, margin entire, apex obtuse or rounded. Corolla purple or white, 3.5–4 cm, inside tinged purple with 2 yellow longitudinal lines adaxially of tube, outside sparsely pubescent to pilose, inside puberulent only on purple spot of adaxial lip; tube tubular to broadly funnelform, often gibbous abaxially, 2–2.5 cm long, ca. 1 cm in diam.; limb 2-lipped; adaxial lip 2-lobed, lobes ca. 5 mm long; abaxial lip 3-lobed, lobes 0.7–1.5 cm long, ovate, apex obtuse. Stamens 2, adnate to abaxial side of corolla tube near middle, include; filaments ca. 1.5 cm, puberulent; anthers ca. 3 mm, glabrous to pubescent; staminodes 2, ca. 6 mm. Disk ring-like, entire. Pistil puberulent; ovary linear, ca. 2 cm; style 5 mm; stigma 2-lobed. Capsule ca. 4 cm, puberulent.

Locality: Hong Kong Island, Shing Mun, Tai Mo Shan, Ma On Shan, Tai Po Kau, Ng Tung Chai, Lantau Island. *H. C. Tang 2235; Y. S. Lau 417, 2761.*

Distribution: Guangdong.

Ecology: Wet shady places by streams or rocks in valleys. Flowering: May–Feb. of the following year; fruiting: Aug.–Feb. of the following year.

5. Aeschynanthus Jack 芒毛苣苔屬

Shrubs or climbers. Leaves opposite, or rarely whorled; leaf blade thin papery or leathery, margin entire; lateral veins indistinct. Inflorescences umbel-like, axillary or pseudoterminal, 1–10-flowered cymes; bracts 2, opposite, ovate or lanceolate. Calyx actinomorphic, cylindric or campanulate, 5-sect from base to 5-lobed. Corolla red to yellow, rarely greenish or white, zygomorphic; tube narrowly tubular to funnelform-tubular, often curved, longer than limb; limb indistinctly or distinctly 2-lipped; adaxial lip 2-lobed, abaxial lip 3-lobed, lobes equal or subequal. Stamens 4, adnate to corolla tube near or above middle, usually exserted; anthers basifixed, usually coherent in pairs at apex, thecae parallel, not confluent at apex, dehiscing longitudinally; staminode 1 or absent, adnate to adaxial side of corolla tube. Disk ring-like. Ovary linear or oblong, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft; stigma 1, capitate to depressed-globose, undivided. Capsule straight, linear, dehiscing loculicidally to base; valves 2 or 4, straight. Seeds with 1(–50) hair-like appendages, opposite end with 1 hair-like appendage, seldom 1 linear appendage at each end.

About 140 species in Asia, Pacific islands; 35 species in China; one species in Hong Kong.

1. Aeschynanthus acuminatus Wall. ex A. DC.
芒毛苣苔 **(Fig. 148; Photos 291–292)**

Prodr. 9: 263. 1845; FKH 193. 1912; FRPS 69: 502. 1990; FOC 18: 377. 1998; FGD 6: 284, pl. 156. 2005.

Aeschynanthus chinensis Gardner & Champ., Hooker's J. Bot. Kew Gard. Misc. 1: 328. 1849.

Aeschynanthus acuminatus var. *chinensis* (Gardner & Champ.) C. B. Clarke, Monogr. Phan. 5: 31. 1883.

Climber, stems 25–100 cm, branched, glabrous. Leaves opposite; petioles 2–5 mm; leaf blade thin leathery, oblanceolate to oblong, 4.5–9 × 1.5–3 cm, base cuneate, apex acuminate or mucronate, margin entire, glabrous; lateral veins indistinct. Cymes axillary or pseudoterminal, 2–5-flowered; peduncle 1–3 cm, glabrous; bracts 2, opposite, suborbicular, 3–9 × 5–10 mm, apex obtuse or rotund, glabrous; pedicel ca. 1 cm, glabrous. Calyx 5-sect from base; lobes narrowly ovate to ovate-oblong, 3–7 × 2–3 mm, apex obtuse, outside glabrous. Corolla red or greenish, 1.5–2.5 cm, outside glabrous, inside puberulent or purple spot at base of abaxial lip, without tufts of hairs, mouth strongly oblique; tube 0.8–1.6 cm long, ca. 5 mm in diam.; limb distinctly 2-lipped; adaxial lip 2-lobed, lobes erect, 4–6 mm long; abaxial lip 3-lobed, lobes reflexed, 5–7 mm long, lobes narrowly ovate. Stamens 4, didynamous, exserted, adnate to corolla tube near middle; filaments purple, 1–2 cm; anthers coherent in pairs at apex, ca. 2 mm, glabrous; staminode 1, ca. 2 mm. Disk ring-like. Pistil glabrous; ovary 1–1.5 cm; style ca. 5 mm; stigma 1, disk-shaped. Capsule 6.5–10 cm, glabrous. Seeds narrowly oblong, with 1 hair-like appendage at each end.

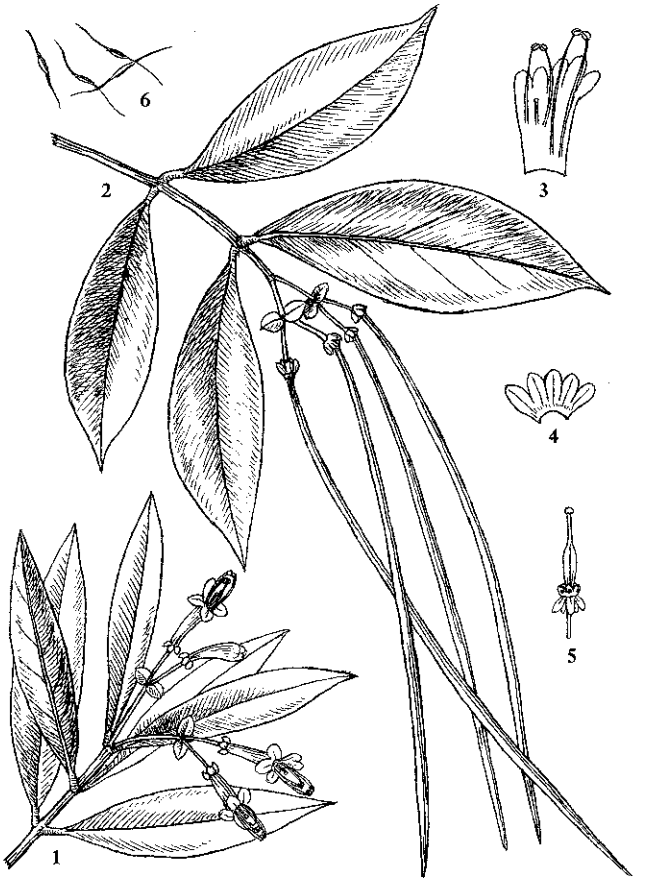


Figure 148. *Aeschynanthus acuminatus* Wall. ex A. DC.
1. flowering branch; *2.* fruiting branch; *3.* corolla opened; *4.* calyx opened; *5.* pistil; *6.* seeds. (drawn by H. P. Yu)

Locality: Hong Kong Island, Shing Mun, Tai Mo Shan, Ng Tung Chai, Pat Sin Leng, Lantau Island. *H. C. Tang 1726; Y. S. Lau 917, 2447.*

Distribution: Guangdong, Guangxi, Yunnan, Xizang, Sichuan, Taiwan; Bhutan, India, Laos, Malaysia, Myanmar, Nepal, Thailand, N Vietnam.

Ecology: Trailing on trees and rocks by streams or in forests. Flowering: Dec.–Mar. of the following year; fruiting: Feb.–May.

Notes: The type specimen of *Aeschynanthus chinensis* was collected by J. G. Champion from Hong Kong between 1847 and 1850.

6. Oreocharis Benth. 馬鈴苣苔屬

Herbs, perennial, rhizomatous, stemless. Leaves basal; leaf blade obelliptic or ovate, margin serrate or entire. Inflorescences lax or dense, axillary cymes; bracts 2, opposite, rarely apparently absent. Calyx actinomorphic, 5-sect from base; segments lanceolate. Corolla zygomorphic; tube campanulate-cylindric to broadly tubular, sometimes ampliate basally, throat sometimes constricted, longer than limb; limb slightly 2-lipped; adaxial lip 2-lobed, lobes lanceolate or ovate; abaxial lip 3-lobed to 3-sect, lobes equal or subequal, apex rounded to acute. Stamens 4, adnate to corolla tube near base to near middle, included, rarely exserted; anthers basifixed, rarely dorsifixed, free, thecae parallel, not confluent at apex, seldom horseshoe-shaped, transverse; staminode 1, rarely absent. Disk ring-like, margin entire. Pistil glabrous or pubescent; ovary oblong; placentas 2, parietal, projecting inward, 2-cleft; style shorter than ovary; stigma 1, terminal, oblate to capitate, undivided, or 2, equal, oblate, undivided or rarely 2-lobed. Capsule straight, oblanceolate-oblong to oblong; valves 2, straight. Seeds ovoid, no appendage.

About 28 species in China, Thailand, Vietnam; 27 species in China; one species in Hong Kong.

1. Oreocharis benthamii C. B. Clarke 大葉石上蓮 **(Fig. 149; Photo 293)**

Monogr. Phan. 5: 63. 1883; FKH 193. 1912; FRPS 69: 165. 1990; FOC 18: 260. 1998; FGD 6: 253. 2005.

Herbs, perennial, 15–25 cm tall. Leaves basal; petioles 2–8 cm, densely light brown woolly; leaf blade elliptic or ovate-orbicular, 4–20 × 2–8 cm, base slightly cordate, apex obtuse to acute, margin shallowly crenate to entire, adaxially densely pubescent, abaxially densely pubescent to densely woolly and densely brown woolly along veins; lateral veins 6–8 pairs. Cymes 6–10-flowered; peduncle 5–20 cm, densely pale brown woolly; bracts 2, linear, 5–10 mm, apex acute, margin entire, densely pubescent; pedicels 0.5–1.5 cm. Calyx campanulate, 5-sect from base; segments lanceolate, ca. 4 mm, apex acute, margin entire, villose. Corolla purple, 0.8–1 cm, outside pubescent to puberulent; tube tubular, gradually ampliate from base to mouth, 8–10 mm; limb slightly 2-lipped; adaxial lip 2-lobed from middle, abaxial lip 3-lobed from base, lobe equal, 1–2 mm, nearly rounded. Stamens 4, free, adnate to corolla tube near middle; filaments ca. 7 mm; anthers broadly oblong, ca. 1 mm. Disk ring-like, entire. Pistil glabrous; ovary linear, ca. 5 mm; style ca. 2 mm; stigma 1, disk-shaped. Capsule 2–3.5 cm, oblong.

Locality: Hong Kong Island, Sai Kung, Tai Mo Shan, Lantau Island. *Y. S. Lau 922; L. T. Lo 610; P. S. Choi 410.*

Distribution: Guangdong, Guangxi, Hunan, Jiangxi.

Ecology: Cliffs in ravines and in forests. Flowering: Mar.–Oct.; fruiting: Aug.–Feb. of the following year.

7. Boeica T. Anderson ex C. B. Clarke 短筒苣苔屬

Subshrubs or herbs, perennial, rhizomatous, sometimes stoloniferous, stemmed or stemless. Leaves alternate or basal. Inflorescences axillary, 1–many-flowered, umbel-like cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla zygomorphic; tube campanulate, slightly shorter than limb; limb slightly 2-lipped; adaxial lip 2-lobed, slightly shorter than to as long as abaxial lip. Stamens 4, adnate to corolla near base, included; anthers basifixed, free, oval, thecae subparallel, confluent at apex, dehiscing longitudinally, poricidally, or transversely; staminode 1. Disk ring-like or inconspicuous. Ovary ovoid, pubescent or glabrous, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft; stigma 1, terminal, capitate, undivided. Capsule straight, linear; valves 2, straight. Seeds unappendaged.

About 12 species in Bhutan, S China, N India, Myanmar, N Vietnam; seven species in China; one species in Hong Kong.

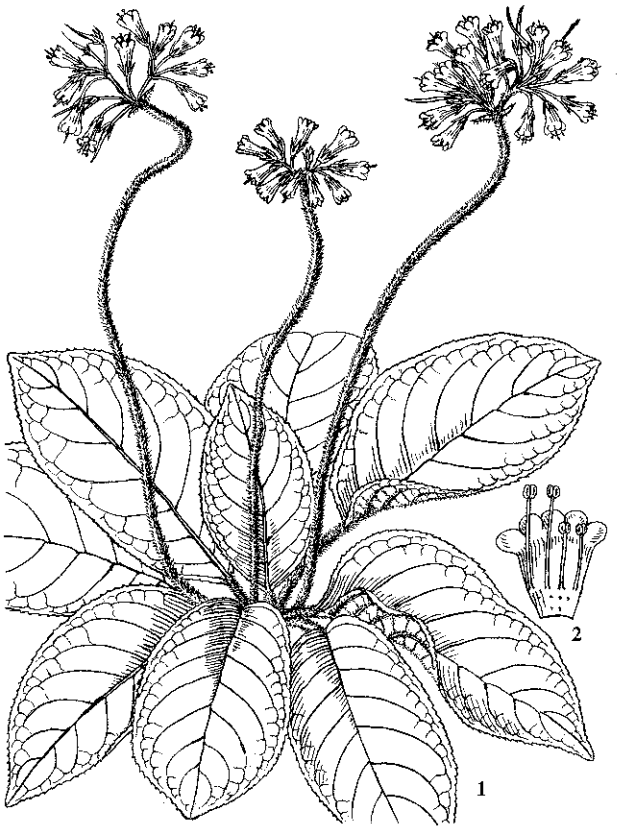


Figure 149. *Oreocharis benthamii* C. B. Clarke

1. whole plant; *2.* corolla opened. (drawn by H. P. Yu)

1. Boeica guileana B. L. Burtt
紫花短筒苣苔 **(Fig. 150; Photos 294–295)**

Notes Roy. Bot. Gard. Edinburgh 35: 371. 1977; FRPS 69: 256. 1990; FOC 18: 288. 1998; FGD 6: 259. 2005.

Herbs, stemless. Leaves basal, rosulate; petioles 1–3 cm, densely villous; leaf blade elliptic, 2–5 × 1–3 cm, base cuneate to rounded, apex acute to rounded, margin serrate to double serrate, white villous and puberulent; lateral veins 5–7 pairs. Cymes 1-flowered; peduncle 2–7 cm, purple villous; bracts 2, linear, ca. 3 mm, purple villose, margin entire; pedicels 1–2 cm, purple villose. Calyx zygomorphic, 5-sect from base; segments lanceolate to linear, outside villous, margin entire. Corolla blue purple, ca. 1 cm, outside puberulent; tube ca. 2 mm; limb distinctly 2-lipped; adaxial lip 2-lobed from middle, lobes obovate, ca. 6 × 5 mm, apex obtuse; abaxial lip 3-lobed from base, lobes obovate, ca. 10 × 6 mm. Stamens 4, free, adnate to corolla tube near base; filaments ca. 4 mm, sparsely puberulent; anthers obovate, ca. 2 mm, dehiscing longitudinally. Disk ring-like. Pistil pubescent; ovary conical, ca. 3 mm long; style ca. 7 mm long; stigma 1, terminal. Capsule oblong, 1–1.5 cm, densely pubescent, much longer than persistent calyx. Seeds ellipsoidal.

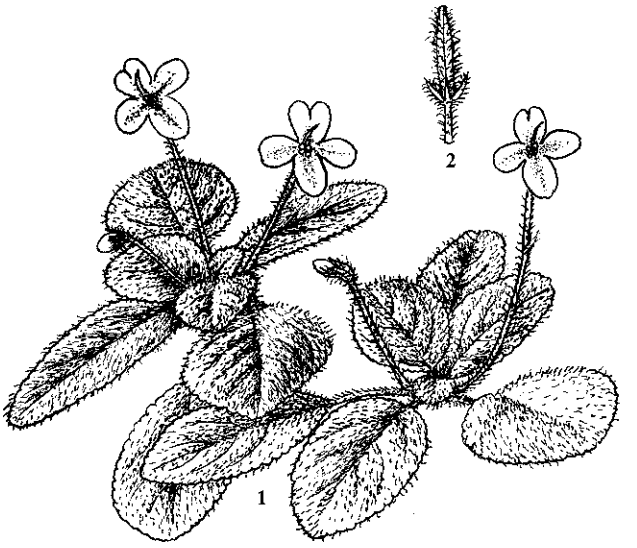


Figure 150. *Boeica guileana* B. L. Burtt
1. whole plant; *2*. fruit. (drawn by H. P. Yu)

Locality: Ma On Shan, Pat Sin Leng, Nam Chung, Luk Keng. *P. S. Choi 542; S. C. Ng 2217; F. W. Xing 7345.*

Distribution: Guangdong.

Ecology: Damp rocks in forests, in steep ravines or on cliffs. Flowering & fruiting: Jun.–Jul.

Notes: The type specimen was collected by D. P. M. Guile from Ma On Shan in July 1971. Listed in *Rare and Precious Plants of Hong Kong*.

304. ACANTHACEAE 爵床科

DENG Yun-fei 鄧雲飛 • GAO Chun-ming 高春明 • XIA Nian-he 夏念和

Herbs, shrubs or climbers, rarely small trees. Leaves opposite, rarely alternate, exstipulate, entire, serrate, rarely pinnatifid, usually covered with cystoliths. Flowers bisexual, zygomorphic to nearly actinomorphic, in spikes, racemes, panicles, or heads, rarely solitary or clustered. Bract 1, large or minute. Bracteoles 2, or 4, sometimes absent. Calyx connate at least basally, usually 4–5-lobed, rarely reduced to an entire ring, cupular or truncate or 10–20-lobed. Corolla sympetalous, the limb subequally (3- or)5-lobed or (1–)2-lipped, the lobes imbricate or contorted in bud, usually divided into a distinct narrow tube and a wider throat. Fertile stamens adnate to the base of corolla, 4, didynamous, or 2; filaments free or basally connate into pairs; anthers parallel or superposed, oblong, thecae 1 or 2, spherical, linear, muticous or spurred, longitudinally dehiscent; staminodes 1–3 or absent. Disk annular and nectar-producing at base of ovary. Ovary superior, 2-locular; ovules 2–many in each locule; placenta axile; style filiform, simple; stigma entire, or 2-lobed, with one lobe frequently smaller, or funnel-shaped. Fruit a loculicidal capsule, 2-valved, or rarely drupaceous (not ours). Seeds 2–many, usually borne on hook-like retinacula, or retinacula lacking (*Thunbergia, Staurogyne*), the testa smooth or roughened, sometimes with mucilaginous trichomes which expand when moistened.

About 250 genera and 3500 species in tropical regions of the world; about 50 genera and 320 species in China; 23 genera and 43 species and one variety in Hong Kong.

Avicennia, usually placed in Verbenaceae or in its own family Avicenniaceae, is included in this family by the Angiosperm Phylogeny Group on the basis of molecular phylogenetic studies.

1a. Scandent herbs or shrubs; capsule with a prominent sterile apical beak longer and much narrower than the fertile spherical base; calyx annular to unequally 10–20-lobed ..... 1. *Thunbergia*
1b. Erect or procumbent herbs, subshrubs or shrubs; capsule not beaked, or the beak (if present) similar in width to the seed-bearing portion; calyx 2–5-lobed.
2a. Seeds not borne on hook-like retinacula ..... 2. *Staurogyne*
2b. Seeds borne on hook-like retinacula.
3a. Corolla 1-lipped, upper lip absent, lower lip 3-lobed, mangrove plants ..... 3. *Acanthus*
3b. Corolla subequally 5-lobed, or 2-lipped, upper lip entire or 2-lobed, lower lip 3-lobed.
4a. Calyx lobes 4, lobes heteromorphic, in unequal pairs ..... 4. *Barleria*
4b. Calyx lobes 5, if 4, then lobes homomorphic, equal or subequal.
5a. Ovules 3–many per locule; capsule many-seeded.
6a. Fertile stamens 2.
7a. Leaf venation coloured ..... 5. *Sanchezia*

7b. Leaf venation green ..... 6. *Andrographis*
6b. Fertile stamens 4.
8a. Flowers in spikes, thyrses or panicles ..... 7. *Ruellia*
8b. Flowers solitary, or 2–several clustered in leaf axils.
9a. Flowers solitary or 2 in axillary clustered; corolla campanulate ..... 8. *Dipteracanthus*
9b. Flowers several, axillary whorled; corolla 2-lipped ..... 9. *Hygrophila*
5b. Ovules 1–2 per locule, capsule 2–4-seeded.
10a. Filaments monadelphous, fused by membrane sheath adhere to the corolla ..... 10. *Strobilanthes*
10b. Filaments without membrane sheath.
11a. Fertile stamens 4.
12a. Flowers in dense 1-sided head-like spikes ..... 11. *Lepidagathis*
12b. Flowers in lax 1-sided racemes ..... 12. *Asystasia*
11b. Fertile stamens 2.
13a. Anther 1-thecous.
14a. Bracteoles 4, outer 2 connate forming an obconic or cylindric involucres enclosing the flowers ..... 13. *Hypoestes*
14b. Bracteoles 2, free ..... 14. *Clinacanthus*
13b. Anther 2-thecous.
15a. Androecium of 2 fertile stamens and 2 staminodes.
16a. Corolla campanulate, tube subequal to limb ..... 15. *Codonacanthus*
16b. Corolla tubular or hypocrateriform, tube much longer than limb.
17a. Flowers heterostylic; corolla limb weakly 2-liped ..... 16. *Odontonema*
17b. Flowers not heterostylic; corolla limb equally or subequally 5-lobed.
18a. Bracts imbricate, larger, conspicuously variegated white and green ..... 17. *Eranthemum*
18b. Bracts minute, smaller, green ..... 18. *Pseuderanthemum*
15b. Androecium of 2 fertile stamens, staminodes absent.
19a. Placenta rising up from base of ripe capsule.
20a. Flowers in cymes; anther-thecae spherical, muticous at base ..... 19. *Dicliptera*
20b. Flowers in spikes; anther-thecae oblong, spurred at base ..... 20. *Rungia*
19b. Placenta not rising up from base of ripe capsule.
21a. Anther-thecae parallel, equal, in same height, muticous at base ..... 21. *Pachystachys*
21b. Anther-thecae unequal, superposed.
22a. Anther-thecae muticous at base ..... 22. *Rhinacanthus*
22b. Anther-thecae one or both spurred at base ..... 23. *Justicia*

1. **Thunbergia** Retz. 老鸦嘴属

Climbing herbs or shrubs, lacking cystoliths. Leaves petiolate, entire or sinuate lobed. Flowers pedicellate, solitary or paired in leaf axis or in terminal raceme. Bracts leaf-like; bracteoles paired, prominent, enclosing calyx and corolla tube, persistent. Calyx cupular with 10–20 subulate lobes or reduced to an entire ring. Corolla large, funnel-shaped, tube with short cylindric base then widened, equally 5-lobed, lobes contorted in bud. Stamens 4, didynamous, inserted near the base of corolla tube; anthers 2-thecous, thecae oblong or ovoid, parallel, spurred or not at base, sometimes bearded. Disk shortly annular or pulvinate. Ovary fleshy, 2-locular, with 2 collateral ovules per locule; style long, stout; stigma bifid, entire or fringed. Capsule globose with conspicuous, woody beak in upper part, loculicidally dehiscent, hook-like retinacula absent. Seeds 4, compressed to spherical, glabrous.

About 200 species in tropical regions of the Old World; ten species in China; five species cultivated or naturalized in Hong Kong.

1a. Erect shrubs ..... 1. *T. erecta*
1b. Climber herbs.
2a. Calyx with 10–20 slender, subulate lobes.
3a. Petioles conspicuously winged; corolla orange with a dark purple internally glandular throat ..... 2. *T. alata*
3b. Petioles wingless; corolla white ..... 3. *T. fragrans*
2b. Calyx reduced to an entire ring.
4a. Leaves glabrous, 3-veined ..... 4. *T. laurifolia*
4a. Leaves pubescent, 5–7-veined ..... 5. *T. grandiflora*

1. Thunbergia erecta (Benth.) T. Anderson 硬枝老鸦嘴 **(Photo 296)**

J. Proc. Linn. Soc., Bot. 7: 18. 1864; FHN 3: 542. 1972; FRPS 70: 24. 2002.

Meyenia erecta Benth., Niger Fl. 476. 1848.

Erect shrubs, 1–2 m tall, many-branched; younger stems quadrangular, greyish brown, winged, glabrous or pubescent on the node. Petioles 2–5 mm, subglabrous; leaf blades leathery or thick papery, ovate or ovate-lanceolate, sometimes rhomboid, 2.5–9 × 1–5 cm, base cuneate, apex acute or acuminate, margin entire or sparsely serrate towards the apex, sometimes undulate, sparsely pilose or subglabrous, pinnately-veined, lateral veins 4–6 pairs, netted near the margin. Flowers solitary or in pairs, axillary. Peduncles 1.5–2.5 cm, glabrous. Bract subulate; bracteoles oblong-ovate, 1–2 × 0.5–0.8 cm, base obtuse, apex acute, glabrous or minutely puberulous at the apex. Calyx 12–15-lobed; lobes unequal, ca. 1 mm, glandular-pubescent. Corolla 5.5–6 cm, white, purplish or deeply violet with a white or yellowish throat, outside glabrous, tube-base cylindric, ca. 1 cm long and 3 mm wide, gradually widened to 2.5–3 cm at mouth; lobes oblong ovate, subequal, ca. 1.5 × 1 cm. Stamens 4, didynamous, filaments glabrous, the longer pair ca. 1.2 cm, the shorter pair ca. 0.7 cm; anther thecae oblong, ca. 4 mm, with a short awn-like appendage at base, puberulous at margin and base. Ovary glabrous; styles ca. 3.5 cm, sparsely puberulous towards the apex; stigma unequally lobed, the upper lobe erect and angular. Capsules glabrous, ca. 0.9 cm long, 1.2 cm broad, beak ca. 2 cm.

Locality: Cultivated. *Y. S. Lau 1149, 3227; L. T. Lo 93; S. Y. Hu & P. P. H. But 20583, 21048* (KUN).

Distribution: Cultivated in Hainan, Guangdong, Guangxi, Yunnan; native to W tropical Africa, cultivated elsewhere in tropical regions.

Ecology: Cultivated. Flowering: Oct.–Apr. of the following year.

Uses: Ornamental.

2. Thunbergia alata Bojer ex Sims 翼叶老鸦嘴 **(Photo 297)**

Bot. Mag. 52: pl. 2591. 1825; FKH 197. 1912; FRPS 70: 24. 2002.

Herbaceous vine; stems subquadrate to flattened, bisulcate, pubescent. Petioles winged, 1.5–3 cm, sparsely pubescent; leaf blades sagittate to deltoid ovate, 2–7.5 × 2–6 cm, base hastate to cordate, apex acute, margin entire or undulate, adaxially sparsely strigose, abaxially hirsute; palmately 5-veined. Flowers solitary, axillary. Peduncles 2.5–3 cm, sparsely strigose. Bracts subulate; bracteoles ovate, 1.5–1.8 × 1–1.4 cm, apex acute or acuminate, obtuse, 5–7-veined, abaxially hirsute. Calyx annular, unequally 10–13-lobed. Corolla 2.5–4.5 cm, orange with dark purple glandular "eye" in throat; tube-base cylindric, 2–4 mm wide, gradually widened to ca. 4 cm at mouth; lobes obovate, apex truncate. Stamens 4, didynamous; filaments glabrous, ca. 4 mm; anther thecae unequal, 3.5–4 mm, pubescent at margin and base. Ovary glabrous; styles ca. 8 mm, glabrous; stigma 2-lobed; lobes unequal, the upper one erect, the lower one spreading. Capsules pubescent, ca. 7 × 10 mm, beak ca. 1.4 cm, base ca. 3 mm wide. Seeds 2, reticulate on the dorsal surface.

Locality: Cultivated or naturalized. *Y. S. Lau 2021, 2201; Y. W. Lam 512.*

Distribution: Cultivated and naturalized in S & SW China; native to tropical Africa, now widely cultivated and naturalized in the tropical regions of the world.

Ecology: Flowering: Oct.–Apr. of the following year.

Uses: Ornamental.

3. Thunbergia fragrans Roxb. 碗花草

Pl. Coromandel 1: 47, pl. 67. 1795; FKH 197. 1912; FRPS 70: 30. 2002.

Thunbergia bodinier Lev., Repert. Spec. Nov. Regni Veg. 12: 21. 1913.

Herbaceous vines. Stems subquadrate to flattened, sulcate, hirsute. Petioles 0.5–4.5 cm, hirsute; leaf blades papery, oblong-ovate to oblong-lanceolate, 4–14 × 3–7 cm, base rounded, sometimes cuneate or cordate, apex acute to acuminate, margin entire to irregularly sinuate to shallowly and coarsely dendate, puberulous on both surfaces, gradually subglabrescent, palmately 5-veined. Flowers solitary, axillary. Peduncles 3–5.5 cm. Bracts subulate; bracteoles ovate, 1.5–2.5 × 0.8–1.5 cm, apex acute, puberulous, persistent. Calyx unequally 10–13-dentate, glabrous. Corolla white, sparsely puberulous, tube-base cylindric, 4–7 mm wide, gradually widened to ca. 2 cm at mouth; lobes obovate, ca. 2.5 × 2.3 cm, 7–9-veined. Stamens 4, included; filaments glabrous; anther-thecae lanceolate, divergent. Ovary glabrous; style exerted; stigma funnel-shaped. Capsules glabrous, brown, ca. 0.7 × 1 cm, beak ca. 1.5 cm. Seed smooth.

Locality: Cultivated. *Y. S. Lau 677, 1260, 3117; E. Bodinier 1318* (E); *M. S. Clemens 4267* (E).

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Shaanxi, Taiwan; native to India and Sri Lanka, widely cultivated and naturalized in tropical regions of the world.

Ecology: Flowering & fruiting: Jun.–Sep.

Uses: Ornamental.

Notes: The type specimen of *Thunbergia bodinieri* was collected by E. Bodinier from Hong Kong on 4 Sep. 1895.

4. Thunbergia laurifolia Lindl. 桂叶老鸦嘴

Gard. Chron. 1856: 260. 1856; FRPS 70: 28. 2002.

Thunbergia grandiflora (Roxb. ex Rottl.) Roxb. var. *laurifolia* (Lindl.) Benoist, Fl. Indo-Chine 4: 618. 1935.

Thunbergia harrisii Hook., Bot. Mag. t. 4998. 1857.

Herbaceous or woody vines. Stems subquadrangular, glabrous. Petioles 0–3 cm, sulcate; leaf blades oblong, oblong-lanceolate or lanceolate, subleathery, 7–16 × 1.5–6 cm, base rounded or broadly cuneate, apex acuminate or caudate, margin entire or irregularly undulate, glabrous, palmately 3-veined. Racemes terminal or axillary. Pedicels 1–2 cm. Bracts subulate, ca. 4 × 1 mm, glabrous; bracteoles oblong-elliptic, 2–2.5 × 0.9–1.2 cm, apex acuminate, abaxially densely pubescent upward. Calyx annular, unlobed. Corolla 4.5–6 cm; tube-base white, cylindric, 1–1.3 cm × ca. 3 mm, gradually widened to ca. 3 cm at mouth; lobes bluish, orbicular, ca. 2 cm in diam. Stamens 4, included; filaments thickened basally; anthers-thecae acute apically, pubescent dorsally. Ovary and style glabrous, style ca. 2.5 cm. Capsule ca. 1.5 × 1.5 cm, beak ca. 3 cm.

Locality: Cultivated. *Y. S. Lau 2109*; *P. S. Choi 116*; *E. Bodinier 1417* (E); *S. Y. Hu 9337* (K).

Ecology: Flowering: Mar.

Distribution: Guangdong, Fujian (cultivated); native to India, cultivated in other tropical regions.

Uses: Ornamental.

5. Thunbergia grandiflora Roxb.

大花老鴉嘴 **(Fig. 151; Photo 298)**

Bot. Reg., 6: pl. 495. 1820; FHK 260. 1861; FKH 197. 1912; FHN 3: 543. 1972; FRPS 70: 26. 2002.

Woody vines, up to 8 m or longer. Stem sulcate, glabrous or pilose. Petioles 1–7 cm, sulcate, pubescent; leaf blades papery, ovate or triangular-ovate, 5–10 × 4–8 cm, base subcordate or truncate, apex acuminate to acute, margin undulate or irregularly lobed below the middle, rarely entire, pubescent, palmately 5–7-veined. Flower solitary or paired in leaf axil, or in terminal panicle. Pedicles 4–7 cm, sulcate, pubescent. Bracts subulate; Bracteoles oblong or ovate, 2.5–3 cm, apex acute with a short mucro, glabrous, margin ciliate, 5–7-veined. Calyx annular, unlobed. Corolla bluish, 4–6 cm, abaxilly glabrous, tube-base cylindric, ca. 7 × 3 mm, gradually widened to ca. 5 cm at mouth, limb 5-lobed; lobes ovate, ca. 3 × 2.5 cm. Stamens 4, filaments 7–9 mm, anthers appendaged basally, pubescent dorsally. Ovary glabrous, stigma 2-lobed; lobes subequal. Capsule pubescent, ca. 1.3 cm in diam., beak ca. 2.5 cm. Seeds ovoid, compressed, verrucose.

Locality: Common in Hong Kong. *Y. S. Lau 729, 1884; HK sheet 32226.*

Distribution: Guangdong, Guangxi, Yunnan, Fujian; SE Asia.

Ecology: Thickets, sometimes cultivated. Flowering: Mar.–Oct.

Uses: Ornamental.

2. Staurogyne Wall. 叉柱花屬

Herbs or small undershrubs. Leaves opposite, petiolate or sessile, entire or nearly so. Flowers usually arranged in racemes or spikes, terminal or axillary. Bracts spirally arranged, leaf-like or spathulate; bracteoles spathulate or linear, slightly smaller than bracts. Calyx 5-lobed; lobes lanceolate or lanceolate-linear, equal or unequal, persistent. Corolla with short cylindric basal tube, campanulate, 5-lobed; lobes subequal, patent. Stamens 4, didynamous, included or anterior pair slightly exserted; filaments usually hairy, rarely glabrous; anthers 2-thecous; thecae parallel, equal, or rarely unequal; staminodes small or absent. Ovary oblong or spherical, glabrous or nearly so, ovules several per locule, arranged in 2 or 4 rows; style glabrous, filiform; stigma 2-lobed, sometimes repeatedly 2-lobed. Capsule oblong, retinacula absent. Seeds many, small, subspherical or cuboidal.

About 80 species in tropical and subtropical regions of the world; 14 species in China; one species in Hong Kong.

1. Staurogyne concinnula (Hance) Kuntze

糙葉叉柱花 **(Fig. 152)**

Revis. Gen. Pl. 2: 497. 1897; FTW ed. 2, 4: 686. 1998; FRPS 70: 38. 2002.

Ebermaiera coninnula Hance, J. Bot. 1868: 200. 1868; FKH 197. 1912.



Figure 151. *Thunbergia grandiflora* Roxb.
1. flowering branch; *2.* fruit. (drawn by H. P. Yu)

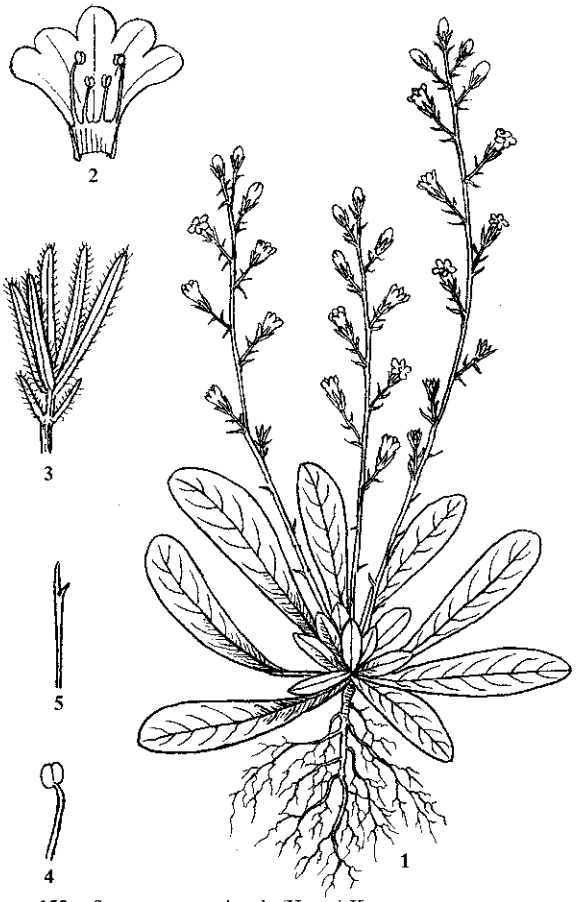


Figure 152. *Staurogyne concinnula* (Hance) Kuntze
1. whole plant; *2.* corolla opened; *3.* sepals and bracts; *4.* stamen; *5.* style and stigma. (drawn by H. P. Yu)

Perennial dwarf herbs, ca. 15 cm tall; stem generally short, partially underground, 0.5–6 cm long, usually simple, rarely few-branched, terete, densely short pubescent. Leaves rosulate at the base of stem; petioles 0.3–3 cm, pubescent; leaf blades oblanceolate, 1.5–7 × 0.5–1.5 cm, base gradually attenuate, apex obtuse or rounded, margin obscurely undulate, adaxially green, scarious, sometimes pubescent along the veins, abaxially glaucous, pubescent along the veins, lateral veins 5–8 pairs, prominent abaxially. Spikes 1–4, axillary, sometimes loosely branched, forming a panicle of 5–15 cm; branches slender, with 3–10 interrupted flowers. Pedicels 1–4 mm, pubescent. Bracts linear to linear-oblanceolate, 2–4 mm, apex obtuse or subacute; bracteoles 2, at the middle of pedicel, linear, ca. 2 mm, apex obtuse. Calyx campanulate, 5-lobed almost to the base; lobes linear or linear-lanceolate, unequal, 5–6 mm, apex acute, accrescent to 7 mm in fruit, glabrous except for minutely pilose on the margin. Corolla ca. 1 cm, white, tubular-funnelform; tube ampliate, ca. 6 × 4 mm, 5-lobed; lobes subequal, orbicular, ca. 3 mm. Stamens 4, included, didynamous; filaments glabrous, the longer pair ca. 5 mm, shorter pair ca. 2.5 mm; anthers ellipsoidal, ca. 1.5 mm, thecae equal. Ovary ellipsoidal, glabrous; style filiform, ca. 5 mm; stigma subulate. Capsule oblong, 4–5 × 1.5 mm, glabrous, shorter than persistent calyx, many-seeded. Seeds suborbicular, ca. 0.2 mm.

Locality: Hok Tau. *HK sheet 35393, F. W. Xing 10190* (IBSC).

Distribution: Hainan, Guangdong, Fujian, Taiwan; Japan.

Ecology: Streamsides, forests. Flowering & fruiting: Mar.–Apr.

3. Acanthus L. 老鼠簕屬

Erect shrubs or perennial herbs. Leaves opposite, pinnatifid, spinous-toothed, rarely entire, without cystoliths. Inflorescence of dense terminal or, less commonly, axillary spikes; bracts, ovate, large, spiny-margined, growing in size as plant mature; bracteoles 2 in pair, oblong, or absent. Calyx 4-lobed, with 2 lobes larger and 1 of them often spine-toothed. Corolla-tube short, horny, 1-lipped, upper lip absent, lower lip elongate, obtusely 3-lobed. Stamens 4, didynamous; filaments included, stout, attached to corolla throat; anther 1-thecous, densely hairy, linear-oblong, bearded along one margin. Ovary 2-locular, ovules 2 per locule; styles slender, stigma 2-fid. Capsule ellipsoidal, shiny, retinacula present, 4-seeded. Seeds orbicular, glabrous, muricate, glandular.

About 50 species in tropical and subtropical regions of the Old World, S Europe; three species and one variety in China; one species and one variety in Hong Kong.

1a. Leaf margin with few large spines, lateral veins reach to the teeth and not netted ..... 1. *A. ilicifolius*

1b. Leaf margin serrate or subentire, lateral veins not reach to the teeth, netted near the margin ..... 1a. *A. ilicifolius* var. *xiamenensis*

1. Acanthus ilicifolius L. 老鼠簕 **(Fig. 153; Photos 299–300)**

Sp. Pl. 639. 1753; FHK 263. 1861; FKH 199. 1912; FHN 3: 553. 1974; FRPS 70: 45. 2002.

Dilivaria ilicifolia (L.) Juss., Gen. Pl. 103. 1789.

Erect shrubs, up to 2 m tall; stems rarely branched, stout, glabrous. Petioles thick, 3–6 mm, glabrous, with 2 stipule-like spines at base; leaf blades oblong to oblong-lanceolate, 6–14 × 2–5 cm, pinnatifid, base acute, apex truncate, margin with few large spines, glabrous, lateral veins 5–7 pairs, reaching to the teeth. Spikes terminal, to 16.5 cm; bracts broad ovate, 7–8 mm, innocuous, caducous; bracteoles ovate, about 5 mm, leathery. Calyx-lobes 4, 2 outer ones larger, 10–13 mm, apex emarginate, scarious at margins, sometimes crispate, 2 inner ovate, about 10 mm, entire. Corolla pale, 3–4 cm; tubes 6 mm, upper lips reduced, lower lip obovate, about 3 mm, thin-leathery, apex bifid, soft hairy on outer side, with a stripe of 3–4 mm broad on both sides of upper parts. Stamens 4, equal, anther-theca 1, longitudinal scissile, with a line of hairs on both sides of suture; filaments 1.5 cm; anther-theca longitudinally scissile; style 2.2 cm, longitudinal lineated; stigma 2-fid. Capsule elliptic, 2.5–3 cm; seeds 4, ellipsoidal, complanate, light yellow.

Locality: Shek O, Sha Tin, Sai Kung, Nam Sang Wai, Tai Lam Chung, Lantau Island. *H. C. Tang 2279, 2290*; *Y. S. Lau 225, 2216*.

Distribution: Hainan, Guangdong, Guangxi, Fujian; SE Asia and Australia.

Ecology: Mangrove swamps. Flowering & fruiting: Apr.–Jul.

Uses: Medicinal (folklore).

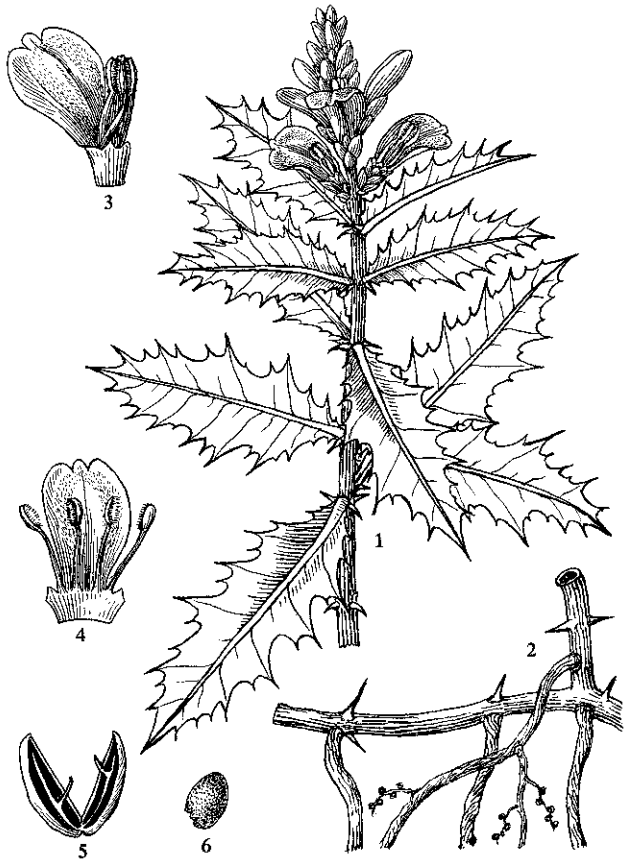


Figure 153. *Acanthus ilicifolius* L.

1. flowering branch; *2*. stem and aerial root; *3*. corolla, stamens and pistil; *4*. corolla opened; *5*. dehiscent fruit; *6*. seed. (drawn by H. P. Yu)

1a. Acanthus ilicifolius L. var. **xiamenensis** (R. T. Zhang) Y. F. Deng, N. H. Xia & H. B. Chen 廈門老鼠簕
J. Trop. Subtrop. Bot. 14: 530. 2006.

Acanthus xiamenensis R. T. Zhang, Wuyi Sci. J. 5: 237. 1985.

Acanthus ebracteatus Vahl. var. *xiamenensis* (R. T. Zhang) C. Y. Wu & C. C. Hu, FRPS 70: 47. 2002.

Differs from var. *ilicifolius* in its leaf margin serrate or subentire, lateral veins not reaching to the teeth, and netted near the margin.

Locality: Mai Po, Tai Po. *S. Y. Hu 11542* (CAS); *S. Y. Hu 13544* (IBSC, PE).

Distribution: Hainan, Guangdong, Guangxi, Fujian.

Ecology: Mangrove swamps. Flowering: May–Jun.; fruiting: Jun.–Jul.

4. Barleria L. 假杜鵑屬

Perennial herbs or shrubs with cystoliths, usually spiny. Leaves opposite, petiolate, margin entire. Inflorescence of mostly axillary cymes, sometimes secund or reduced to dense clusters or flowers solitary; bracts present or absent; bracteoles 2. Calyx deeply 4-lobed, 2 outer lobes larger, one usually bifid, 2 inner lobes much smaller. Corolla usually large, funnel-shaped, 5-lobed; lobes subequal. Fertile stamens 4, didynamous; filaments included; anthers 2-thecous, thecae oblong at same height, acute or muticous at base; staminodes 1. Ovary 2-locular, 2 ovules per locule; style filiform, included; stigma bifid or entire. Capsules substipitate, subellipsoidal to ovoid, retinacula present, 2–4-seeded. Seed lenticular, pubescent with appressed hygroscopic trichomes.

About 100 species in tropical regions of Asia and Africa; four species in China; one species naturalized in Hong Kong.

1. Barleria cristata L. 假杜鵑 **(Fig. 154; Photo 301)**
Sp. Pl. 636. 1753; FHK 262. 1861; FKH 199. 1912; FHN 3: 553. 1974; FRPS 70: 63. 2002.

Under shrub, to 2 m tall; stems terete, branched, covered with soft hairs. Petioles (0–)0.3–1 cm; leaf blades papery, elliptic, oblong or ovate, 2–4 × 1.3–4 cm, base cuneate, decurrent onto the petioles, apex acute, sometimes acuminate, margin entire, villous on both surfaces, especially along the veins, lateral veins 4–7 pairs. Flowers subsessile, in dense axillary clusters becoming capitate at branch ends. Bracts absent; bracteoles very variable, linear to linear-lanceolate, 1.0–2.2 × 0.5–1.5 cm, base cuneate, apex acuminate, margin usually spiny-margined but sometimes bristly pilose-margined, spinescent with age, 3–7-veined. Outer calyx-lobes narrowly elliptic to lanceolate, 1.2–2.5 × 0.5–1.3 cm, apex mucronate, margin spiny, pilose, reticulate, inner calyx-lobes linear or lanceolate, 6–12 mm, scarious-margined, 1-veined. Corolla purplish-blue, 5–6.5 cm; tube pilose, narrowly cylindric in the lower half, then gradually widened; lobes equal, oblong-elliptic, ca. 1.5 cm, glabrous. Fertile stamens 4, didynamous; filaments pilose, especially towards the base; staminodes 1, filament sparsely pilose. Ovary oblong-ellipsoidal, glabrous; styles linear, ca. 2.5 cm long, glabrous; stigma slightly inflated. Capsules oblong, 1.4–1.8 cm, black, acute at both ends, glabrous, 4-seeded. Seeds suborbicular or ovate, ca. 5 × 4 mm, flattened, densely adpressed pubescent.

Locality: Cultivated and naturalized. *Y. S. Lau 182*; *H. C. Tang 1478*; *Y. W. Lam 1209*.

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Fujian, Taiwan; SE Asia.

Ecology: Roadsides, hillslopes. Flowering: Oct.–Dec.

Uses. Medicinal (folklore), ornamental.



Figure 154. *Barleria cristata* L.
1. flowering branch; *2.* outer calyx-lobe; *3.* inner calyx-lobes; *4.* four stamens and one staminode; *5.* fruit. (drawn by H. P. Yu)

5. Sanchezia Ruiz & Pav. 黃脈爵床屬

Erect to scandent perennial herbs or shrubs, with cystoliths. Leaves opposite, subsessile to petiolate, margin entire to crenuate, coloured on the veins. Flowers usually large and conspicuous, solitary or more often fasciculate, forming terminal heads, spikes or racemes. Bracts large or small, free, rarely partly connate; bracteoles 2. Calyx deeply 5-lobed; lobes subequal to unequal in size. Corolla yellow, orange, red or purple; tube cylindric or ± expanded distally, limb subactinomorphic, 5-lobed; lobes small, often recoiled, contorted in bud. Stamens 2, usually exserted; anthers 2-thecous; thecae equal in size, parallel, longitudinally ciliate, mucronate at base, dehiscing towards lower lip; staminodes 2. Ovary 2-locular, 3–4 ovules per locule; style usullay exserted; stigma 2-lobed; lobes unequal. Capsule estipitate, linear-ellipsoidal, retinacula present, 6–8-seeded. Seeds lenticular.

About 60 species native to tropical America; two species cultivated in China; one species in Hong Kong.

1. Sanchezia parvibracteata Sprague & Hutch.
小苞黄脈爵床 **(Fig. 155)**
Bull. Misc. Inform. Kew 1908: 253. 1908; FRPS 70: 275. 2002.

Shrubs, 1–3 m tall. Young stems quadrangular, sulcate, glabrous. Petioles 1–2 cm, pubescent, soon glabrescent; leaf blades oblong, 7–20 × 3–9 cm, base cuneate, apex acuminate, margin undulate, entire or serrulate, adaxially glabrous, cystoliths numerous, yellow along the midvein and lateral veins, abaxially pale green, densely pubescent when young, then soon glabrescent or sparsely pilose along veins, lateral veins 8–12 pairs. Inflorescence of terminal dichasia spikes, 4–12 cm long. Peduncles 1–2.5 cm. Rachis quadrangular, sparsely pubescent. Bracts red or orange, ovate, 1–2.5 × 0.6–0.8 cm, apex acute, glabrous, abaxially densely covered with cystoliths; bracteoles ovate-elliptic, 1.3–1.5 × 0.3–0.4 cm, glabrous, abaxially densely covered with acerose cystoliths, 3-veined. Calyx ca. 1.5 cm, 5-lobed almost to the base, lobes oblanceolate, unequal, 1–2 mm wide, apex obtuse, glabrous except for pilose upward, abaxially densely covered with cystoliths. Corolla yellow or orange, 4–5 cm, outside densely white pilose, tube 3.5–4.5 cm × 7–8 mm, lobes recoiled, 2–3 mm long. Stamens 2, exserted; filaments ca. 5 cm long, pubescent; anther thecae mucronate for ca. 1 mm at base. Staminodes 2, unequal, 2–2.3 cm long. Ovary ovoid, ca. 4 mm long; style 5–6 cm long, pilose towards the base; stigma 2-lobed, lobes unequal, the larger ca. 3 mm long, smaller ca. 0.5 mm. Capsule 1.1–1.4 cm long, glabrous except for pilose at the tip.

Locality: Cultivated. *K. Y. Chan 1337* (CHUK); *S. Y. Hu 5495* (CUHK).

Distribution: S China (cultivated); native to Ecuador, widely cultivated in tropics.

Ecology: Flowering: Feb.–May.

Uses: Ornamental.

Notes: The plant was identified as *Sanchezia nobilis* Hook. previously but *Sanchzia parvibracteata* has much larger bracts than that species.

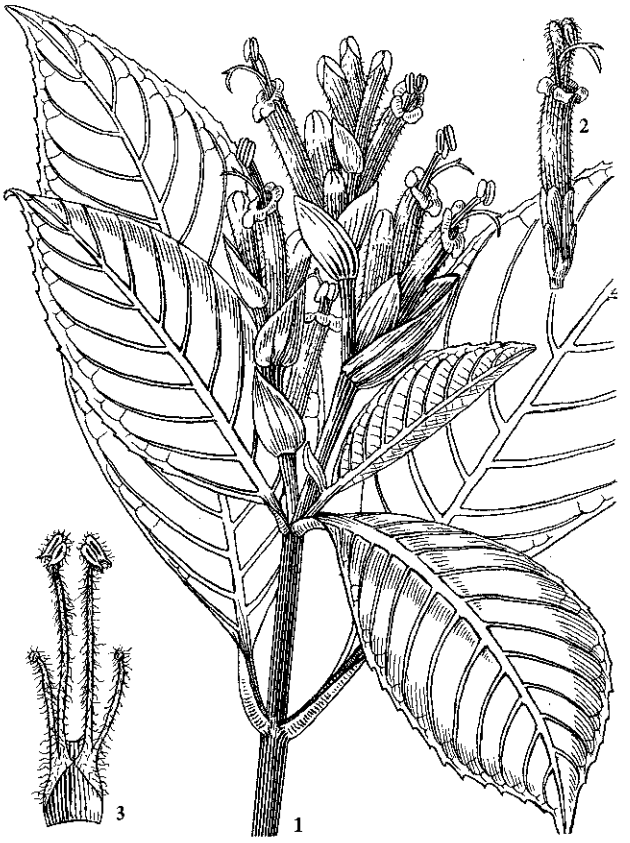


Figure 155. *Sanchezia parvibracteata* Spargue & Hutch.
1. flowering branch; *2.* flower; *3.* stamens. (drawn by H. P. Yu)

6. Andrographis Wall. ex Nees 穿心蓮屬

Herbs or subshrubs with cystoliths. Leaves entire. Inflorescence of terminal or axillary panicle or racemes abbreviated as head-like. Bracts present; bracteoles small or absent. Calyx deeply 5-lobed to the base, lobes narrow, equal. Corolla tubular or inflated, limb 2-lipped, upper lip 2-lobed, lower lip 3-lobed, imbricate in bud. Stamens 2, exserted or included; filaments linear, or oblate, somewhat pubescent; anther 2-thecous, thecae equal or unequal, base muticous, sometime hairy. Ovary 2-locular, 3–many-ovules per locule; style filiform; stigma 2-dentate. Capsule linear-oblong or linear-elliptic, compressed, retinacula present, 6–many-seeded. Seeds usually oblong.

About 80 species in tropical regions of Asia extending to Australia; two species in China; one species in Hong Kong.

1. Andrographis paniculata (Burm. f.) Nees
穿心蓮 **(Fig. 156; Photos 302–303)**
Pl. As. Rar. 3: 116. 1832; FHN 3: 556. 1974; FRPS. 70: 207. 2002.
Justicia paniculata Burm. f., Fl. Ind. 9. 1768.

Annual herbs up to 30–50 cm tall, many-branched. Stems quadrangular, glabrous. Petioles 0.3–1 cm; leaf blades papery, ovate-lanceolate to narrowly lanceolate, 1.5–7 × 1–2.5 cm, base attenuate, decurrent onto the petioles, apex acute to shortly

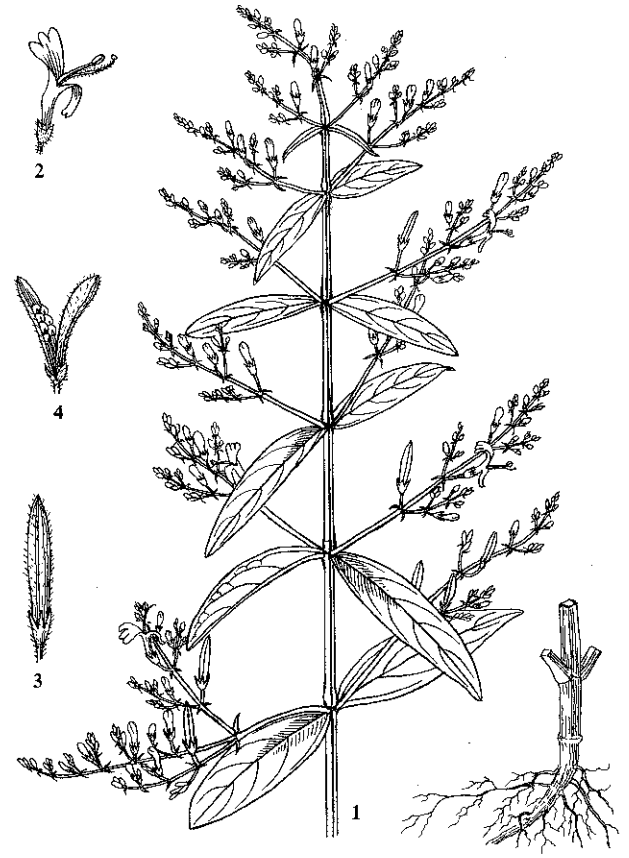


Figure 156. *Andrographis paniculata* (Burm. f.) Nees
1. upper and lower portion of plant; *2.* flower; *3.* fruit; *4.* dehiscent fruit. (drawn by H. P. Yu)

acuminate, margin entire, glabrous, adaxially green, abaxially pale green, lateral veins 3–5 pairs. Panicle axillary or terminal, 5–9 cm; rachis subglabrous. Pedicels 2–8 mm long, sparsely pubescent. Bracts linear-lanceolate, ca. 3 × 1 mm; bracteoles linear, 2–2.5 mm. Calyx 5-lobed almost to the base; lobes linear, 2.5–3 mm, abaxially glabrous or glandular-pilose. Corolla white, ca. 1.5 cm, outside pilose; tube-base cylindric ca. 0.8 cm; limb 2-lipped, upper lip ca. 0.6 cm, reflexed, 2-lobed, lobes ovate, ca. 1 × 1 mm, lower lips with purple dots, ca. 0.7 cm, erect, 3-lobed, lobes lanceolate, ca. 3 × 1 mm. Stamens 2, exserted; filaments pubescent; anther 2-thecous; anther-thecae 2, unequal, the larger one hairy at base. Ovary ellipsoidal, ca. 2 mm, glabrous; style 6–9 mm, sparsely pilose towards base. Capsule narrowly cylindric, ca. 1.5 cm, glabous or sparsely glandular-pubescent, many-seeded. Seeds ovate, ca. 2 × 1.5 mm, glabrous, rugose.

Locality: Hung Mui Kuk, Castle Peak, Man Uk Pin, Tung Chung. *Y. W. Lam 399, 2044*; *Y. S. Lau 816, 2569.*

Distribution: Areas S of Changjiang; SE Asia.

Ecology: Cultivated and naturalized, roadsides, margins of forests. Flowering & fruiting: Feb.–Jun.

Uses: Medicinal (folklore).

7. Ruellia L. 蘆莉草屬

Perennial herbs or shrubs, sometimes with long and thin tuberous roots. Leaves sessile to petiolate, margin entire to sinuate or dentate. Inflorescences of reduced or expanded dichasia in leaf axils, sometimes forming dichasial spikes, thyrses or panicles, rarely reduced to solitary flower; flowers sessile or pedunculate. Bracts opposite, usually narrow, green, margin entire; bracteoles 2, minute or absent. Calyx deeply 5-lobed, lobes equal or subequal, linear-lanceolate. Corolla infundibular, tube inflated above from a narrow basal cylindric portion, limbs 5-lobed, lobes contorted in bud, ovate to rounded. Stamens 4, didynamous, included, filaments sometimes united in pairs at base, anther 2-thecous, thecae equal, parallel to subsagittate, muticous at base. Staminodes 1 or absent. Ovary with 3–10 ovules per locule; style included or slightly exserted; stigma subulate, 2-lobed, lobes equal or unequal. Capsule substipitate or stipitate, retinacula hooked, 4–20-seeded. Seeds lenticular, pubescent with hygroscopic trichomes.

About 250 species in tropical regions of the world; one species widely cultivated and naturalized in Hong Kong.

1. Ruellia coerulea Morong 藍花草 **(Fig. 157; Photo 304)**

Ann. New York Acad. Sci. 7: 193. 1893.

Cryphiacanthus angustifolius Nees, Prodr. 11: 199. 1847, non *Ruellia angustifolia* Sw.

Ruellia brittoniana Leonard, J. Wash. Acad. Sci. 31(3): 96. 1941, based on *Cryphiacanthus angustifolius* Nees; Check List HK Plants 254. 2002; 87. 2004.

Ruellia spectabilis Britton, Ann. New York Acad. Sci. 7: 192. 1893, *nom. illeg. hom.*, non Nicholson 1886, based on *Cryphiacanthus angustifolius* Nees.

Erect perennial herbs, 30–70 cm tall. Stems quadrangular, sulcate, glabrous except for pubescent on the nodes. Petioles 0.5–2 cm, sulcate, sparsely pubescent or glabrescent; leaf blades linear to linear-lanceolate, 8–20 × 0.5–2 cm, base attenuate, apex acuminate, sometimes falculate, margin entire or slightly undulate, glabrous, cystoliths numerous, lateral veins 6–8 pairs, prominent on both surfaces. Inflorescence of expanded dichasia, axillary, 5–10 cm; peduncles 5–6.5 cm, glabrous. Pedicels 0.5–1 cm, glabrous. Bracts lanceolate to linear, 3–15 × 1–15 mm, glabrous, densely covered with cystoliths; bracteoles 2, at the middle of pedicels, linear to linear-lanceolate, 0.6–1 × 1 cm, glabrous, abaxially densely covered with cystoliths, often caducous. Calyx 5-lobed almost to the base; lobes ca. 1 cm, abaxially puberulent. Corolla blue to purplish blue, 2.5–3.8 cm, campanulate, outside densely pilose in bud, then gradually glabrescent; tube-base cylindric, ca. 1 cm, gradually widened to ca. 2 cm at mouth; lobes oblong, ca. 6 × 5 mm. Stamens 4, didynamous, included; filaments of the longer pair ca. 9 mm, the shorter pair ca. 6 mm; anther-thecae oblong, ca. 3 mm. Ovary glabrous; style ca. 2.5 cm, pubescent; stigma 2-lobed, lobes unequal, the larger ca. 3 mm, the smaller ca. 0.3 mm. Capsule oblong, 2.5–3 cm, glabrous except for the pilose tip, 12–20-seeded. Seeds lenticular, 2–2.5 × 2–2.3 mm, covered with hygroscopic hairs.

Locality: Cultivated. *Y. W. Lam 846; HK sheet 34793, 38429.*

Distribution: S China (cultivated and naturalized); native to Mexico.

Ecology: Flowering & fruiting: Jun.–Sep.

Uses: Ornamental.

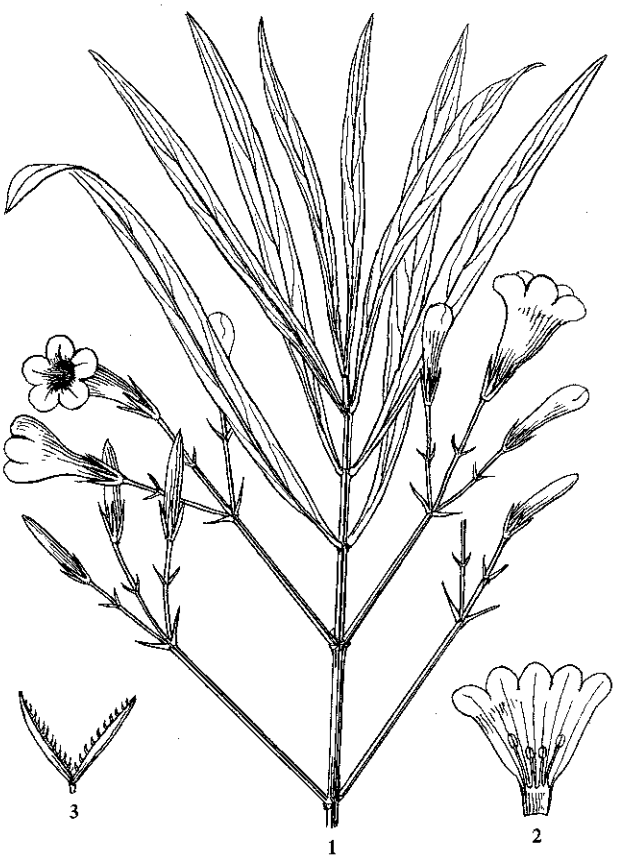


Figure 157. *Ruellia coerulea* Morong

1. upper portion of plant; *2*. corolla opened; *3*. dehiscent fruit. (drawn by H. P. Yu)

8. Dipteracanthus Nees 楠草屬

Perennial herbs, creeping or procumbent, rooting at nodes. Leaves usually entire, with cystoliths. Flowers axillary, solitary or 2 clustered, sessile or subsessile. Bracts absent; bracteoles leaf-like, stalked, exceeding the calyx. Calyx deeply 5-lobed; lobes equal. Corolla campanulate; tube short; lobes 5, subequal, usually ovate, contorted in bud. Stamens 4, didynamous; filaments glabrous; anther incised at base, 2-thecous; thecae oblong, sometimes with appendage at apex. Ovary 2-locular, 3–8 ovules per locule; style hispid or subglabrous towards the apex; stigma 2-lobed, lobes unequal, anterior lobe flattened, posterior one minute. Capsule clavate, retinacula well developed, flat, 6–16-seeded. Seeds orbicular, pilose, with a narrow, membranous wing.

About 150 species in tropic regions of the Old World from E Africa to SE Asia extending to Australia; one species in China and Hong Kong.

1. Dipteracanthus repens (L.) Hassk. 楠草(蘆莉草)

Hoev. & De Vriense, Tidschr. Nat. Gesch. 10: 129. 1843; FHN 3: 549. 1974; FTW ed. 2, 4: 656, pl. 300, photo 338. 1998; FRPS 70: 50. 2002.

Ruellia repens L., Mant. 89. 1767; FHK 261. 1861; FKH 198. 1912; Check List HK Plants 51. 1974; 70. 1978.

Dipteracanthus lanceolatus Nees, Pl. Asiat. Rar. 3: 82. 1832.

Perennial creeping herb, 15–50 cm tall. Stems subquadrangular, finely pubescent or glabrescent. Petioles 3–5 mm; leaf blades thin papery, ovate to linear-lanceolate, 1.4–4 × 0.8–2 cm, base broadly cuneate or rounded, apex acuminate or acute, margin subentire, sparsely strigose on both surfaces; lateral veins 4–5 pairs. Flowers axillary, solitary; pedicels ca. 1 mm. Bracteoles leaf-like, ovate or ovate-oblong, 0.8–1 cm. Calyx-lobes ca. 5 mm, lanceolate, scarcely ciliate. Corolla white, ca. 2 cm, pilose outside, campanulate; tube-base ca. 5 mm, ventricose and gradually widened to ca. 5 mm at mouth; lobes ovate, ca. 3 × 3 mm, apex obtuse. Stamens 4, included, didynamous, filaments glabrous, the longer pair ca. 5 mm, the shorter pair ca. 2 mm; anthers oblong, ca. 1 mm. Ovary comose; style ca. 1 cm, hirsute; stigma 2-lobed, lobes unequal. Capsule spindle-like, ca. 1.2 cm, brownish yellow, slightly pilose; 12–16-seeded. Seeds orbicular, flat, ca. 3 mm in diam., appressed pilose, with a conspicuous entire white membranous wing.

Locality: Hong Kong Wai. *C. Wright s.n.* (K).

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Taiwan; S to SE Asia.

Ecology: Grasslands, roadsides. Flowering: Early spring.

9. Hygrophila R. Br. 水蓑衣屬

Aquatic perennial herbs, sometimes with axillary spines. Leaves sessile or short-petiolate, margin entire or slightly undulate. Flowers sessile, several in axillary whorls. Bracts elliptic or lanceolate; bracteoles small or none. Calyx tubular, 5-lobed; lobes linear to lanceolate. Corolla tubular, ventricose, 2-lipped, upper lip shallowly 2-toothed, lower lip 3-lobed. Stamens 4, didynamous, posterior pair similar to others or smaller; anthers incised at base, 2-thecous, thecae at same height. Ovary oblong, 4–many ovules per locule; stigma entire or bidentate. Capsule linear to narrowly oblong, terete, retinacula hardened and curved, acute, many-seeded. Seeds with long mucilaginous hair.

About 100 species widely distributed in tropical and subtropical regions; seven species in China; three species in Hong Kong.

1a. Leaves narrowly lanceolate to oblanceolate, glabrous; calyx sparsely hispid-ciliate.
  2a. Corolla ca. 1 cm long ..... 1. *H. salicifolia*
  2b. Corolla 2–2.5 cm long ..... 2. *H. megalantha*
1b. Leaves elliptic, hirsute; calyx densely hispid-ciliate..... ..... 3. *H. erecta*

1. Hygrophila salicifolia (Vahl) Nees
水蓑衣 **(Fig. 158; Photos 305–306)**

Pl. Asiat. Pl. 3: 81. 1832; FHK 261. 1861; FKH 197. 1912; FHN 3: 545. 1974; FTW ed. 2, 4: 661. 1998; FRPS 70: 69. 2002.

Ruellia salicifolia Vahl, Symb. Bot. 3: 84. 1794.

Justicia lancea Thunb., Trans. Linn. Soc. 2: 338. 1794.

Hygrophila lancea (Thunb.) Miq., Ann. Mus. Bot. Lugd.-Bat. 2: 123. 1865; FTW ed. 2, 4: 660. 1998; Check List HK Plants 252. 2002; 87. 2004.

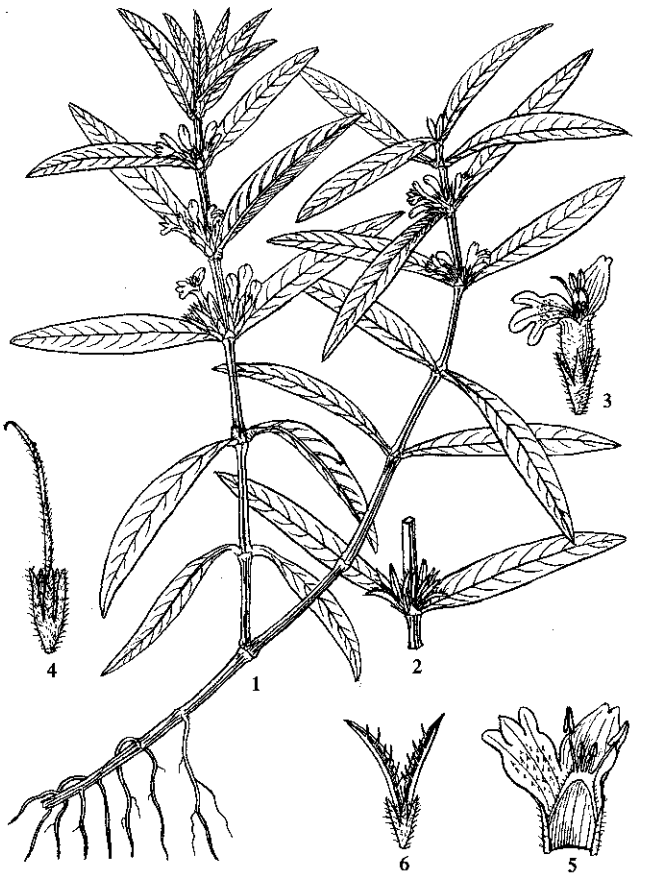


Figure 158. *Hygrophila salicifolia* (Vahl) Nees
1. flowering branch; *2.* portion of fruiting plant; *3.* flower; *4.* calyx and pistil; *5.* corolla opened; *6.* dehiscent fruit with persistent calyx. (drawn by H. P. Yu)

Perennial herbs to 80 cm tall. Stems erect or decumbent at base, quadrangular, striate, slightly pubescent. Petioles 0.5–1 cm, glabrous; leaf blades narrowly lanceolate to oblanceolate, 3–10 × 0.5–1.5 cm, base attenuate and decurrent onto the petiole, apex acute or obtuse, margin entire or slightly undulate, glabrous, with numerous cystoliths on both surfaces, lateral veins 8–11 pairs. Flowers 2–10 fasciculate in leaf axil, sessile. Bracts ovate, ca. 5 mm, apex acute, pubescent on margin, with numerous cystoliths; bracteoles narrowly ovate, ca. 3 mm, apex obtuse, pubescent on margins. Calyx narrowly campanulate, ca. 6 cmm, 5-lobed to the middle; lobes linear-lanceolate, apex acuminate, sparsely hispid-ciliate. Corolla ca. 1 cm, pale purple, tube ca. 7 × 2 mm, glabrous, 2-lipped, upper lip elliptic, ca. 3 mm, shallowly 2-lobed, puberulent outside, lower lip obovate, ca. 3 mm, 3-lobed to the middle, lobes ovate, apex obtuse. Stamens 4, included, didynamous; filaments glabrous, the longer pair ca. 5 mm, the shorter pair ca. 3 mm; anthers oblong, ca. 1 mm. Ovary glabrous; style filiform, slender, included, ca. 8 mm; stigma unequally 2-lobed. Capsule narrowly oblong, acute, 8–10 × ca. 1.5 mm, 12–18-seeded. Seeds orbiculate, ca. 1 mm long, glabrous.

Locality: Hong Kong Island, Chuen Lung, Tai Po, Sai Kung. *H. C. Tang 1083; L. T. Lo 177; HK sheet 35582.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; SE Asia.

Ecology: Streamsides and other wet places. Flowering & fruiting: Sep.–Nov.

Notes: The species was also reported as *Hygrophila phlomoides* Nees previously (Check List HK Plants 253. 2002; 87. 2004).

2. Hygrophila megalantha Merr. 大花水蓑衣

Philipp. J. Sci. 12(2): 110. 1917; FRPS 70: 71. 2002.

Hygrophila salicifolia var. *megalantha* (Merr.) H. S. Lo & L. D. Chou, Guihaia 16: 374. 1996.

Perennial herbs, 30–60 cm tall. Stems quadrangular, glabrous. Petioles 0.5–1.5 cm, glabrous; leaf blades narrowly oblong-obovate to lanceolate, 4–9 × 1.5–2.5 cm, base attenuate, decurrent onto the petioles, apex rounded or obtuse, margin entire or undulate, glabrous, lateral veins 5–7 pairs. Flowers several-fasciculate in leaf axil, sessile. Bracts oblong-lanceolate, 0.8–1 × 0.3–0.5 cm, apex acute, ciliate; bracteoles oblong-lanceolate, ca. 6 × 2 mm, apex acute, ciliate. Calyx 1.4–1.6 cm, 5-lobed to the middle; lobes linear-lanceolate, apex acuminate, sparsely hispid-ciliate. Corolla purplish blue, 2–2.5 cm, pilose outside; tube-base cylindric, ca. 7 mm; limb 2-lipped, upper lip ovate-oblong, ca. 1.2 × 0.8 cm, apex emarginate, lower lip oblong, ca. 1.3 × 0.8 cm, 3-lobed, lobes ovate, ca. 4 × 2 mm. Stamens 4, didynamous; filaments glabrous, the longer pair ca. 1.4 cm, the shorter pair ca. 0.7 cm, anther-thecae ovate, ca. 1.5 mm. Ovary glabrous, styles filiform, ca. 1.6 cm, slightly hairy, stigma quite unequally bilobed. Capsule oblong, 1.4–1.6 cm, glabrous, 12–16-seeded. Seeds ovate, ca. 1.5 × 1.5 mm, glabrous.

Locality: So Kwun Po, Sha Kok Mei, Shek Pik Reservoir. *W. J. Tutcher 1079; Y. S. Lau 799; HK sheet 34480.*

Distribution: Guangdong, Fujian.

Ecology: Wet places. Flowering & fruiting: Oct.–Jan. of the following year.

Notes: The species was reported as *Hygrophila quadrivalvis* Nees previously (Check List HK Plants 253. 2002; 87. 2004).

3. Hygrophila erecta (Burm. f.) Hochr. 小葉水蓑衣

Candollea 5: 230. 1934; FHN 3: 546. 1974; FRPS 70: 71. 2002.

Ruellia erecta Burm. f., Fl. Ind. 135. 1768.

Perennial herb, up to 1 m tall. Stems erect, quadrangular, bisulcate. Petioles (0–)3–5 mm, sulcate, hispid; leaf blades elliptic, obovate or oblong, 2–9 × 1–3 cm, base decurrent onto the petiole, apex acute or obtuse, margin entire or slightly undulate, hirsute on both surfaces, with numerous cystoliths, lateral veins 8–15 pairs, prominent abaxially. Flowers several-fasciculate in leaf axil, sessile. Bracts leaf-like, ovate, lanceolate or elliptic, ca. 1.1 cm, densely hispid-ciliate; bracteoles linear-oblong, ca. 6 mm, densely hispid-ciliate. Calyx ca. 1.1 cm, 5-lobed below to middle; lobes linear-lanceolate, densely white hispid-ciliate. Corolla purplish blue, 1.8–2.2 cm, pilose, tube-base cylindric, ca. 5 mm, gradually widened to ca. 6 mm at mouth; limb 2-lipped, upper lip triangular, 2-lobed, lower lip oblong, 3-lobed, lobes ovate, ca. 2 × 2 mm. Stamens 4, didynamous; filaments glabrous, the longer pair ca. 6 mm, the shorter pair ca. 3 mm; anther-thecae linear, ca. 2 mm, divaricate at base. Ovary glabrous; style pilose. Capsule 1.2–1.5 cm. Seeds oblong, flattened, blackish brown, ca. 1.5 × 1 mm, glabrous, margin circled with translucent membrane.

Locality: New Territories. *S. Y. Hu 6407* (PE).

Distribution: Hainan, Guangxi, Yunnan.

Ecology: Wet places. Flowering: Spring.

10. Strobilanthes Blume 馬藍屬

Herbs, subshrubs, shrubs or small trees, some species gregarious and monocarpic. Stems usually quadrangular, becoming woody and hollow in age. Leaves in opposite pairs, often unequal in size, petiolate or sessile, serrate, serrulate, or entire, usually with prominent cystoliths on adaxial surface. Flowers in axillary and terminal spike (sometimes distantly one-sided), bracteate heads, head-like clustered, or less commonly in pedicellate opened panicle. Bracts usually distant from the leaves, persistent or deciduous as flowers open, very varied in size and shape, sometimes of two types in species with a capitate inflorescence (with barren outer bracts differing from inner flower-bearing ones); bracteoles usually linear, sometimes absent. Calyx 5-lobed to the base; the lobes nearly equal, or with the middle lobe distantly longer than others, or fused into bipartite or tripartite, valvate. Corolla tubular or funnel-shaped, blue, white, yellow or pink, the tube either gradually widened from the base or narrowly cylindric and abruptly widened, campanulate or gibbous; limb 5-lobed, lobes equal or subequal, usually ovate, spreading, valvate in buds. Stamens 4, didynamous and basally monadelphous, included or

exserted, two filaments distantly longer than other two, or sometimes 2(–5); anthers 2-celled, the cells oblong, parallel, muticous, glabrous or bearded at one end; pollen spherical and echinulate or ellipsoidal and variously ribbed; staminodes 1, or 2, or absent. Ovary oblong-globular, 2-locular with 2–8 ovules in each; styles long, filiform, slender, simple, sometimes persistent after the corolla falls; stigma with one obsolete lobe. Capsule oblong or elliptic, 2–16-seeded, apically pubescent or glabrous; retinacula strong, curved. Seeds flattened, usually elliptic, glabrous or appressed hairy, sometimes with a distant areola.

About 400 species distributed in tropical Asia; about 100 species in China; five species in Hong Kong.

1a. Stamens 2 ..... *1. S. apricus*
1b. Stamens 4.
2a. Spikes abbreviated, head-like; anthers spherical ..... 2. *S. dimorphotricha*
2b. Spikes elongate; anthers oblong.
3a. Rachis zigzag; flower usually only one fertile on each node ..... 3. *S. dalzielii*
3b. Rachis straight; flowers both fertile on each node.
4a. Spikes branched; bracts petiolate ..... 4. *S. cusia*
4b. Spikes unbranched; bracts sessile ..... 5. *S. tetraspermus*

1. Strobilanthes apricus (Hance) T. Anderson ex Benth.
山一籠雞 **(Fig. 159; Photo 307)**

FHK 262. 1861; FKH 198. 1912.

Gutzlaffia aprica Hance, Hooker's J. Bot. Kew Gard. Misc. 1: 142. 1849; FRPS 70: 101. 2002; Fl. Guizhou. 10: 231. 2004; FYN 16: 675. 2006.

Phlebophyllum apricum (Hance) Benth., Hooker's J. Bot. Kew Gard. Misc. 5: 131. 1853.

Isophyllous perennial herbs or shrubs, to 70 cm tall. Stem quadrangular, sulcate, retrorsely white hirsute. Petiole 0.5–1 cm, slightly white pubescent or subglabrous; leaf blades leathery, elliptic to oblong-elliptic, 2–7 × 1–3 cm, base rounded or broadly cuneate, apex acute, margin entire, ciliate, adaxially scabrous, hispid, especially on veins, abaxially yellowish silky tomentose, or glabrous except for the pubescent midvein, lateral veins 5–7 pairs. Spikes capitate, terminal or axillary; upper ones sessile or the lower ones with peduncle to 7 cm. Bracts subleathery, ovate-lanceolate, 1.3–1.5 × 0.3–0.5 cm, apex acuminate, adaxially glabrous, abaxially and margin covered with white multicellular hairs; bracteoles linear, 1–1.1 × 0.1 cm, abaxially and margin sparsely covered with large-celled hairs, adaxially glabrous, both surfaces covered white cystoliths. Calyx 1–1.3 cm, 5-lobed almost to the base; lobes linear, with large-celled multicellular hairs on margin, abaxially pubescent or subglabrous, adaxially glabrous. Corolla purple or white, ca 3.5 cm, outside glabrous, inside glabrous except for pilose retaining styles, basal cylindric tube ca. 1.3–1.5 cm, abruptly inflated to ca. 1 cm in diam. and cystiform; limb 5-lobed, lobes subequal, suborbicular, ca. 5 × 5 mm, apex obtuse. Stamens 2, exserted; filaments glabrous, ca. 1 cm; anthers elliptic, ca. 2.5 mm. Ovary narrowly oblong, white, pilose at the tip, 2 ovules per locule; style ca. 3.5 cm, curved, pilose. Capsule oblong, ca. 1 cm, glabrous except for few hairs at tip, 4-seeded. Seeds ovate, ca. 2 mm, convex on both surfaces, pubescent, soon glabrescent, areola large.

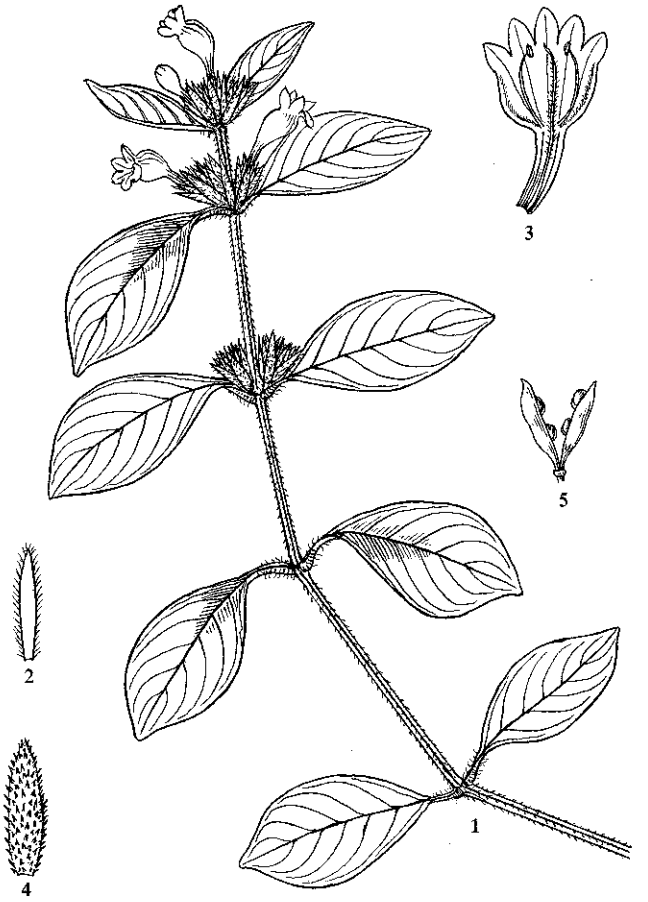


Figure 159. *Strobilanthes apricus* (Hance) T. Anderson ex Benth.
1. upper portion of plant; *2.* calyx-lobe; *3.* corolla opened; *4.* bract; *5.* dehiscent fruit. (drawn by H. P. Yu)

Locality: Tai Tam, Lan Nai Wan, Wong Nai Chung, Pok Fu Lam. *H. C. Tang 1400; Y. S. Lau 255, 1464; F. W. Xing 8615, 9748* (IBSC).

Ecology: Dry forests, thickets on slopes. Flowering: Jul.–Jan. of the following year; fruiting: Mar.

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Jiangxi; Vietnam, Thailand.

Notes: The type specimen was collected by H. F. Hance from Tai Tam, Hong Kong Island in 1840s.

2. Strobilanthes dimorphotricha Hance 球花馬藍 **(Photo 308)**

J. Bot. 21: 355. 1883.

Goldfussia dimorphotricha (Hance) Bremek., Verh. Nederl. Akad. Wetensch., Amst., Afd. Natuurk., Sect. 2, 41(1): 231, 274. 1944.

Anisophyllous perennial herbs, 0.4–1.5 m tall, many-branched. Stems somewhat zigzag upward, glabrous or yellowish pubescent. Leaves unequal in each pair, the smaller about 1/3 to 2/3 of the larger in size; petiole 0.5–1.5 cm, sparsely pubescent or glabrous; leaf blades elliptic, elliptic-lanceolate, ovate, papery, the larger ones 4–15 × 1.5–4.5 cm, the smaller ones 1.5–2.5 × 0.5–1.5 cm, base cuneate or attenuate, apex acuminate or caudate, margin serrulate, adaxially dark green, white appressed pubescent, cystoliths slightly prominent, lineolate, abaxially glabrous, or whitish pubescent along the veins, with or without multicellular hairs, lateral veins 5–7 pairs. Spikes terminal or axillary, very compact, head-like, subspherical in outline, 2–3-flowered, usually 1–3 forming a forked panicle. Peduncles ca. 2.5 cm, glabrous or pubescent. Bracts ovate-elliptic, 1–1.3 cm, apex acute or acuminate, glabrous, caducous; bracteoles lanceolate, ca. 5 mm, caducous. Calyx 7–9 mm, accrescent to 15–17 mm, 5-lobed almost to the base; lobes lanceolate, glandular pubescent. Corolla purple-red, 3–4 cm, slightly curved, outside subglabrous or sparsely pilose, inside glabrous except for hairs retaining the style, tube-base cylindric, ca. 5 mm, ventricose and gradually widened to ca. 1.5 cm at mouth; lobes subequal, orbicular, 5–6 mm in diam., apex emarginate. Stamens 4, didynamous, included; filaments glabrous, the longer pair unequal, erect, 5–7 mm, the shorter pair equal, incurved, ca. 2 mm; anther spherical, ca. 1 mm in diam. Ovary pilose, 2 ovules in each locule; style ca. 3.5 cm, pilose. Capsule oblong-clavate, 1.4–1.8 cm, glandular-pubescent, 4-seeded. Seeds lenticular, ca. 2.5 × 2.5 mm, pubescent.

Locality: Tai No, Ho Chung. *P. S. Choi 370; HK sheet 31572.*

Distribution: Guangdong, Guizhou, Yunnan, Sichuan, Hunan, Hubei, Jiangxi, Zhejiang, Fujian, Taiwan; Vietnam.

Ecology: Forests and other wet places in ravines. Flowering: Aug.–Dec.; fruiting: Dec.–Feb. of the following year.

Notes: The species was reported as *Strobilanthes penstmonoides* (Nees) T. Anderson (2002) and *Strobilanthes pentastemonoides* (Nees) T. Anderson (2004) previously (Check List HK Plants 255. 2002; 88. 2004).

3. Strobilanthes dalzielii (W. W. Sm.) Benoist 曲枝馬藍 **(Photo 309)**

Notul. Syst. (Paris) 5: 109. 1935; Fl. Indo-Chine 4: 679. 1935.

Acanthopale dalzielii W. W. Sm., Notes Roy. Bot. Gard. Edinburgh 11: 193. 1919.

Championella dalziellii (W. W. Sm.) Bremek., Verh. Ned. Aked. Werensch. Afd. Natuurk. II 41(1): 150. 1944.

Pteroptychia dalziellii (W. W. Sm.) H. S. Lo, FHN 3: 547, 592. 1974; FRPS 70: 194. 2002; FYN 16: 733. 2006.

Anisophyllous perennial herbs or shrubs, 0.4–1 m tall. Stems erect, slender, zigzag, branched, slightly pubescent or subglabrous. Leaves unequal in each pair, the smaller 1/3 to 1/2 of the larger in size; petiole very short, ca. 3 mm, or sessile; leaf blades ovate or ovate-lanceolate, the larger 9–14 × 3–5 cm, the smaller 2–5 × 1–2 cm, membranous, base rounded, or cordate for upper leaves, apex acuminate or acute, sometimes falculate, margin serrate, adaxially green, glabrous, cystoliths prominent, abaxially glaucous, glabrous or sparsely pubescent along the veins, lateral veins 3–5 pairs. Spike terminal and axillary, 2–5 cm, 2–5-flowered. Rachis usually zigzag, sparsely white puberulent, flowers distant, usually only one flower in each pair. Bracts linear-lanceolate, ca. 3 × 1 mm, 1-veined, glabrous; bracteoles linear, ca. 5 × 1 mm, glabrous or puberulent with glandular-tipped hairs. Calyx ca. 1 cm, densely white pilose at base and along the midvein, 5-lobed almost to the base, lobes linear. Corolla purplish blue or white, 3.5–4.5 cm, curved, outside densely white pilose in bud, inside glabrous except for hairs retaining the style, tube-base cylindric, ca. 1 cm, ventricose and gradually widened to 1–1.5 cm at mouth; lobes suborbicular, ca. 8 mm in diam. Stamens 4, didynamous, slightly exerted; filaments hirsute, the longer pair ca. 8 mm, the shorter pair ca. 5 mm; anther oblong, ca. 2 mm. Ovary glabrous, with 2 ovules in each locule; style ca. 3.2 cm, pilose. Capsule linear-oblong, compressed, ca 1.8 cm, apiculate, glabrous, 4-seeded. Seeds ovate, ca. 2 × 2 mm, densely appressed tomentose; areola very small.

Locality: Shing Mun, Tai Mo Shan, Ng Tung Chai, *L. T. Lo 186, 283*;; *P. S. Choi 257*; *F. W. Xing 7456, 7757* (IBSC).

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Jiangxi, Fujian; Vietnam.

Ecology: Streamsides and other wet places. Flowering: Aug.–Dec.

Notes: The species was reported as *Strobilanthes divaricatus* (Nees) T. Anderson previously (Check List HK Plants 255. 2002; 88. 2004).

4. Strobilanthes cusia (Nees) Kuntze

馬藍 **(Fig. 160; Photo 310)**

Revis. Gen. Pl. 2: 499. 1891; FTW ed. 2, 4: 678. 1998.

Goldfussia cusia Nees, Pl. Asiat. Rar. 3: 38. 1832.

Dipteracanthus calycinus Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 5: 133. 1853, non *Strobilanthes calycina* Nees, 1836.

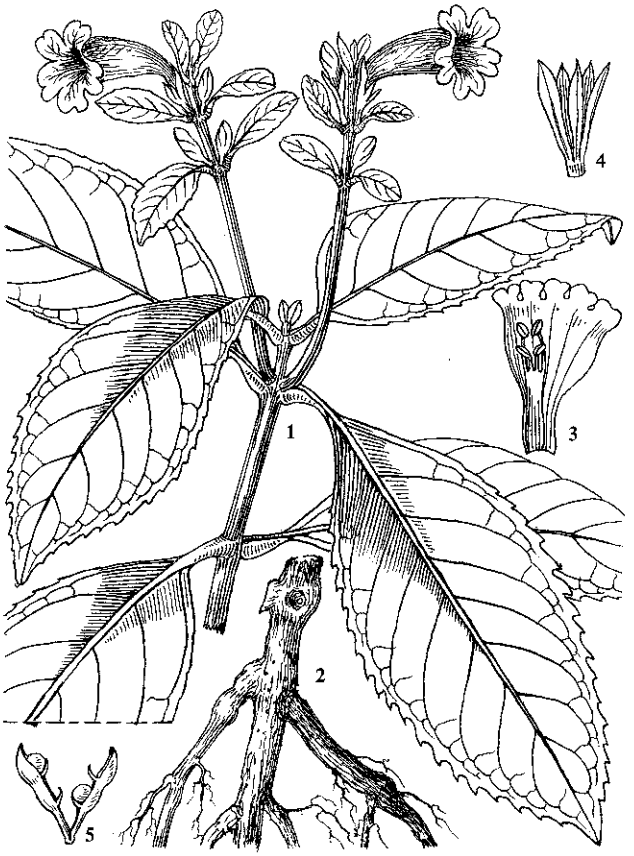


Figure 160. *Strobilanthes cusia* (Nees) Kuntze
1. flowering branch; *2.* root; *3.* corolla opened; *4.* calyx; *5.* dehiscent fruit. (drawn by H. P. Yu)

Strobilanthes championi T. Anderson ex Benth., FHK 261. 1861. Based on *Dipteracanthus calycinus* Champ.

Strobilanthes flaccidifolius Nees, Prodr. 11: 194, 1847; FKH 198. 1912;

Baphicacanthus cusia (Nees) Bremekamp., Verh. Ned. Akad. Wetensch. Afd. Naturk. Sect. 2, 41(1): 59, 190. 1944; FHN 3: 549. 1974; FRPS 70: 113. 2002.

Isophyllous herbs, 0.5–1.5 m tall. Stem erect, branched, glabrous or minutely brown puberulent. Petioles 0.5–3 cm; leaf blades papery, elliptic to ovate, 4–20 × 2–9 cm, base attenuate, apex acute, margin serrate, glabrous or abaxially minutely puberulent along veins, adaxially dark green, abaxially paler, black when dry; lateral veins 7–9 pairs. Spike 10–30 cm, usually branched and forming a leafy terminal panicle. Bracts leaf-like, oblanceolate or spathulate, 1.2–2.5 cm, petiolate, deciduous with flower; bracteole linear-oblanceolate, 2–3 mm, deciduous before bracts. Calyx 0.8–1.5 mm in flower, accrescent to 2.5 cm in fruit, minutely puberulent, 5-lobed almost to the base, 4 lobes linear, acute, one spathulate and much longer. Corolla blue, glabrous, 3.5–4. cm, straight, base cylindric, 1–1.5 cm, gradually widened to ca. 1.5 cm at mouth, lobes subequal, oblong, ca. 6 × 6 mm. Stamens 4, didynamous, included, filaments glabrous, the longer pair ca. 7 mm, the shorter pair ca. 3 mm; anther oblong, ca. 3 mm; staminode absent. Ovary oblong, with 2 ovules per locule, apex puberulent with few glandular-tipped hairs; styles ca. 3.2 cm, glabrous. Capsule 1.5–2.2 cm, glabrous, 4-seeded. Seeds ovate, 3.5 mm, covered with hairs; areola small, glabrous.

Locality: Mount Parker, Sai Kung, Shing Mun, Fo Tan, Ma On Shan, Kwun Yam Shan Tsuen, Ng Tung Chai, Kop Tong. *Y. S. Lau 1337; HK sheet 35337, 39052.*

Distribution: S, SW & E China; SE Asia.

Ecology: Forests and wet places in ravines. Flowering & fruiting: Nov.–Feb. of the following year.

Uses: Ornamental, medicinal (folklore), dye.

Notes: The holotype specimen (*Champion s.n.*, K) of *Dipteracanthus calycinus* was collected by J. G. Champion from Mount Parker, Hong Kong Island between 1847 and 1850.

5. Strobilanthes tetraspermus (Champ. ex Benth.) Druce 四子馬藍 **(Photo 311)**

Rep. Bot. Exch. Club Brit. Isles 1916: 649. 1917; FFJ 5: 133. 1993; Fl. Guizhou. 10: 249. 2004.

Ruellia tetrasperma Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 5: 132. 1853.

Championella tetrasperma (Champ. ex Benth.) Bremek., Verh. Ned. Aked. Werensch. Afd. Natuurk. Sect. 2, 41(1): 163. 1944; FHN 3: 546. 1974; FRPS 70: 94. 2002.

Acanthopale tetrasperma (Champ. ex. Benth.) Hand.-Mazz., Beih. Bot. Centralbl. LVI, B: 454. 1937.

Strobilanthes radicans T. Anderson, FHK 262. 1861; FKH 198. 1912, *nom. illeg.*, based on *Ruellia tetrasperma* Champ.

Acanthopale radicans (T. Anderson) C. B. Clarke ex Benoist, Fl. Indo-Chine 4: 673. 1953, *nom. illeg.*

Isophyllous herbs, 30–50 cm tall. Stems suffrutescent, often procumbent, and rooting at base, quadrangular, sulcate, retrorsely pubescent along sulci, glabrescent. Petioles 0.5–2.5 cm, sulcate, glabrous; leaf blades ovate, elliptic or oblong, papery, 1.5–11 × 1–4.5 cm, base attenuate or decurrent onto the petiole, apex acuminate or acute, margin serrate or dentate, glabrous, densely covered with cystoliths, lateral veins ca. 5 pairs. Spike short and abbreviated, head-like or slightly elongate, few-flowered. Bracts leaf-like, obovate or spathulate, 1–1.5 × 0.4–0.5 cm, pinnately-veined, sparsely pilose; bracteoles linear, 5–6 × 1 mm, abaxially glabrous or sparsely pilose, densely covered with cystoliths; Calyx 5-lobed almost to the base; lobes linear, 5–7 × 1 mm, accrescent to ca. 8 mm in fruit, glabrous except for large-celled hairs on the margin, densely covered with cystoliths. Corolla purple or purplish blue, 1.5–2 cm, straight, funnel-shaped, outside pubescent, inside villose, tube-base cylindric, ca. 5 mm long and ca. 2 mm, gradually widened to 1.5 cm at mouth; lobes oblong, ca. 4 × 5 mm, apex obtuse. Stamens 4, didynamous, included; filaments of longer pair ca. 5 mm, sparsely pubescent, the shorter pair ca. 2 mm, glabrous; anthers oblong, ca. 2 mm; staminodes short or absent. Ovary ovoid, ca. 3 mm, hispid at tip, 4 ovules per locule; style ca. 1.5 cm, hirsute; stigma 2-lobed, lobes unequal. Capsule oblong, 0.7–1 cm, pubescent at tip, 4-seeded. Seeds ovate, ca. 2 × 2 mm, pubescent.

Locality: Common in Hong Kong. *Y. S. Lau 157; Y. W. Lam 1868; F. W. Xing 9772, 10033* (IBSC).

Distribution: Guangdong, Guangxi, Guizhou, Sichuan, Hubei, Hunan, Jiangxi, Fujian.

Ecology: Forests in ravines. Flowering: Aug.–Dec.

Notes: The holotype specimen (*Champion 17*, holotype, K) was collected by J. G. Champion from Victoria Peak, Hong Kong Island between 1847 and 1850.

11. Lepidagathis Willd. 鱗花草屬

Herbs or shrubs with cystoliths. Leaves petiolate, margin entire or crenate-serrate. Inflorescence of axillary and terminal densely bracteate spikes, usually one-sided. Bract usually scarious, larger than calyx-lobes; bracteoles similar but smaller. Calyx deeply 5-lobed, lobes unequal, anterior two fused at base or free, posterior one larger than others, lateral lobes smallest. Corolla tubular, suddenly ventricose in middle, limb bilabiate, upper lip shallowly 2-lobed, lower lip 3-lobed, lobes imbricate in bud. Stamens 4, didynamous, inserted near middle of corolla tube, exserted from mouth of corolla; anthers 2-thecous, thecae at same level, muticous. Ovary 2-locular, with 2 ovules per locule; style filiform; stigma capitellate, minutely bifid or entire. Capsule oblong or conical, usually 4-angled, retinacula present, 4- or 2-seeded. Seeds ovate-oblong or orbicular, flattened, pubescent with hygroscopic hairs.

About 100 species in tropical regions of the Old World and few in America; seven species in China; one species in Hong Kong.

1. Lepidagathis incurva Buch.-Ham. ex D. Don
鱗花草 **(Fig. 161; Photo 312)**

Prodr. Fl. Nepal. 119. 1825; FHN 3: 552. 1974; FRPS 70: 200. 2002.

Lepidogathis hyalina Nees, Pl. Asiat. Rar. 3: 95. 1832; FHK 263. 1861; FKH 199. 1912.

Herbs, 0.3–1 m tall, many-branched. Stems quadrangular, sulcate, pubescent along sulcus and on nodes, soon glabrescent. Petiole 0.5–3.5 cm, glabrescent; leaf blades ovate to elliptic, 3–11 × 1–4.5 cm, base cuneate and obviously decurrent onto the petioles, apex acute or shortly acuminate, margin entire and slightly undulate, pubescent, soon glabrescent with few hairs or sparsely pubescent along veins, sparsely covered with cystoliths, the lateral veins 7–9 pairs. Spike (0.5–)1–3 cm, mostly terminal or axillary, one-sided, usually 2–3-clustered. Bracts whitish yellow, oblong-lanceolate, 6–8 × 1.5–2 mm, apex long acuminate, abaxially scarious, puberulent, margin ciliate; bracteoles whitish yellow, similar to bracts, but smaller, ca. 6 × 1.5 mm. Calyx whitish yellow, 5-lobed; lobes heteromorphic, linear-lanceolate, abaxially scarious, puberulent or glabrescent, margin ciliate, anterior two ca. 7 × 1 mm, connate to the middle, posterior one slightly longer than others, ca. 8 × 1.5 mm, lateral ones smallest, ca. 6 × 0.8 mm, Corolla white, streaked with purple, ca. 0.8–1 cm, outside sparsely pilose, inside densely white pubescent below throat tube-base cylindric, ca. 5 mm; limb 2-lipped, upper lip erect, ovate, 2 × 3 mm, emarginate, lower lip 3-lobed, lobes ovate, ca. 3 × 2 mm. Stamens 4, didynamous, inserted near middle of corolla tube, exserted from mouth of corolla; filaments ca. 2.5–3 mm, glabrous; anther-thecae ovate, ca. 1 mm. Ovary ca. 1 mm, hispid at tip; style ca. 8 mm, subglabrous. Capsule ca. 5 mm, ovate-oblong, 4-angled, glabrous except for pilose at tip, 4-seeded. Seeds ovate, ca. 1 mm, pubescent.

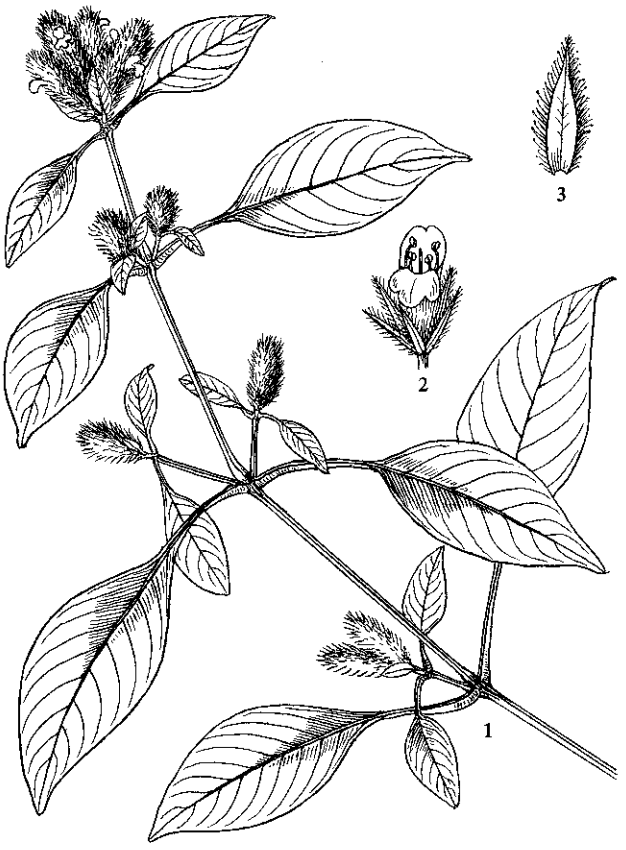


Figure 161. *Lepidagathis incurva* Buch.-Ham. ex D. Don
1. upper portion of plant; *2*. flower; *3*. bract. (drawn by H. P. Yu)

Locality: Common in Hong Kong. *P. S. Choi 167; K. L. Yip 4466; HK sheet 39399.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; SE Asia.

Ecology: Thickets, grasslands, roadsides. Flowering: Oct.–Mar. of the following year.

Uses: Medicinal (folklore).

12. Asystasia Blume 十萬錯屬

Herbs or subshrubs with cystoliths. Leaves petiolate, margin entire. Flowers in simple or compound spikes or racemes, terminal or axillary, flowers usually secund on rachis. Bracts and bracteoles linear, shorter than calyx. Calyx 5-lobed, lobes linear to lanceolate, equal. Corolla with ventricose tube, limb 5-lobed, lobes subequal. Stamens 4, included, didynamous, anther 2-thecous, thecae oblong, at the same height, base muticous. Ovary 2-locular, with 2 ovules in each locule; styles filiform; stigma capitate, 2-lobed or bidentate. Capsule clavate, with a solid stalk at base, retinacula present, 4-seeded. Seeds lenticular, flattened, glabrous, rugose or tuberculate with sinuately incised margin.

About 70 species in tropical regions of the Old World; three species in China; two species cultivated or naturalized in Hong Kong.

1a. Corolla 3–3.5 cm long, ca. 1 cm wide at mouth, lobes erect ..... 1. *A. gangetica*
1b. Corolla 1.2–1.5 cm long, ca. 0.5 cm wide at mouth, the middle lobe slightly reflexed ..... 2. *A. micrantha*

1. Asystasia gangetica (L.) T. Anderson 寬葉十萬錯

Enum. Pl. Zeyl. 235. 1860; FRPS 70: 217. 2002.

Justicia gangetica L., Cent. II Pl. 3. 1756.

Asystasia coromandelica Wight ex Nees, Pl. Asiat. Rar. 3: 89. 1832.

Perennial ascending herbs, up to 0.5 m tall. Stems quadrangular, pilose. Petioles 3–5 mm, pubescent; leaf blades ovate to elliptic, 3–12 × 1–5 cm, base truncate or rounded, apex acuminate, margin entire or slightly crenulate, glabrous or sparsely pilose, especially on the veins, adaxially covered with numerous cystoliths. Racemes axillary or terminal, up to 16 cm. Pedicels 2–3 mm, pilose. Bracts triangular, ca. 5 mm, pilose; bracteoles linear-lanceolate, 1–2.5 mm, pilose. Calyx ca. 7 mm, 5-lobed almost to the base; lobes linear-lanceolate, 5–7 × 1–1.2 mm, abaxially pubescent, with glandular-tipped pilose, margin ciliate. Corolla yellow or white, 3–3.5 cm, funnel-shaped, outside glandular-pilose, inside glabrous, tube-base cylindric, ca. 8 cm, ventricose and gradually widened to ca. 1 cm wide at mouth; lobes obovate or semiorbicular, ca. 0.7–1.2 × 0.8–1 cm, middle lobe with a violet blotch. Stamens 4, didynamous,

included; filaments glabrous, the longer pair ca. 5 mm, the shorter pair ca. 3 mm; anther-thecae 3 × 1 mm, muticous. Ovary ellipsoidal, ca. 3.5 mm; style ca. 1.8 cm, velutinous; stigma capitellate, 2-lobed. Capsule oblong, ca. 1.3 cm, pubescent 2–4-seeded. Seeds irregularly obovate, flat, 3–5 mm, tuberculate-rugose, margin with dense mucilaginous hairs.

Locality: Cultivated or naturalized. *HK sheet 21382, 40596.*

Distribution: Guangdong, Yunnan; pantropical weeds.

Ecology: Margins of forests. Flowering: Sep.–Feb. of the following year; fruiting: Jan.–Mar.

2. Asystasia micrantha (Nees) Y. F. Deng & N. H. Xia, *stat. nov.* 小花十萬錯 **(Photo 313)**

Asystasia coromandeliana α *micrantha* Nees, Pl. Asiat. Rar. 3: 89. 1832.

Asystasia gangetica (L.) T. Anderson subsp. *micrantha* (Nees) Ensermu Kelbessa in J. H. Seyani & A. C. Chikuni (eds.), Proc. XIII Plenary Meet. AETFAT, Zomba, Malawi, 1991, 1: 343. 1994.

Perennial ascending herbs, ca. 0.5 m tall. Stems quadrangular, sulcate, pilose along sulci and on the nodes. Petioles 1–4 cm, slightly winged, pubescent; leaf blades ovate to elliptic, 5–11 × 2–5 cm, base truncate, rounded, decurrent onto the petioles, apex shortly acuminate or acute, margin entire or slightly crenulate, glabrous except for pilose on the veins, adaxially covered with numerous cystoliths, lateral veins 5–7 pairs. Racemes axillary or terminal, 3–8 cm. Pedicels 1–3 mm, pilose. Bracts linear-lanceolate, ca. 2.5 × 1 mm, pubescent; bracteoles triangular-lanceolate, ca. 2 × 1 mm, glabrescent except for the ciliate margin. Calyx 5-lobed almost to the base; lobes linear-lanceolate, 4–5 × 1–1.2 mm, apex acuminate, abaxially sparsely pubescent, margin ciliate. Corolla white, pale violet, spotted on the center lobe of the lower lip, 1.2–1.5 cm, campanulate, outside pilose, inside glabrous, tube-base cylindric, ca. 3 cm, gradually widened to ca. 5 mm wide at mouth; lobes ovate or semiorbicular, ca. 3 × 2 mm, middle lobe with a violet blotch. Stamens 4, didynamous, included; filaments glabrous, the longer pair ca. 6 mm, the shorter pair ca. 4 mm; anther-thecae 2 × 1 mm, muticous. Ovary ellipsoidal, ca. 3.5 mm, comose; style 0.8–1 cm, velutinous towards the base; stigma capitellate, 2-lobed. Capsule oblong, 1.8–2 cm, ca. 2 mm wide, pubescent, base solid-stalked, 2–4-seeded. Seeds irregularly obovate, flat, 3–5 mm, margin angled, glabrous, tuberculate-rugose.

Locality: Cultivated or naturalized. *Y. W. Lam 2119*; *S. C. Ng 4128*; *F. W. Xing 8996* (IBSC).

Distribution: Taiwan; pantropical weeds.

Ecology: Margins of forests, gardens or roadsides. Flowering: Sep.–Feb. of the following year; fruiting: Jan.–Mar.

13. Hypoestes Sol. ex R. Br. 槍刀藥屬

Spreading to erect perennial herbs or shrubs with cystoliths. Leaves opposite, petiolate, margin entire or dentate. Flowers in clustered spikes, capitellate, or rarely solitary. Bract leaf-like, petiolate; bracteoles 2 or 4, free or connate forming an obconic or cylindric involucres, enclosing 1–4 flowers, all of which but one are usually reduced or obsolete. Calyx very small, usually obscured by bracteoles, scarious or membranous, deeply 5-lobed, lobes equal to subequal in length, linear-lanceolate. Corolla rose-pink or whitish or blue, resupinate by torsion of tube, tube subcylindric to expanded distally into a narrow throat, limb bilabiate, upper lip subentire or shallowly 2-lobed, lower lip turned upward, shallowly 3-lobed, lobes imbricate in bud. Stamens 2, inserted near apex of corolla tube, exserted; anthers 1-thecous, theca muticous. Ovary 2-locular, with 2 ovules in each locule; style filiform, exserted, stigma 2-lobed, lobes equal or unequal. Capsule ellipsoidal, stalked, retinacula subulate, 2- or 4-seeded. Seeds, ovoid, compressed, smooth or pustular-tuberculate, with a narrow, membranous wing.

About 40 species in tropical regions of the Old World; three species in China; one species in Hong Kong.

1. Hypoestes purpurea (L.) R. Br. 槍刀藥 **(Fig. 162)**

Prodr. 1: 474. 1810; FHK 265. 1861; FKH 200. 1912; FHN 3: 564. 1974; FTW ed. 2, 4: 665. 1998; FRPS 70: 249. 2002.

Justicia purpurea L., Sp. Pl. 16. 1753.

Peristrophe purpurea (L.) Hochr., Candollea 5: 234. 1934.

Hypoestes sinica Miq., J. Bot. Neerland 1: 117. 1861.

Spreading to erect perennial herbs or shrubs, up to 1.5 m tall. Stems erect or decumbent, young stems subquadrangular, sulcate, slightly puberulent. Petiole 1–3.5 cm, sparsely pubescent; leaf blades ovate to ovate-elliptic, 5–13 × 1.5–7 cm, base narrowed and cuneate, apex acuminate or acute, margin entire or subundulate,

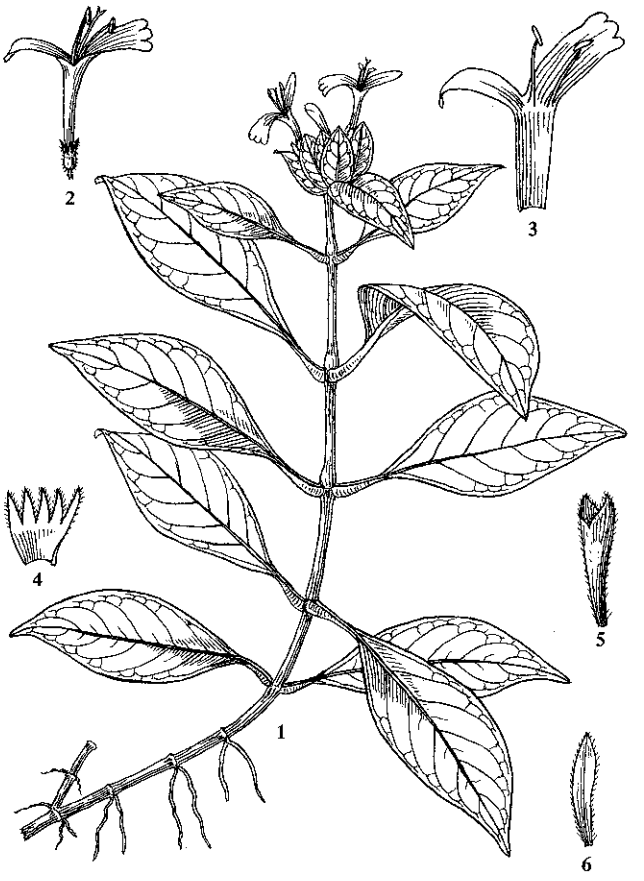


Figure 162. *Hypoestes purpurea* (L.) R. Br.

1. upper portion of plant; *2.* flower; *3.* corolla opened; *4.* calyx opened; *5.* outer bracteoles; *6.* inner bracteole. (drawn by H. P. Yu)

adaxially green, sparsely pubescent, or glabrous except for pubescent along the veins and on the margin, abaxially pale green, glabrous, lateral veins 5–8 pairs. Spikes 1–3 cm, terminal or axillary, often crowded in large panicles, these forming a lax thyrse up to 7 cm, flowers numerous, often secund. Bract leaf-like, spathulate, ca. 1.1 cm, petiolate, ciliate, bracteoles 4, abaxially sparsely pubescent, 2-paired, outer pair connate above middle, forming an obconical involucres, ca. 8 mm, inner pair lanceolate, ca. 7 × 3 mm, glabrous, free from each other but partially adnate to outer pair, ca. 2.5 mm. Calyx ca. 5 mm, 5-lobed to middle; lobes equal. ciliate. Corolla reddish purple, 2–2.5 cm, outside puberulent; limb 2-lipped, upper lip lanceolate, subentire, lower lip triangularly obovate, shallowly 3-lobed at tip. Stamens 2, much exserted; filaments flat, to 1.2 cm glabrous; anther-thecae muticous. Ovary glabrous; style exserted, glabrous; stigma shallowly 2-lobed, lobes equal. Capsule oblong-ovoid, ca. 1 cm, glabrous, 4- or few-seeded. Seeds ellipsoidal-ovoid, tuberculate.

Locality: Pok Fu Lam, Tai Tam, Shing Mun, Lantau Island. *Y. S. Lau 797, 1747; L. T. Lo 262.*

Distribution: Hainan, Guangdong, Guangxi, Taiwan; Philippines.

Ecology: Thickets. Flowering: Aug.–Nov.

Uses: Ornamental, medicinal (folklore).

14. Clinacanthus Nees 鱷嘴花屬

Herbs with cystoliths. Leaves petiolate, margin entire or serrate. Flowers in terminal, dense cymes. Bracts small, linear or lanceolate; bracteoles small. Calyx deeply 5-lobed, lobes narrow. Corolla resupinate, tube long, curved, widened upward, limb bilabiate, upper lip forming a prolongation of the corolla-tube, turned downward, shortly bilobed, innermost in bud, lower lip slightly recurved, much broader than the upper lip, 3-lobed, middle lobe outermost in bud. Stamens 2, subequal to the upper lip; anther 1-thecous, base muticous. Staminodes absent. Ovary compressed, 2-locular, with 2 ovules in each locule; style filiform, stigma shortly bidentate. Capsule oblong, with a short, solid stalk at base, retinacula present, 4-seeded.

Two species in tropical Asia; one species in China and in Hong Kong.

1. Clinacanthus nutans (Burm. f.) Lindau 鱷嘴花

Engler & Prantl, Pflanzenfam. 4(3b): 340. 1895; FHN 3: 566. 1974; FRPS 70: 252. 2002.

Justicia nutans Burm. f., Fl. Ind. 10: t. 5, fig. 1. 1768.

Clinacanthus burmanni Nees, Prodr. 11: 511. 1847

Herbs, up to 1 m tall. Stems terete, striped, glabrescent. Petioles 3–8 mm, sulcate, bifariously pubescent; leaf blades papery, lanceolate to linear-lanceolate, 7–11 × 1–4 cm, base cuneate to rounded, apex caudate, margin subentire or dentate, pubescent when young on both surfaces, then glabrescent except for the pilose veins abaxially, lateral veins 4–6 pairs, elevated abaxially. Spikes terminal, subsecund, usually 3–several forming a large, lax panicle to ca. 1.5 cm. Rachis glandular-pubescent. Bracts and bracteoles linear, ca. 8 × 2 mm, apex acute, abaxially glandular-pilose. Calyx 9–13 mm, 5-lobed; lobes linear, apex acute, abaxially glandular-pilose. Corolla dull red with a green base, 3–3.5 cm, outside pilose, inside glabrous except for a circled hairs ca. 5 mm above the base; tube-base cylindric, ca. 5 mm long and ca. 3 mm, gradually widened to ca. 6 mm at mouth, 2-lipped, upper lip erect, triangular, 1.5–2 × 0.5 cm, apex emarginate, lower lip nutant, 1.6–2 × 1 cm, with yellow streaks, 3-lobed; lobes ovate, 3 × 1 mm. Stamens 2, exserted; filaments glabrous, ca. 1.5 cm; anthers ovate-linear, ca. 4 × 1 mm, muticous. Ovary ovoid, ca. 3 mm, glabrous; styles ca. 3 cm, few hairs at base. Capsules oblong, ca. 2 cm, pilose. Seeds orbicular, ca. 2 mm in diam.

Locality: Cultivated or introduced. *HK sheet 38978, 39670; P. H. Liang 8978* (IBSC).

Distribution: Hainan, Guangdong, Guangxi, Yunnan; Vietnam, Thailand, Malaysia, Indonesia.

Ecology: Flowering: Mar.–May.

Uses: Medicinal (folklore).

15. Codonacanthus Nees 鐘花草屬

Small erect herbs with cystoliths. Leaves membranous, margin entire. Inflorescence of loose racemes, or sometimes several forming a terminal panicle, terminal, or terminal and in upper leaf axils; flowers loosely secund in rachis. Bracts and bracteoles minute, subtending pedicels. Calyx 5-lobed, lobes subequal, short, narrow. Corolla white or purplish white, broadly campanulate, tube short, limb slightly 2-lipped, upper lip 2-lobed or subentire, lower lip 3-lobed, lobes imbricate in bud. Stamens 2, included; filaments filiform; anthers 2-thecous, thecae broadly divergent, parallel at unequal level. Staminodes 2, short. Ovary 2-locular, with 2 ovules in each locule; style filiform; stigma capitate. Capsule oblong, with a solid stalk at base, retinacula hooked, 4- or few-seeded. Seeds suborbicular, compressed, smooth, lustrous.

Two species in India, Bhutan, China, Japan and Vietnam; two species in China; one species in Hong Kong.

1. Codonacanthus pauciflorus (Nees) Nees 鐘花草 **(Fig. 163; Photo 314)**

Prodr. 11: 103. 1847; FHK 267. 1861; FKH 199. 1912; FHN 3: 557. 1974; FTW ed. 2, 4: 651. 1998; FRPS 70: 228. 2002.

Asystasia pauciflora Nees, Pl. Asiat. Rar. 3: 90. 1832.

Codonacanthus acuminatus Nees, Prodr. 11: 103. 1847.

Perennial erect herbs, 20–60 cm tall, many-branched. Stems quadrangular, sulcate, bifariously pubescent. Petioles 3–13 mm, puberulent or glabrous; leaf blades thin papery, elliptic, ovate or lanceolate, 5–12 × 1.5–4.5 cm, base rounded, cuneate, or attenuate and decurrent onto the petioles, apex acute or acuminate, margin entire or slightly undulate, adaxially green, glabrous or with few large-celled hairs,

with numerous cystoliths, abaxially pale green, glabrous except for loose puberulent on the midveins, lateral veins 5–7 pairs. Racemes simple or usually few forming a terminal panicle, 3–10 cm, flowers usually only one fertile on each node, distant. Peduncles 1–3 cm, puberulent. Rachis puberulent. Pedicels 1–3 mm, puberulent. Bracts lanceolate, ca. 2 mm, apex acute, puberulent; bracteoles ovate-lanceolate, ca. 1.5 mm, apex acute, puberulent. Calyx ca. 2.5 mm, 5-lobed almost to the base; lobes linear-lanceolate, apex acuminate, puberulent. Corolla white, campanulate, 8–10 mm, glabrous; tube cylindric, ca. 2 mm, abruptly dilated and widened to 8–10 mm at mouth, upper lip 2-lobed, rarely subentire, lower lip 3-lobed, lobes ovate, ca. 4 × 4 mm, apex obtuse. Stamens 2, included, filaments ca. 2.5 mm, glabrous; anther-thecae oblong, ca. 1.2 mm, parallel at unequal level. Ovary glabrous; styles filiform, ca. 6 mm; stigma shortly 2-lobed. Capsule oblanceolate, ca. 1.5 cm, glabrous, (2 or)4-seeded at upper half. Seeds orbicular, ca. 2 mm, glabrous, ridged on the margin.

Locality: Common in Hong Kong. *Y. S. Lau 158; L. T. Lo 318; K. L. Yip 4460.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Fujian, Taiwan; Japan, Vietnam, Laos, Thailand, Myanmar, India, Bhutan.

Ecology: Forests, wet places in ravines. Flowering & fruiting: Oct.–Jan. of the following year.

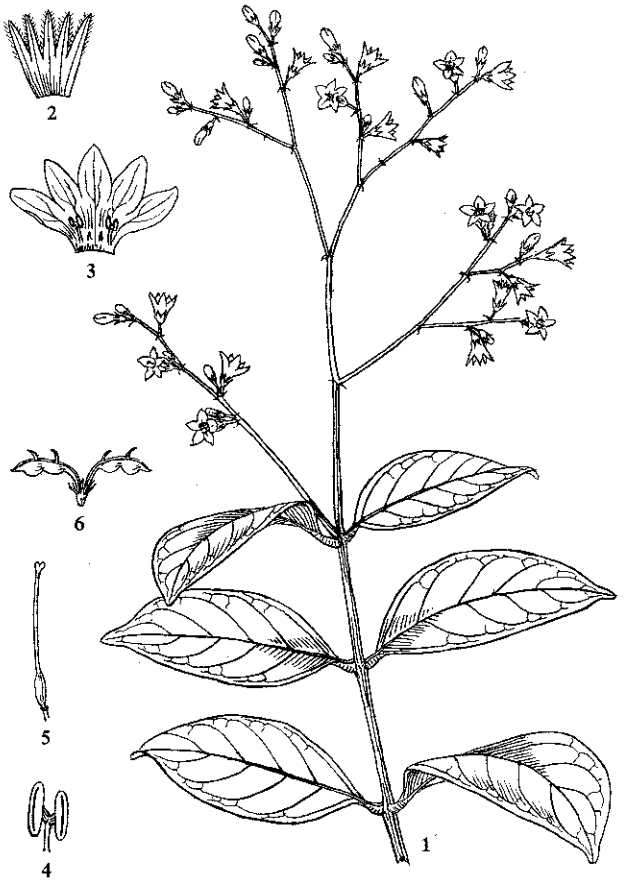


Figure 163. *Codonacanthus pauciflorus* (Nees) Nees
1. flowering plant; *2.* calyx opened; *3.* corolla opened; *4.* anther; *5.* pistil; *6.* dehiscent fruit. (drawn by H. P. Yu)

16. Odontonema Nees 紅樓花屬

Perennial herbs or shrubs with cystoliths. Leaves sessile to petiolate, margin entire to crenate. Inflorescences mostly terminal dichasial racemes, spikes or thyrses, sometimes branched basally and forming a panicle. Flowers heterostylic, usually pedicellate, 1–many alternate, opposite or whorled on each node. Bracts subopposite, opposite, or whorled, green or coloured, margin entire; bracteoles small. Calyx deeply 5-lobed, lobes equal, subulate. Corolla white, red or yellow, tube long, limb 5-lobed or bilabiate, the upper lip 2-lobed, the lower lip 3-lobed. Stamens 2, usually included in pin flower, stamens exserted in thrum flower; anthers 2-thecous, thecae parallel, muticous at base. Staminodes 2. Ovary 2-locular, with 2 ovules in each locule; style of thrum flower included in corolla throat, style of pin flower exserted from mouth of corolla; stigma funnelform or 2-lobed, lobes equal or unequal. Capsules clavate, stipitate, retinacula hooked, 4-seeded. Seeds lenticular, glabrous.

About 30 species in tropical and subtropical regions of America; one species cultivated in S China and Hong Kong.

1. Odontonema tubiforme (Bertol.) Kuntze 紅樓花 **(Photo 315)**

Revis. Gen. Pl. 2: 494. 1891, "*tubaeforme*".

Justicia tubaeformis Bertol., Novi Comment. Acad. Sci. Inst. Bononiensis 4: 405. 1840.

Thyrsacanthus tubaeformis (Bertol.) Nees, Prodr. 11: 324. 1847.

Odontonema strictum (Nees) Kuntze, Revis. Gen. Pl. 2: 494. 1891; Check List HK Plants 254. 2002; 87. 2004.

Thyrsacanthus strictus Nees, Prodr. 11: 324. 1847.

Shrubs, to 3 m tall. Stems quadrangular, sulcate, sparsely pubescent. Petioles 0.5–3 cm, sulcate, glabrous; leaf blades ovate, elliptic or ovate-elliptic, 7–22 × 3–10 cm, base cuneate, attenuate, slightly decurrent onto the petiole, apex acuminate to falcate, margin entire, subglabrous on both surfaces or sparsely pubescent abaxially, cystoliths conspicuous adaxially, lateral veins 6–9 pairs. Racemes 6–15 cm, sometimes branched basally and forming a panicle, 1–3 flowers on each node; peduncle 6–9 cm; rachis quadrangular, subglabrous to pubescent usually concentrated in 2 or more lines. Pedicels 2–6 mm, pubescent. Bracts lanceolate to linear-subulate, 2–4 × ca. 1 mm, abaxially puberulent or glabrous; bracteoles subulate, 2–4 × ca. 1 mm, abaxially puberulent or glabrous. Calyx 2–4 mm, 5-lobed; lobes subulate, 1–3 × 0.5–1 mm, abaxially puberulent or glabrous. Corolla red, 2.4–3.3 cm, outside glabrous; tube slender, 2.0–2.7 cm, limb 2-lipped, upper lip 4–5 mm, 2-lobed, lobes orbicular, 2–3 × ca. 1.5 mm, lower lip 4–5 mm, 3-lobed, lobes elliptic to suborbicular, 3–4 × 2–3 mm. Stamens 2; stamens of thrum flower 1.2–1.5 cm, those of pin flower 6–8 mm; anthers oblong, 2–3 mm. Ovary glabrous; styles of thrum flower to 1 cm, styles of pin flower 1–1.6 cm, pubescent, stigma 2-lobed, lobes ca. 0.3 mm. Capsules 1.7–2.3 cm, glabrous, basal stalks 0.7–1.1 cm. Seed suborbicular, subelliptic to broadly obovate, 4–5 mm, ca. 3 mm wide, bumpy to tuberculate.

Locality: Cultivated. *Y. S. Lau 2638, 2660; Y. W. Lam 1121.*

Distribution: Native to C America, widely cultivated in the tropics.

Ecology: Flowering: Jul.–Oct.

Uses: Ornamental.

17. Eranthemum L. 可愛花屬

Shrubs or perennial erect herbs. Leaves petiolate, margin entire or crenate, pinnately-veined. Inflorescences of lax, terminal or rarely axillary spikes, sometimes several forming a panicle. Bracts large, leaf-like, usually coloured; bracteoles small, narrow. Calyx 5-lobed, lobes narrow, unequal. Corolla hypocrateriform, tube quite long, slender, limb 5-lobed, lobes obovate, subequal, imbricate in bud. Stamens 2, inserted below the throat; anther 2-thecous, thecae parallel. Staminodes 2, clavate or filiform. Ovary 2-locular, with 2 ovules in each locule; style filiform, glabrous or pubescent; stigma 2-lobed, lobes unequal. Capsule clavate, with a solid stalk at base, retinacula present, 4-seeded. Seeds compressed, discoid, ringed with hygroscopic hairs.

About 30 species in tropical and subtropical regions of Asia; four species in China; one species cultivated in Hong Kong.

1. Eranthemum pulchellum Andrews
可愛花 **(Fig. 164; Photo 316)**

Bot. Repos. 2: pl. 88. 1800; FRPS 70: 59. 2002.

Justicia pulchellum (Andrews) Roxb., Pl. Chrom. 2: 41, t. 177. 1805.

Pseuderanthemum pulchellum (Andrews) Merr., Philip. J. Sci. Bot. 7: 248. 1912.

Justicia nervosum Vahl, Enum. Pl. 1: 164. 1804.

Eranthemum nervosum (Vahl) R. Br. ex Roem. & Schult., Syst. Veg. 1: 174. 1817; FHN 3: 551. 1974; Check List HK Plants 252. 2002; 87. 2004.

Daedalacanthus nervosus (Vahl) T. Anderson, J. Linn. Soc., Bot. 9: 487. 1867.

Shrubs, 0.7–1.5 m tall. Stems quadrangular, sulcate, greyish green, glabrous or subglabrous. Petioles (0.3–)2–3.5 cm, sulcate, glabrous; leaf blades ovate to elliptic, (3–)9–20 × (1–)4–9 cm, base attenuate and decurrent onto the petioles, apex acuminate, margin entire or crenate, glabrous, lateral veins 8–10 pairs, prominent on both surfaces, reticulate veins prominent abaxially, densely covered with cystoliths especially adaxially. Spikes terminal or axillary, 1.5–6 cm. Peduncle 0.5–3 cm, glabrous, densely covered with white cystoliths. Bracts leaf-like, obovate, 1–1.5 × 0.6–0.9 cm, apex acute, reticulate veined, green along veins, otherwise white, sparsely puberulent; bracteoles linear lanceolate, greyish white, ca. 5 mm, abaxially sparsely pilose. Calyx 6–8 mm, whitish, sparsely puberulent, 5-lobed; lobes lanceolate, ca. 4–5 mm, apex acuminate. Corolla blue, ca. 3 cm, curved, outside puberulent, inside bifariously pubescent; tube-base narrowly cylindric, ca. 2 mm, abruptly widened to ca. 1.8 cm at mouth; lobes obovate, ca. 6–8 × 5–6 mm. Stamens 2, exserted; filaments ca. 6 mm; anther oblong, ca. 3 mm. Staminodes 2, ca. 2 mm. Ovary glabrous; styles ca. 2.5 cm, glabrous; stigma 2-lobed, larger one linear-lanceolate, sparsely pilose. Capsule stipitate, 1–1.3 cm, glabrous.

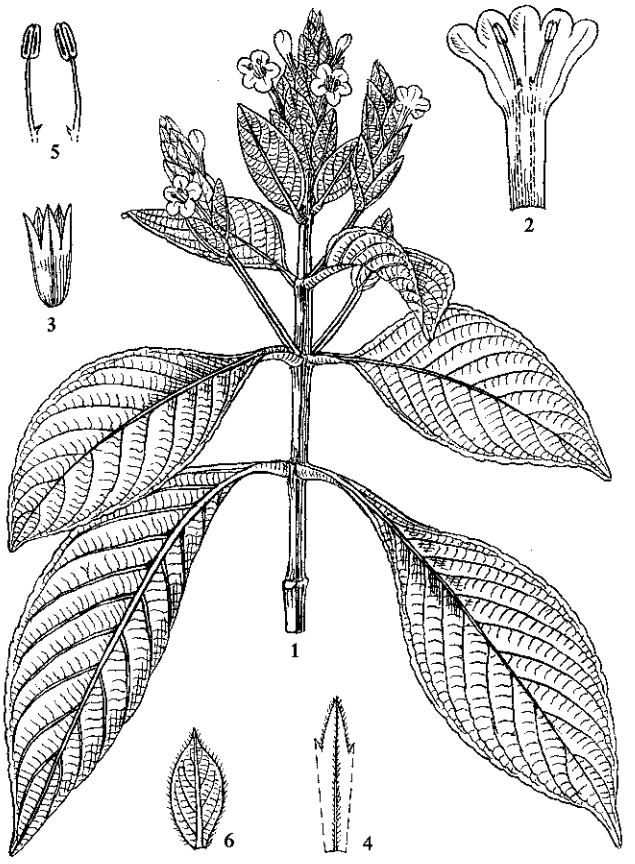


Figure 164. *Eranthemum pulchellum* Andrews
1. flowering branch; *2.* corolla opened; *3.* calyx; *4.* calyx-lobe; *5.* stamens; *6.* bract. (drawn by H. P. Yu)

Locality: Cultivated. *H. C. Tang 415; Y. S. Lau 1009, 1506.*

Distribution: S & SW China (cultivated); India, Bhutan, Sikkim, Nepal, naturalized in tropical areas.

Ecology: Flowering: Oct.–Feb. of the following year.

Uses: Ornamental.

18. Pseuderanthemum Radlk. 鈎粉草屬

Herbs or shrubs with cystoliths. Leaves sessile to petiolate, margin entire or dentate. Inflorescence of simple or compound racemes or spikes, axillary or terminal, flowers 1–many on each node, sessile or pedunculate. Bracts and bracteoles linear, much shorter than calyx, margin entire. Calyx deeply 5-lobed; lobes linear, equal. Corolla hypocrateriform; tube slender, not or scarcely enlarged upward, limb 5-lobed or 2-lipped; lobes equal or two slightly smaller, imbricate in bud. Stamens 2, inserted in throat of corolla, included in corolla tube or exserted from mouth of corolla; anthers 2-thecous, thecae equal to subequal, parallel, at the same height, muticous. Staminodes 2 or absent. Ovary 2-locular, with 2 ovules in each locule; style included or exserted; stigma 2-lobed, lobes equal. Capsule clavate with long solid stalk, retinacula present, 4-seeded. Seeds lenticular, flattened, pitted or smooth, glabrous.

About 60 species in the tropics worldwide; six species in China; one cultivar cultivated in Hong Kong.

1. Pseuderanthemum carruthersii (Seem.) Guillaumin 擬美花
Ann. Inst. Bot.-Geol. Colon. Marseille, ser. 6, 5–6: 48. 1948.

Eranthemum carruthersii Seem., Fl. Vit. 185. 1866.

Pseuderanthemum atropurpureum (W. Bull) Radlk., Sitzungsber. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. München 13(2): 286. 1883.

Pseuderanthemum carruthersii var. *atropurpureum* (W. Bull) Fosberg, Smithsonian Contr. Bot. 45: 26. 1980.

Shrubs, to 2.5 m tall. Stems quadrangular, sulcate, glabrous except for retrorsely pubescent at node. Petioles 0–7 mm; leaf blades leathery, ovate-elliptic to elliptic, 2.5–8 × 1.5–5 cm, base rounded to attenuate, apex rounded to acute, margin entire, revolute. Spikes terminal, up to 12 cm, flowers 1–3 at each node. Rachis glabrous. Peduncles 1–7 mm. Pedicels 3–6 mm, glabrous or sparsely pubescent. Bracts elliptic to ovate to triangular, 1.5–4 × 1–1.5 mm, abaxially glabrous or sparsely pubescent with antrorse, short hairs (ca. 0.1 mm); bracteoles lanceolate-ovate to triangular, ca. 1.5 mm, abaxially glabrous or pubescent. Calyx ca. 4 mm, 5-lobed; lobes lanceolate to lanceolate-subulate, 2–3 mm, abaxially pubescent. Corolla white with maroon spots within, 1.7–2 cm, outside glabrous; tube-base cylindric, ca. 9 mm, upper lip 8–11 mm, 2-lobed, lobes ca. 8 × 3 mm, lower lip 9–11 mm, lobes ca. 9 × 4–7 mm. Stamens 2, exserted; filaments ca. 6 mm, glabrous; anther-thecae oblong, ca. 2 mm. Staminodes 2, 1–2 mm. Ovary glabrous; style included or exserted ca. 1 mm from the mouth of corolla, 9–10 mm, pubescent; stigma 2-lobed, lobes ca. 0.7 mm. Capsule not seen.

1a. Pseuderanthemum carruthersii 'Variegatum'(斑葉擬美花) **(Photo 317)**

Pseuderanthemum atropurpureum 'Variegatum'

This cultivar is characterized by variegated venation on its bronze-purple leaves, marked with cream-yellow, and pink flowers.

Locality: Cultivated in gardens. *HK sheet 41913.*

Distribution: Native to Polynesia.

Uses: Ornamental.

19. Dicliptera Juss. 狗肝菜屬

Annual or perennial diffuse herbs, sometimes shurbs, with cystoliths. Leaves petiolate, usually ovate, margin entire or obscurely undulate. Inflorescence of small cymes in leaf axils, sometimes aggregated into a leafy panicle. Flowers paired but usually one sterile, enclosed within a pairs of slightly unequal bracts which conceal the calyx and corolla tube. Bracts 2, opposite; bracteoles small, linear or linear-lanceolate. Calyx deeply 5-lobed; lobes equal, narrow, acute. Corolla pink, resupinate by torsion of the tube; tube slender, widened apically; limb bilabiate, upper lip entire or emarginate, lower lip weakly 3-lobed, lobes imbricate in bud. Stamens 2, long exserted; anthers 2-thecous, one above the other, base muticous. Staminodes absent. Ovary 2-locular, with 2 ovules in each locule; style filiform, stigma shortly bifid. Capsule ovoid, substipitate or stipitate, the placenta separating elastically and rising from the wall on the dehiscence, 2- or 4-seeded. Seeds lenticular, glabrous.

About 100 species in tropical and temperate regions of the world; four species in China; one species in Hong Kong.

1. Dicliptera chinensis (L.) Juss. 狗肝菜 **(Fig. 165; Photo 318)**
Ann. Mus. Natl. Hist. Nat. 9: 268. 1807; FHK 266. 1861; FKH 200. 1912; FHN 3: 563. 1974; FTW ed. 2, 4: 654. 1998; FRPS 70: 236. 2002.

Justicia chinensis L., Sp. Pl. 16. 1753.

Annual or biannual herbs, 30–80 cm tall. Stems diffuse at base, erect above, quadrangular, ridged, glabrous except for pubescent on young branches and nodes. Petioles to 0.5–3 cm, puberulent; leaf blades ovate-elliptic, 2–8 × 1.5–4 cm, base cuneate or attenuate and decurrent onto the petiole, apex short acuminate or acute, margin entire or slightly undulate, adaxially glabrous, abaxially sparsely puberulent along the veins, lateral veins 4–5 pairs, slightly prominent abaxially. Inflorescence axillary or terminal, a dichasial 3-flowered cyme, or sometimes several forming a short panicle, 1–4 cm. Peduncles 2–5 mm; pedicels 0.5–3 mm, puberulent. Bracts 2, large, unequal, elliptic or narrowly obovate, 8–13 × 3–5 mm, apex acute, mucronate, margin ciliate, abaxially puberulent, 3-veined; bracteoles linear, ca. 5 mm, apex acuminate, abaxially hirsute. Calyx ca. 5 mm, 5-lobed almost to the base; lobes equal, linear, apex acuminate, margin hirsute. Corolla pale purple,

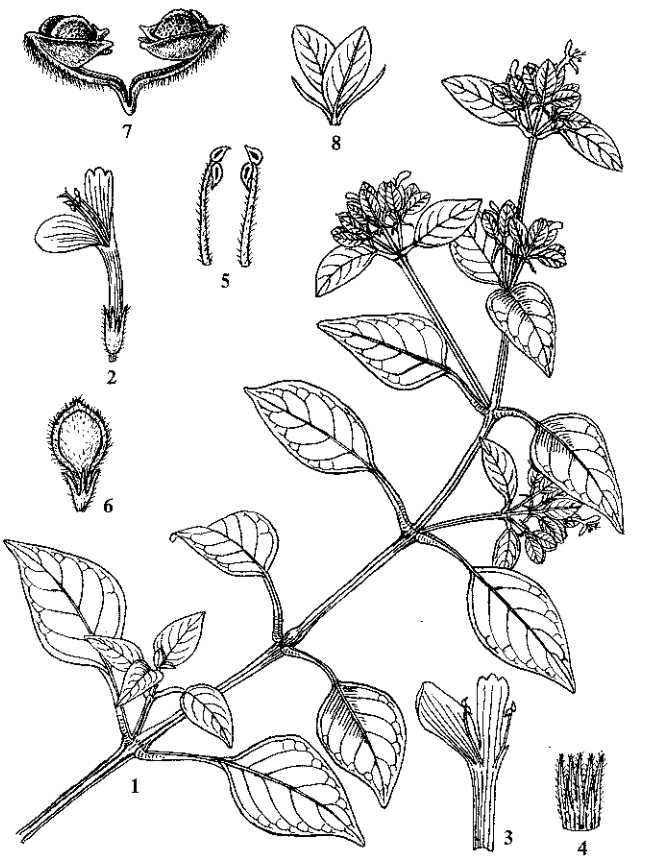


Figure 165. *Dicliptera chinensis* (L.) Juss.
1. flowering branch; *2.* flower; *3.* corolla opened; *4.* calyx opened; *5.* stamens; *6.* fruit; *7.* dehiscent fruit; *8.* bracts. (drawn by H. P. Yu)

1–1.2 cm, outside puberulent; tube slender, ca. 6 mm; limb bilabiate, upper lip ovate, ca. 5 × 3 mm, apex entire, lower lip oblong, ca. 4 × 1.5 mm, shallowly 3-lobed. Stamens 2, exserted, adnate near apex of corolla tube; filaments ca. 4 mm, glabrous; anther-thecae spherical, ca. 1.2 mm in diam., parallel, one above the other. Ovary pilose at the tip; style filiform, ca. 1.4 cm; stigma unequally 2-lobed. Capsule broadly ellipsoidal, apiculate, ca. 6 mm, puberulent, 4-seeded. Seeds orbicular, ca. 2 mm in diam., pubescent, verrucose.

Locality: Deep Water Bay, Sha Tin, Tai Po. *Y. S. Lau 2017*; *Y. S. Lau 2845*.

Ecology: Roadsides, thin forests. Flowering: Jul.–Dec.

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Fujian, Taiwan; Japan, Vietnam.

Uses: Medicinal (folklore).

20. **Rungia** Nees 孩兒草屬

Decumbent to erect herbs. Leaves petiolate, margin entire. Spikes axillary or terminal, secund or not. Bracts 2-ranked, or 4-ranked, just 2 ranks fertile. Bracts (fertile or sterile) unimorphic or dimorphic, margin usually scarious; bracteoles similar to bracts or narrower. Calyx deeply 5-lobed; lobes linear-lanceolate, equal or unequal. Corolla small, basal tube cylindric, limb bilabiate, upper lip erect, entire to emarginate, lower lip spreading, 3-lobed, lobes imbricate in bud. Stamens 2, inserted in throat of corolla; anthers 2-thecous, thecae subequal in size, subequal or superposed, lower thecae white-spurred at base. Ovary 2-locular, with 2 ovules in each locule; style filiform; stigma entire or slightly bifid. Capsule ovate or oblong, shortly stalked, the placenta rising from base as fruit ripens, scattering the seeds, retinacula hooked, 4-seeded. Seeds compressed, orbicular, glabrous, verrucose.

About 50 species in tropical regions; 17 species in China; two species in Hong Kong.

1a. Inner fertile bracts obovate or obovate-oblong, apex acute ..... 1. *R. chinensis*
1b. Inner fertile bracts orbicular, apex obtuse or rounded ..... 2. *R. pectinata*

1. **Rungia chinensis** Benth.

中華孩兒草 **(Fig. 166; Photo 319)**

FHK 266. 1861; FKH 200. 1912; FTW 4: 658. 1978; FTW ed. 2, 4: 676. 1998; FRPS 70: 258. 2002.

Spreading to erect herbs, up to 70 cm tall. Stems slender, quadrangular, sulcate, slightly puberulent, usually rooting at lower nodes. Petioles 0.5–3 cm, pubescent; leaf blades membranous, ovate to oblong-lanceolate, 2.5–9 × 1.8–3 cm, base cuneate or attenuate, apex acute or obtuse, margin entire or slightly undulate, glabrous except for sparsely hirsute along the veins, lateral veins 5–6 pairs. Spikes terminal or axillary, 1–7 cm, 2-sided. Bract 4-ranked, dimorphic, outer sterile ones elliptic, ca. 6 × 2–4 mm, sparsely ciliate, inner fertile bracts obovate, or obovate-oblong, 6–8 × 2.5–4 mm, apex acute; bracteoles orbicular or ovate, 6–7 × 4–5 mm, apex mucronate, margin membranous, sparsely ciliate. Calyx deeply 5-lobed; lobes linear-lanceolate, ca. 5 mm. Corolla bluish, 6–8 mm, outside slightly pilose and glandular-punctate; limb 2-lipped, the upper lip shallowly dentate, lower lip 3-lobed, lobes ca. 7 mm. Stamens 2; anthers 2-thecous, thecae subequal in size, lower theca has basal spur. Ovary 2-locular; style ca. 1 cm, glabrous, stigma obtuse. Capsule ovoid ca. 6 mm, 4-seeded. Seeds lenticular, ca. 1.5 mm wide, minutely tuberculate.

Locality: Mount Parker, Cape D' Aguilar, Po Toi Island. *Y. W. Lam 1999; HK sheet 40867.*

Distribution: Guangdong, Guangxi, Jiangxi, Anhui, Zhejiang, Fujian, Taiwan; Vietnam.

Ecology: Grasslands. Flowering & fruiting: Oct.–Feb. of the following year.

Uses: Medicinal (folklore).



Figure 166. *Rungia chinensis* Benth.
1. portion of plant; *2*. flower; *3*. bract; *4*. bractlet; *5*. stamen; *6*. dehiscent fruit. (drawn by H. P. Yu)

Notes: The type specimens was collected by J. G. Champion from Mount Parker between 1847 and 1850.

2. **Rungia pectinata** (L.) Nees 孩兒草 **(Photos 320–321)**

Prodr. 11: 470. 1847; FHN 3: 563. 1974; FRPS 20: 262. 2002.

Justicia pectinata L., Amoen. Acad. 4: 299. 1760.

Rungia parviflora var. *pectinata* (L.) Hand.-Mazz., Symb. Sin. 7: 898. 1936.

Rungia parviflora subsp. *pectinata* (L.) Cramer, Handbook Fl. Ceylon 12: 105. 1998.

Annual or perennial herbs, sometimes erect but usually prostrate and rooting at nodes. Stems many-branched, minutely pubescent. Petioles 0–7 mm; leaf blades oblong-elliptic, 1–4 × 0.4–1.4 cm, base cuneate, apex acute, margin entire, glabrous except for few hairs on veins, lateral veins ca. 4 pairs. Spikes axillary or terminal, 0.5–2 cm, 1-sided, sometimes 2 or 3 compounded. Bracts dimorphic, outer sterile bracts elliptic, apex obtuse or rounded, green, ca. 4 × 0.7 mm, apex acute, glabrous, inner fertile bracts broadly ovate to orbicular, 4–5 × 2 mm, apex obtuse or rounded, mucronulate, pubescent, broadly hyaline-margined; bracteoles elliptic, 2–3 mm, subacute, margin ciliate, apex 2-fid. Calyx colourless, pubescent, lobes linear-lanceolate, ca. 3 × 0.5 mm, narrowly hyaline-margined, apex mucronulate. Corolla blue or white, ca. 5 mm, outside pubescent, upper lip ovate, 1–2 mm, emarginate, lower lip 3-lobed, lobes triangular. Stamens 2; filaments glabrous; anther-thecae superposed, lower one spurred at base. Ovary 2-locular. Capsule ellipsoidal, ca. 2.5 mm, apiculate, glabrous, 2–4-seeded. Seeds orbicular, ca. 1 mm in diam., minutely verrucose.

Locality: Clear Water Bay, Sai Kung, Tseng Kwan O, Lantau Island. *F. W. Xing 9654; Y. W. Lam 1724; S. Y. Hu 12433* (K).

Distribution: S & SW China; India, Bhutan, Sri Lanka.

Ecology: Wastelands. Flowering: Sep.–Nov.

Uses: Medicinal (folklore).

21. Pachystachys Nees 金苞花屬

Herbs or subshrubs. Leaves large, petiolate. Inflorescence of a showy terminal spikes, 4-sided, flowers 1–many in cluster. Bracts conspicuous, overlapping. Bracteoles small or absent. Calyx 5-lobed, lobes equal or uppermost narrower. Corolla tubular, ringent, slenderly obconic, curved, 2-lipped, upper lip narrow, 2-lobed apically, lower lip 3-lobed, lobes subequal. Stamens 2, subequal to the corolla, attached near the base of tube; anthers deeply sagittate, 2-thecous, thecae parallel, muticous at base. Staminodes absent. Ovary 2-locular, with 2 ovules in each locule; style filiform; stigma obtuse. Capsule 4-seeded.

About 12 species in neotropics; one species cultivated in Hong Kong.

1. Pachystachys lutea Nees 金苞花(黃鴨咀花) **(Photo 322)**

Prodr. 11: 320. 1847.

Subshrubs, to 2 m tall. Stems slightly quadrangular, brownish yellow, glabrous. Petioles ca. 2 mm; leaf blades papery, oblong-lanceolate, 7–16 × 1.5–5 cm, base attenuate, auriculate, apex acuminate, margin entire, glabrous, densely covered with claviform cystoliths especially along veins, lateral veins 5–7 pairs, netted near the margin. Spikes terminal or axillary, 5–9 cm. Peduncle ca. 1 cm. Bracts yellow or orange, ovate, 1.6–3 × 1–1.8 cm, glandular-pilose along the entire margin, pinnately-veined, densely imbricate; bracteoles yellow, ovate-elliptic, ca. 1 × 0.3 cm, 3-veined. Calyx yellow, ca. 6 mm, 5-lobed almost to the base; lobes lanceolate, ca. 1 mm broad, glabrous or ciliate on margin. Corolla white, 4.5–5 cm, outside pilose and glandular-punctate, 2-lipped, upper lip erect, lanceolate, ca. 2 cm, slightly 2-lobed, lower lip spreading, ovate, ca. 1.5 cm, 3-lobed. Stamens 2, attached near the corolla base; filaments subequal to the corolla, exserted; anther 2-thecous, thecae subequal, sagittate, ca. 4 mm. Staminodes 2, rudimentary. Ovary glabrous; styles ca. 4 cm, sparsely pilose at base. Capsule 4-seeded. Seeds brown.

Locality: Cultivated. *HK sheet 34738.*

Distribution: Native to Peru, widely cultivated in tropical and subtropical regions.

Ecology: Flowering: Jul.–Sep.

Uses: Ornamental.

22. Rhinacanthus Nees 扭序花屬

Shrubs or perennial erect herbs with cystoliths, laxly branched, sometimes subscandent. Leaves petiolate or sessile, margin entire or undulate. Flowers 1–few in fascicles or in lax axillary or terminal cymes combined into paniculate thyrses. Bracts and bracteoles small, linear-lanceolate. Calyx 5-lobed, lobes narrow, apex acuminate. Corolla tubular; tube elongated, slender; limb 2-lipped, upper lip linear, erect, lower lip broadly 3-lobed, lobes imbricate in bud. Stamens 2, inserted on the throat of corolla; anther 2-thecous, thecae superposed or parallel, muticous. Ovary 2-locular, with 2 ovules in each locule; style filiform, stigma entire or obscurely 2-lobed. Capsule clavate with a long solid stalk at base, retinacula present, 4-seeded. Seeds orbicular, compressed.

About 15 species in the tropical regions of the Old World; one species in China and Hong Kong.

1. Rhinacanthus nasutus (L.) Kurz 靈枝草(扭序花) **(Photo 323)**

J. Asiat. Soc. Bengal. 2: 79. 1870.

Justicia nastus L., Sp. Pl. 16. 1753.

Rhinacanthus communis Nees, Pl. Asiat. Rar. 3: 109. 1832. *nom. superfl.*

Perennial herbs, 0.5–1 m tall, many-branched. Stems erect, subquadrangular, faintly striate, densely pilose. Petioles 0.5–1.5 cm, densely pilose; leaf blades elliptic to ovate-elliptic, rarely lanceolate, 2–11 × 0.8–3.5 cm, base cuneate, apex acute or acuminate, sometimes obtuse, margin entire or slightly undulate, adaxially sparsely pilose or subglabrous, marked with copious cystoliths, abaxially densely pilose, lateral veins 5–6 pairs, meet near the margin. Panicles lax, terminal and axillary, 4–8 cm; flowers subsessile, discrete at the ends of divaricate branches. Rachis pilose. Bracts lanceolate, ca. 2 × 0.5 mm; bracteoles subulate, ca. 1 mm. Calyx ca. 3 mm, glandular-bristly, 5-lobed almost to the base; lobes lanceolate, unequal. Corolla greenish white; tube slender, ca. 3 cm, curved from the middle upwards, outside hirsute with downward pointing hairs, tube-base cylindric, ca. 2.5 cm; upper lip erect, linear-lanceolate, shorter

than lower lip, apex reflexed, shallowly 2-lobed, lower lip to 12 mm broad, abaxially hispid, 3-lobed to the middle, lobes obovate. Stamens 2, exserted; filaments glabrous; anther-thecae oblong. Ovary and style sparsely pilose; style ca. 1.5 cm. Capsule ca. 2 cm, with long solid stalk, bristly with gland-tipped hairs, 4-seeded. Seeds orbicular-helicoid, ca. 2.3 mm in diam., papillose.

Locality: Cultivated or naturalized. *Y. S. Lau 492, 1358*; *M. T. Kao 6355* (CAS).

Distribution: Guangdong, Guangxi, Yunnan; Vietnam, Thailand, Laos, Myanmar, India, Sri Lanka, Malesia, S Africa, Madagascar.

Ecology: Roadsides, thickets. Flowering: Dec.–Mar. of the following year.

Uses: Medicinal (folklore).

23. Justicia L. 爵床屬

Perennial herbs, subshrubs or shrubs with cystoliths. Leaves sessile or petiolate, margin entire or sinuate. Inflorescence of terminal and/or axillary spikes or dichasia, sometimes compound, paniculate. Bracts very variable in shape, sometimes prominent and/or brightly coloured, margin entire; bracteoles usually 2, narrow, or absent. Calyx deeply 4–5-lobed, lobes equal or subequal, linear. Corolla tubular or funnel-shaped, with a distinct tube, strongly bilabiate, upper lip erect, apex acuminate, entire or 2-lobed, lower lip patent, obovate, 3-lobed, lobes imbricate in bud. Stamens 2, filaments usually dilated, anthers 2-thecous, thecae oblong or spherical, at same height or superposed, one or both spurred or not at the base. Staminodes absent. Ovary 2-locular, with 2 ovules in each locule; style filiform; stigma slightly bilobed. Capsule sessile or with a solid stalk, usually clavate, retinacula present, 2–4-seeded. Seeds compressed, tuberculate.

About 600 species in tropical and subtropical regions of the world; 70 species in China; nine species in Hong Kong.

1a. Calyx 4-lobed.
  2a. Leaf blades, inflorescence glabrous; calyx-lobes obovate-elliptic, ca. 2 mm wide ..... 1. *J. hayatai*
  2b. Leaf blades, inflorescence hispid; calyx-lobes lanceolate, ca. 1 mm wide ..... 2. *J. procumbens*
1b. Calyx 5-lobed.
  3a. Bracts wine-red when old ..... 3. *J. brandegeana*
  3b. Bracts otherwise.
    4a. Flowers clustered in leaf axils ..... 4. *J. championii*
    4b. Flowers in terminal spikes.
      5a. Bracts longer than 1 cm.
        6a. Corolla lilac or red, tube longer than 1 mm ..... 5. *J. carnea*
        6b. Corolla white or pink.
          7a. Corolla with a ring of hairs inside at the base of stamens ..... 6. *J. adhatoda*
          7b. Corolla without a ring of hairs inside at the base of stamens ..... 7. *J. ventricosa*
      5b. Bracts shorter than 1 cm.
        8a. Bracts imbricate, linear-elliptic or lanceolate, apex acute ..... 8. *J. gendarussa*
        8b. Bracts distant, flabellate or broadly obovate, apex acuminate or obtuse, mucronate ..... 9. *J. austrosinensis*

1. Justicia hayatai Yamam. 早田氏爵床

Suppl. Icon. Pl. Formosa 2: 35. 1926.

Justicia procumbens L. var. *hayatai* (Yamam.) Ohwi, Bull. Nat. Sci. Mus. Tokyo 33: 86. 1953; FTW ed. 2, 4: 667. 1998, as "*hayatae*".

Rostellularia hayatai (Yamam.) S. S. Ying, Mem. Coll. Agr. Natl. Taiwan. Univ. 29(2): 45. 1989.

Justicia hayatai Yamam. var. *ciliata* Yamam., Suppl. Icon. Pl. Formosa 2: 35. 1926

Rostellularia procumbens (L.) Nees var. *ciliata* (Yamam.) S. S. Ying, Mem. Coll. Agr. Natl. Taiwan. Univ. 29(2): 45. 1989; FRPS 70: 307. 2002.

Justicia ciliata (Yamam.) C. F. Hsieh & T. C. Huang, Taiwania 19(1): 21. 1974; FTW 4: 696. 1978.

Herbs, 0.3–0.5 m tall. Stems quadrangular, sulcate, bifariously pubescent along sulci. Petioles 1–9 mm, glabrous; leaf blades ovate, 1.5–3.5 × 0.8–2 cm, base attenuate, decurrent onto the petioles, apex acute, glabrous, adaxially green, cystoliths numerous, abaxially pale green, without cystoliths, lateral veins 3–4 pairs. Spikes mostly terminal or axillary at upper leaf axils, 1–4 cm, elongate to 7 cm in fruit. Peduncles (0–)0.5–2 cm, glabrous. Bracts obovate-elliptic, 4–5 × 2 mm, glabrous, apex acute, white-margined; bracteoles lanceolate-elliptic, ca. 5 × 1.2 mm. Calyx 4-lobed almost to the base; lobes lanceolate, ca. 4 × 1 mm, glabrous, white-margined. Corolla ca. 6 mm, glabrous, 2-lipped to middle, upper lip ovate, 3 × 2 mm, apex emarginate, lower lip oblong, ca. 3 × 3 mm, minutely 3-lobed. Stamens 2, exserted; filaments glabrous except for hairs at base, ca. 2.5 mm; anther-thecae ovate, ca. 1.3 mm long, superposed, the lower one spurred at base, upper one muticous. Ovary ovoid, ca. 1.3 mm, glabrous; style ca. 6 mm, glabrous. Capsule oblong, ca. 4 mm, brownish yellow short stipitate, glabrous, 4-seeded. Seeds ovate, ca. 1 mm, glabrous, rugose.

Locality: High Island, North Ninepin Island. *F. W. Xing 9253, 9704* (IBSC).

Distribution: Taiwan.

Ecology: Flowering: Aug.; fruiting: Sep.–Oct.

2. Justicia procumbens L. 爵床 **(Fig. 167; Photo 324)**

Sp. Pl. 15. 1753; FTW ed. 2, 4: 665. 1998.

Ecbolium procumbens (L.) Kuntze, Revis. Gen. Pl. 2: 484. 1891.

Rostellularia procumbens (L.) Nees, Pl. Asiat. Rar. 3: 101. 1832; FHK 265. 1861; FRPS 70: 305. 2002.

Procumbent herbs, 20–50 cm tall. Stems quadrangular, sulcate, pubescent. Petioles 3–8 mm, pubescent; leaf blades elliptic, ovate-elliptic or elliptic-oblong, 1.5–4 × 0.8–1.5 cm, base broadly cuneate to subrounded, or slightly decurrent onto the petioles, apex acute or obtuse, margin entire or slightly undulate, subglabrous or sparsely hispid, cystoliths numerous, lateral veins 3–6 pairs, prominent. Spikes terminal or axillary in upper leaf axils, 1–6 cm. Peduncles 0.5–7 cm, densely pilose. Bracts elliptic lanceolate, 4–5 × 1 mm, abaxially pilose, ciliate; bracteoles lanceolate, 4–5 mm, abaxially pilose, ciliate. Calyx 5–6 mm, 4-lobed to the base; lobes linear, 1-veined, with yellowish white margin, abaxially pilose along the veins, ciliate. Corolla pink or white, red spotted on the lower lip, ca. 7 mm, 2-lipped, upper lip ca. 3 mm, apex emarginate, lower lip ca. 3 × 3.5 mm, 3-lobed, lobes ovate, the middle lobe slightly larger, ca. 1 × 1–1.5 mm. Stamens 2, exserted; filaments glabrous, ca. 4 mm; anther-thecae superposed, lower one spurred at base, the upper one muticous. Ovary pubescent; style ca. 5 mm, pubescent. Capsule ca. 5 mm, with a solid stalk at base, 4-seeded. Seeds ovate, ca. 1 × 1 mm, rugose.

Locality: Common in Hong Kong. *P. S. Choi 430; Y. S. Lau 3152; Y. W. Lam 774.*

Distribution: Area S of Qinling Range to Huaihe Valley; S & SE Asia to Australia.

Ecology: Wastelands and open fields. Flowering: Jun.–Dec.

Uses: Medicinal (folklore).

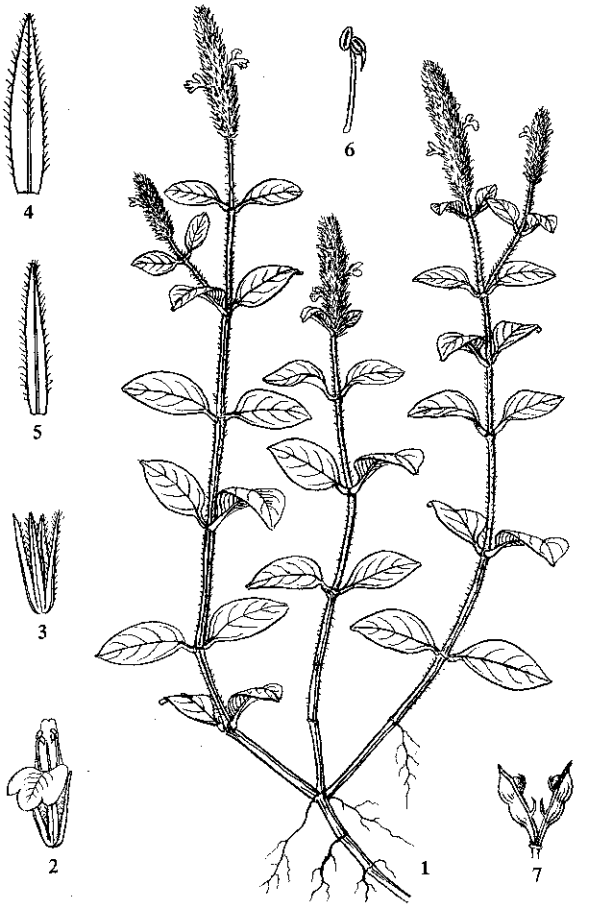


Figure 167. *Justicia procumbens* L.

1. portion of plant; *2.* flower; *3.* calyx; *4–5.* bracts; *6.* stamen; *7.* dehiscent fruit. (drawn by H. P. Yu)

3. Justicia brandegeana Wassh. & L. B. Sm. 蝦衣草 **(Fig. 168)**

Flora Il. Catarin. 102. 1969.

Beloperone gutta Brandegee, Univ. Calif. Publ. Bot. 4: 278. 1912, non *Justicia gutta* Wall., 1830.

Calliaspidia guttata (Brandegee) Bremek., Verh.. Kon. Ned. Akad. Wetensch. Afd. Natuurk., Sect. 2, 45: 54. 1948; FHN 3: 571. 1974; FRPS 70: 274. 2002; Check List HK Plants 252. 2002; 86. 2004.

Drejerella guttata (Brandegee) Bremek., Philipp. J. Sci. 80: 14. 1952.

Herbs, 0.3–1 m tall, many-branched. Stems quadrangular, brown, densely tomentose. Petioles 1–2 cm, tomentose; leaf blades ovate to ovate-elliptic, 2–6 × 1–3 cm, base acuminate to rounded, decurrent onto the petioles, apex acute, margin entire, adaxially sparsely pubescent, abaxially densely greyish white tomentose, especially along veins, lateral veins 4–6 pairs. Spikes terminal, 2–7 cm, densely flowered, pendulous. Peduncles 5–7 mm, densely greyish tomentose. Bracts ovate, green when young, becoming wine-red when old, 1.2–1.8 × 0.9–1.3 cm, base rounded or slightly cordate, apex acute, adaxially glabrous, margin entire and ciliate, abaxially greyish white tomentose, pinnately-veined; bracteoles broadly lanceolate to elliptic, 0.8–1.3 × 0.5–0.7 cm, base cuneate, apex acute, margin entire and ciliate, adaxially glabrous, abaxially greyish white tomentose. Calyx white, densely pilose on both surfaces, 5-lobed; lobes narrowly triangular, ca. 5 × 1 mm, apex acuminate, margin ciliate. Corolla ca. 3.2 cm, white, red spotted on throat, outside densely tomentose; tube slender, ca. 2 mm wide at base, then gradually widened to ca. 5 mm at the base of the lips;

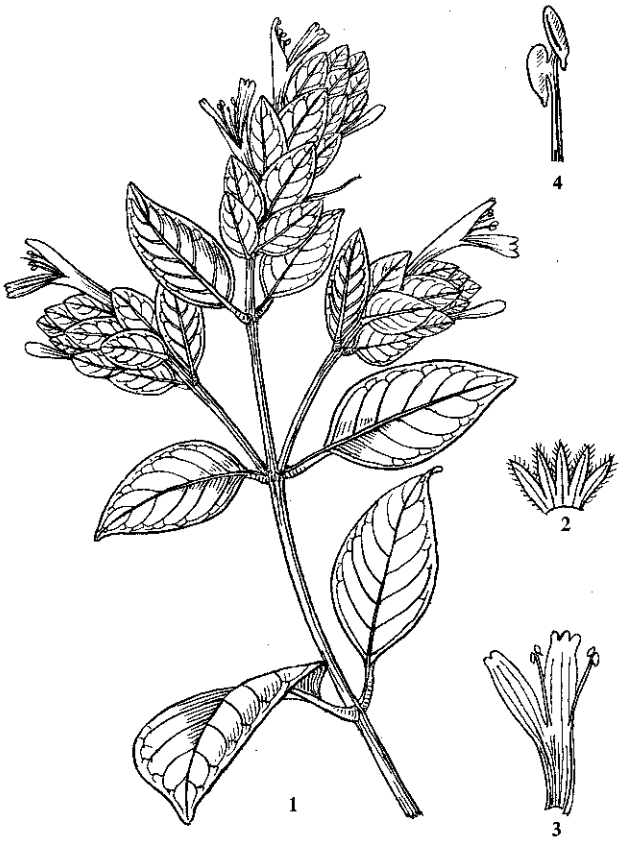


Figure 168. *Justicia brandegeana* Wassh. & L. B. Sm.

1. flowering branch; *2.* calyx opened; *3.* corolla opened; *4.* stamen. (drawn by H. P. Yu)

limb 2-lipped, upper lip ca. 3.5 mm broad, entire or emarginate, lower lip ca. 5 mm broad, 3-lobed, 3-striped, lobes ovate, ca. 1 × 1 mm. Stamens 2, exserted; filaments ca. 2 cm; anther-thecae divergent, 2–3 mm, superposed, spurred at base. Ovary comose; style ca. 1.5 cm, retrorsely pubescent. Capsule obovate, ca. 8 mm, stalked at base, pubescent, 2-seeded. Seeds suborbicular, ca. 2 mm in diam., glabrous.

Locality: Cultivated. *H. C. Tang 250, 1218*; *L. T. Lo 372*.

Distribution: S China (cultivated); native to tropical America.

Uses: Ornamental.

4. Justicia championii T. Anderson ex Benth. 杜根藤 **(Photo 325)**

FHK 264. 1861, "*Championi*"; FKH 199. 1912.

Adhatoda chinensis Champ., Hooker's J. Bot. Kew Gard. Misc. 5: 134. 1853, non *Justicia chinensis* L. ex Walp., 1845-46.

Justicia chinensis (Champ.) Druce, Bot. Exch. Club Brit. Rep. 1916: 629. 1917, non L. 1753, nec Vahl 1791.

Calophanoides chinensis (Champ.) C. Y. Wu & H. S. Lo ex C. C. Hu, FRPS 70: 281. 2002.

Herbs, ca. 50 cm tall. Stems quadrangular, sulcate, retrorsely pubescent. Petioles (0–)0.5–1.5 cm, sulcate, pubescent; leaf blades elliptic to oblong-elliptic, ovate, 1–4(–7) × 0.5–2(–3.5) cm, base cuneate or attenuate, apex acute or obtuse, margin entire, sparsely pubescent when young, soon glabrescent or pilose along the midvein abaxially, cystoliths numerous adaxially, lateral veins 3–6 pairs. Flowers 1–several clustered in leaf axils. Pedicels 2–4 mm, sparsely pubescent. Bracts leaf-like, orbicular to obovate-spathulate, 5–8 × 3–6 mm, petiolate, glabrous or adaxially sparsely pilose, apex rounded or obtuse, pinnately-veined; bracteoles subulate or triangular, ca. 1 mm, apex acute, glabrous or sparsely yellow puberulent. Calyx 5-lobed almost to the base; lobes linear-lanceolate, 6–7 mm, ciliate, 1–2-veined, yellowish white except for green along the veins. Corolla 0.8–1 cm, white, with purplish red streaks in 2 lines, outside puberulent, bilabiate, upper lip lanceolate, ca. 3.5 × 1.5 mm, apex emarginate, lower lip ovate, ca. 4 × 3 mm, 3-lobed, middle lobe semi-orbicular, ca. 0.8 × 1.3 mm, lateral lobes ovate, ca. 1.2 × 1 mm. Stamens 2, exserted; filaments ca. 4 mm, glabrous; anther-thecae superposed, lower one spurred, upper one muticous. Ovary ellipsoidal, ca. 2 mm, glabrous; style ca. 6 mm, with a few hairs towards the base; stigma capitate. Capsule ca. 8 mm, glabrous, base with a solid stalk, 4-seeded. Seeds oblong, ca. 2 × 1.5 mm, verrucose.

Locality: Mount Gough, Aberdeen, Pok Fu Lam, Victoria Peak, Beacon Hill, Ma On Shan. *HK sheet 34775, 40194, 40897*.

Ecology: Ravines. Flowering: Autumn.

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Jiangxi, Anhui, Fujian.

Notes: The holotype specimen (*J. G. Champion s.n.*, K) was collected by J. G. Champion from Victoria Peak between 1847 and 1850.

5. Justicia carnea Lindl. 珊瑚花

Edward's Bot. Reg. 17: pl. 1397. 1831.

Cyrtanthera carnea (Lindl.) Bremek., Verh. Ned. Akad. Wetensch. Naturk. Afd. Sect. 2, 45(21): 50. 1948.

Jacobinia carnea (Lindl.) G. Nicholson, Ill. Dict. Gard. 2: 206. 1885.

Herbs or subshrubs, to 2 m tall. Stems subquadrangular, sulcate, glabrous or minutely puberulent. Petioles 1–2.5 cm; leaf blades membranous, oblong-ovate, to 25 × 7 cm, sparsely puberulent, base cuneate to rounded and decurrent onto the petiole, apex acuminate. Spikes terminal, sessile, ovoid or spherical in outline, to 19 × 8 cm, densely flowered, 1–several flowers on each node; rachis puberulent. Bracts elliptic or oblong, to 2 × 1 cm, diminished in size upward, apex obtuse or rounded, moderately firm, glabrous, or sparsely hirsute, sparsely ciliate; bracteoles lanceolate, ca. 1.5 × 0.1–0.2 cm. Calyx 5-lobed; lobes lanceolate, ca. 1 × 0.2 cm, subhyaline, glabrous, or sparsely hirsute and ciliate towards the apex. Corolla lilac or red, outside sparsely glandular-puberulent, ca. 6.5 cm; tube-base ca. 2.5 mm, gradually widened to ca. 5 mm wide at throat, upper lip erect, arched and bilobed at apex, lobes ca. 1 × 0.7 mm, lower lip spreading or recurved, 3-lobed, cuneate, ca. 8 mm wide at base of the lobes, lobes ovate, ca. 3 × 2 mm. Anther-thecae slightly superposed. Capsule unseen.

Locality: Cultivated. *HK sheet 32965*.

Distribution: Native to Brazil, widely cultivated in the tropics.

Uses: Ornamental.

6. Justicia adhatoda L. 鸭嘴花

Sp. Pl. 15. 1753; FHK 264. 1861; FKH 199. 1912.

Adhatoda vasica Nees, Pl. Asiat. Rar. 3: 103. 1832; FHN 3: 571. 1974; FRPS 70: 277. 2002.

Shrubs, to ca. 4 m tall. Stems thickened, subquadrangular, lenticellate, pubescent when young, soon glabrescent. Petioles 0.8–3 cm, puberulent; leaf blades ovate to elliptic-ovate, 7–18 × 2–7 cm, base broadly cuneate, apex acuminate, sometimes slightly falcate, margin entire, adaxially densely tomentose when young, becoming glabrescent except for tomentose along the veins, abaxially puberulent, lateral veins 9–12 pairs, meet near the margin. Spikes terminal and axillary, 3–7 cm, ovate or broadly ovate in outline. Peduncles 3–7 cm. Bracts ovate-oblong, 1–2 × 0.5–1.5 cm, apex acute, margin ciliate, puberulent, 3–7-veined, imbricate; bracteoles linear-lanceolate, 1–1.4 × 0.4 cm, apex acute, margin ciliate, puberulent, 3–5-veined. Calyx 5-lobed; lobes linear-oblong, ca. 1 × 0.3 cm, narrowly scarious at margins, ciliate. Corolla white or pink, purplish or pinkish striped inside, 2.5–3 cm, broadly tubular, outside pilose; tube-base cylindric, ca. 5 mm, faintly inflated and bent above; limb 2-lipped, upper lip erect, ovate-oblong, ca. 1.8 cm, shallowly 2-lobed, lower lip spreading, oblong-orbicular, 3-lobed, middle lobe suborbicular, ca. 9 × 5 mm, lateral lobes ovate, ca. 8 × 4.5 mm. Stamens 2, exserted; filaments declinate, ca. 1.5 cm, glabrous except for silky hairy at base; anther-thecae equal, elliptic, ca. 3.5 mm, superposed, lower one with a spherical appendage at base. Ovary pubescent especially at the tip; style ca. 2.5 cm, recurved, pubescent at lower part; stigma simple. Capsule obovoid, woody, 2.5–4 × 0.5 cm, stalked at base. Seeds orbicular, compressed.

Locality: Tai Tam, Happy Valley, Ma On Shan Country Park, Tai Po Kau, Kadoorie Farm. *Y. S. Lau 2867; HK sheet 4281; S. Y. Hu 12970* (K).

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan (cultivated or naturalized); native to India, widely cultivated in the tropics.

Ecology: Cultivated or naturalized. Flowering: Mar.–May.

Uses: Ornamental, medicinal (folklore), dye.

7. Justicia ventricosa Wall. ex Sims. 黑葉小駁骨 **(Photo 326)**

Curtis's Bot. Mag. Pl. 2760. 1867; FHK 264. 1861; FKH 200. 1912.

Gendarussa ventricosa (Wall. ex Sims.) Nees, Pl. Asiat. Rar. 3: 104. 1832; FHN 3: 569. 1974; FRPS 70: 299. 2002.

Adhatoda ventricosa (Wall. ex Sims.) Nees, Prodr. 11: 107. 1847.

Perennial herbs or subshrubs, up to 1 m tall. Winter buds ovate, ca. 2 mm long, pubescent. Stems subterete, glabrous. Petioles 0.5–1.5 cm, sulcate, glabrous; leaf blades elliptic or obovate, 6–17 × 2–6 cm, base attenuate, apex shortly acuminate or acute, margin entire or slightly undulate, glabrous, midveins impressed adaxially, prominent abaxially, lateral veins 6–8 pairs, meet near the margin, prominent on both surfaces. Spike terminal, 5–10 cm, densely flowered, usually 1–3 flowers on each node. Peduncles ca. 1 cm. Bracts leaf-like, broadly ovate or suborbicular, 1–1.5 × 0.8–1 cm, apex acute, pinnately-veined, abaxially pilose or subglabrous, margin ciliate, imbricate; bracteoles linear, 3–5 × 1–2 mm, margin ciliate. Calyx 5-lobed; lobes linear-lanceolate, ca. 3 mm, ciliate. Corolla creamy white, purplish pink striped on the lips, 1.5–1.8 cm, outside pilose, inside pubescent; tube-base cylindric, ca. 1 cm; limb 2-lipped, upper lip oblong-ovate, 2-lobed, lower lip 3-lobed, lobes ovate, ca. 2 × 1 mm, apex rounded. Stamens 2, exserted; filaments glabrous, ca. 6 mm; anther-thecae ovate, subequal, superposed, lower one with white appendage. Ovary ovoid, ca. 3 mm, cymose; style ca. 1.6 cm, pilose at base. Capsule ca. 8 mm, pubescent, 4-seeded.

Locality: Happy Valley, Wong Nai Chung, Sai Kung, Sha Tin, Hin Tin, Ma On Shan Country Park, Chuk Kok, Sha Lo Tung. *H. C. Tang 101; Y. S. Lau 3211; C. Wright 372* (A).

Distribution: Hainan, Guangdong, Guangxi, Yunnan; SE Asia.

Ecology: Thin forests and thickets. Flowering: Mar.–May.

Uses: Medicinal (folklore).

8. Justicia gendarussa Burm. f. 小駁骨 **(Fig. 169; Photo 327)**

Fl. Ind. 10. 1768; FHK 264. 1861; FKH 200. 1912; FTW ed. 2, 4: 665. 1998.

Gendarussa vulgaris Nees, Prodr. 11: 410. 1768; FHN 3: 569. 1974; FTW 4: 632. 1978; FRPS 70: 300. 2002.

Subshrubs, 0.7–1.5 cm tall, many-branched. Stems subterete, tumid above the nodes, glabrous. Petioles 0.3–1 cm; leaf blades narrowly lanceolate, 6–10 × 1–1.5 cm, base cuneate, attenuate, apex acute or shortly acuminate, margin subsinuate, glabrous, lateral veins 5–8 pairs. Spikes 3–12 cm, interrupted, terminal or axillary, usually in a leafy panicle. Peduncles 0.5–1.5 cm. Bracts triangular, ca. 2 × 1 mm, apex acute, ciliate; bracteoles elliptic to linear-lanceolate, ca. 3 × 1 mm, apex acute, ciliate. Calyx ca. 5 mm, 5-lobed; lobes linear-lanceolate, 3–4 × 0.5 mm, subequal, apex acuminate. Corolla creamy-white, 1.2–1.5 cm, tube-base cylindric, 8–9 mm; limb bilabiate, upper lip triangular, ca. 7 × 3.5 mm, violet-blotched, 2-fid, lower lip cuneate-obovate, basally violet dotted, 6–10 mm broad, 3-lobed, lobes oblanceolate, 3–5 × 3.5 mm. Stamens 2, exserted, filaments glabrous, 3–6 mm; anther-thecae superposed, one slightly above the other, oblong, ca. 1.2 mm, lower one spurred at base, upper one muticous. Ovary ovoid, ca. 3 mm, glabrous; style ca. 1 cm, glabrous; stigma capitate, shortly 2-lobed. Capsule clavate, ca. 1.2 cm.

Locality: Tsuen Wan, Shing Mun, Tai Po, Kiu Tsui. *H. C. Tang 1260; Y. S. Lau 1132, 2944.*

Distribution: S & SW China; SE Asia.

Ecology: Flowering: Spring.

Uses: Ornamental.



Figure 169. *Justicia gendarussa* Burm. f.

1. portion of plant; *2*. flower; *3*. corolla opened; *4*. calyx opened; *5*. stamen. (drawn by H. P. Yu)

9. Justicia austrosinensis H. S. Lo & D. Fang 華南爵床

Guihaia 17(1): 52. 1997.

Mananthes austrosinensis (H. S. Lo & D. Fang) C. Y. Wu & C. C. Hu, FRPS 70: 292. 2002.

Herbs, 40–70 cm tall. Stems quadrangular, sulcate, glabrous. Petioles 0.5–3 cm, bifariously pubescent or glabrescent; leaf blades broadly ovate or ovate-elliptic, 7–15 × 2.5–7 cm, base cuneate and decurrent onto the petioles, apex short acuminate or acute, margin crenate or entire, glabrous, adaxially green, cystoliths numerous especially on the veins, abaxially pale green, lateral veins 5–8 pairs. Spikes mostly terminal or rarely axillary, 5–7 cm, usually 1–2 flowers subtending by one bract. Peduncles 1–3 cm, glabrous, cystoliths numerous. Bracts flabellate or broadly obovate, 5–8 × 7–9 mm, apex acuminate or obtuse, mucronate, margin ciliate; bracteoles subulate, ca. 3 mm, apex acuminate, margin ciliate. Calyx 5-lobed almost to the base; lobes lanceolate, ca. 4 mm, apex acuminate, margin ciliate. Corolla yellowish green, ca. 1.3 cm, outside pilose, inside glabrous except few hairs on the filaments; limb 2-lipped, upper lip erect, ovate-triangular, ca. 6 × 3 mm, apex emarginate, lower lip 3-lobed, lobes ovate, ca. 2 × 2 mm, apex rounded. Stamens 2, exserted; filaments glabrous, ca. 4 mm; anther-thecae unequal, ca. 2 mm, superposed, lower one spurred at base, upper one muticous. Ovary ovoid, ca. 2 mm, glabrous; style ca. 1 mm, pilose. Capsule clavate, ca. 1.2 cm, pubescent, base solid stalked, 4-seeded. Seeds ovate, ca. 2 mm, rugose.

Locality: Ho Chung, Sai Kung, Ng Tung Chai, Castle Peak. *Y. S. Au 3265; HK sheet 21462; C. J. Huang 694* (IBSC); *S. Y. Hu & P. P. H. But 23472* (PE).

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Jiangxi.

Ecology: Thickets in ravines. Flowering: Mar.–Jun.

Notes: The species was reported as *Justicia glauca* Rottler previously (Check List HK Plants 253. 2002; 87. 2004).

305. PEDALIACEAE 脂麻科

XU Bing-qiang 許炳強 • XIA Nian-he 夏念和

Annual or perennial herbs, rarely shrubs, Leaves simple, opposite, sometimes alternate on upper part of branches, margin entire or dentate or split, exstipulate. Flowers bisexual, zygomorphic, axillary, solitary, rarely in cymes. Calyx (4–)5-parted. Corolla tubular, bilabiate, ventricose; lobes 5, imbricate. Stamens 4, didynamous, sometime 2; staminodes usually 1; anthers 2-celled, longitudinally dehiscent. Ovary superior or rarely inferior, 2–(4)-locular; placentation axile; ovules 2–many, Style acrogenous, filiform; stigma 2-branched. Fruit a capsule, nut or drupe, with hooks or winged. Seeds 1–many per locule.

About four genera and ca. 50 species, mainly distributed in tropical and subtropical oceanic area of the E hemisphere; two genera and two species in China; one genus and one species cultivated in Hong Kong.

1. Sesamum L. 脂麻屬

Erect or creeping herbs, usually pubescent. Leaves opposite or alternate, margin entire, dentate or parted. Flowers solitary, axillary, rarely in cymes. Pedicel short. Calyx small, 5-lobed. Corolla white or pale purple, tubular, obscurely bilabiate, 5-lobed. Stamens 4, didynamous. Ovary 2-locular, divided by a false septum. Ovules many per locule, uniseriate. Fruit a capsule, ellipsoidal, longitudinally dehiscent. Seeds many, obovoid, compressed, winged, smooth or rugose.

About 30 species, mainly distributed in Africa and Asia; one species cultivated in China; it also cultivated in Hong Kong.

1. Sesamum indicum L.

芝麻（脂麻、巨勝） **(Fig. 170; Photos 328–329)**

Sp. Pl. 2: 634. 1753; FKH 196. 1912; FRPS 69: 63, pl. 18: 6–7. 1990; FFJ 5: 94, fig. 103. 1993; FOC 18: 226. 1998; FGD 4: 407, fig. 248. 2000.

Sesamum orientale L., Sp. Pl. 2: 634. 1753; FGZ 611, fig. 325. 1956.

Annual herb, erect, 0.75–1(–1.5) m tall. Stems 4-angled, branched or unbranched, pith hollow or white. Leaves opposite or alternate; those on lower branches ovate to oblong-ovate, 4–16 × 2–15 cm, base obtuse or rotund, apex mucronate or subrotund, margin lobed or tripartite; those on middle branches serrate at margin; those on upper branches ovate, oblong-ovate or lanceolate to linear, 3–9 × 0.5–2.5 cm. Flowers white or mauve-pink, bilabiate. Calyx persistent, 5-parted to near base, lobes 4.5–8 mm, pubescent. Stamens inclusive. Ovary superior, 4(–8)-locular, pubescent. Capsule erect, ellipsoidal, 1.8–2.8 × 0.6–0.7 cm, beak broad. Seeds many, 2.5–3 mm long, white or black.



Figure 170. *Sesamum indicum* L.

1. flowering and fruiting branch; *2*. corolla opened. (drawn by H. P. Yu)

Locality: Cultivated. *Y. S. Lau 409, 3255; Y. W. Lam 1554.*

Distribution: Cultivated in China; possibly native to India or Africa, widely cultivated.

Ecology: Flowering & fruiting: Jun.–Oct.

Uses: Oil, medicinal (folklore), edible.

Notes: According to Z. Y. Wu *et al.* (Acta Phytotax. Sin. 45: 458–472. 2007), the Chinese name "hu ma" (胡麻) should refer to *Linum usitatissimum* L. (亞麻) of the Linaceae.

306. BIGNONIACEAE 紫葳科

XIA Nian-he 夏念和

Trees, shrubs, or vines, rarely herbs, often with various tendrils and aerial roots. Leaves opposite, alternate, or whorled, simple or pinnately compound, rarely palmately compound, exstipulate, climbers usually with tendrils modified sometimes into hooks or suckers. Inflorescences cymose, paniculate, or racemose, terminal or axillary, rarely flowers borne on old stems. Bracts and bractlets present, sometimes deciduous. Flowers bisexual, zygomorphic, usually large. Calyx campanulate or tubular, truncate, 2–5-dentate, or glandular subulate-dentate. Corolla campanulate or funnelform, usually bilabiate; lobes 5, imbricate or valvate. Stamens 5, usually 2 or 4, rarely all 5 fertile, inserted on corolla-tube, alternate to lobes, included or exserted; filaments filiform, often slightly enlarged at base, hairy; anthers 2-celled, splitting by longitudinal slits. Disk fleshy, annular or cupular. Ovary superior, (1–)2(–4)-locular; placentation axile or parietal; ovules many. Style filiform; stigma 2-lobed. Capsule dehiscing loculicidally or septicidally, rarely fruit fleshy and indehiscent. Seeds many, usually winged or with tufts of hairs at both ends; endosperm absent.

About 112 genera and 725 species mostly distributed in tropical and subtropical regions; 12 genera and 35 species (21 endemic) in China; nine genera and nine species are commonly cultivated in Hong Kong.

Indeed, the family is known for spectacular ornamental species. *Catalpa speciosa* (Warder ex Barney) Engelm. (黃金樹), *Clytostoma callistegioides* (Cham.) Baill. (連理藤), *Macfadyena unguis-cati* (L.) A. H. Gentry (貓爪藤), *Pandorea ricasoliana* (Tanfani) Baill. ex K. Schum. (非洲凌霄), *Radermachera sinica* (Hance) Hemsl. (菜豆樹), *Tabebuia argentea* (Bureau & K. Schum.) Britton (銀鱗金鈴木), *Tabebuia heterophylla* (DC.) Britton (異葉黃鐘木), *Tecoma capensis* (Thunb.) Lindl. (硬骨凌霄) were cultivated previously or occasionally in local parks and gardens.

1a. Vines.
  2a. Plant without tendril; leaves 7–9(–11)-foliolate ..... 1. *Campsis*
  2b. Plant with tendrils; leaves 1–3-foliolate ..... 2. *Pyrostegia*
1b. Erect trees or shrubs.
  3a. Leaves palmately compound, 3-foliolate or simple.
    4a. Leaves 3-foliolate or simple ..... 3. *Crescentia*
    4b. Leaves palmately compound ..... 4. *Tabebuia*
  3b. Leaves pinnately compound.
    5a. Leaves 2–3-pinnately compound.
      6a. Capsules subglobose or ellipsoidal, compressed; leaves 2-pinnately compound; leaflets small; corolla blue or purplish blue ..... 5. *Jacaranda*
      6b. Capsules linear, flat, long; leaves 2–3-pinnately compound; leaflets large ..... 6. *Oroxylum*
    5b. Leaves pinnately compound.
      7a. Calyx tubular or campanulate ..... 7. *Tecoma*
      7b. Calyx spathaceous.
        8a. Flowers dark purple to purplish red, corolla-lobes spreading at anthesis; fruit cylindric, floccose or villous ..... 8. *Markhamia*
        8b. Flowers orange-red to bright red, corolla-lobes erect at anthesis; fruit linear, not floccose or villous ..... 9. *Spathodea*

1. Campsis Lour. 凌霄屬

Deciduous woody vines, without tendrils, climbing by aerial roots. Branchlets terete. Leaves opposite, pinnately or palmately compound; leaflets serrate. Flowers large, red or orange-red, in terminal thyrses or in clusters. Calyx campanulate, irregularly 5-lobed. Corolla campanulate-funnelform, slightly bilabiate; lobes 5, spreading. Stamens 4, didynamous, curved, included. Ovary compressed ellipsoidal, 2-locular, base surrounded by a large disk, ovules multiseriate per locule. Capsule dehiscing loculicidally, valves woody. Seeds many, compressed, membranous, with semi-transparent wings.

Two species disjunctly distributed in N America and E Asia; one species in China; it is also cultivated in Hong Kong.

1. Campsis grandiflora (Thunb.) Schum. 凌霄 **(Fig. 171; Photos 330–331)**

Nat. Pflanzenfam. 4(3b): 230. 1894; FHN 3: 530, fig. 907. 1974; FRPS 69: 33, pl. 1: 1–3. 1990; FFJ 5: 82, fig. 90. 1993; FOC 18: 220. 1998.

Bignonia grandiflora Thunb., Fl. Jap. 253. 1784.

Bignonia chinensis Lam., Encycl. 1: 423. 1785.

Tecoma chinensis K. Koch, Dendr. 2: 307. 1872.

Campsis chinensis (Lam.) Voss., Vilm. Blumengart. ed. 3, 801. 1895.

Stems woody. Leaf rachis 4–13 cm; leaflets 7–9; petiolules 1–5(–10) mm, with a cluster of hairs between petiolules; leaf blade ovate to ovate-lanceolate, 3–6(–9) × 1.5–3(–5) cm, base broadly cuneate, apex caudate-acuminate, both surfaces glabrous, densely glandular abaxially; lateral veins 6–7 pairs. Thyrses large, lax. Peduncle to 20 cm. Flowers 4–6.5 cm. Calyx campanulate, ca. 3 cm, divided halfway; lobes triangular, ca. 1.5 cm, acuminate. Corolla red adaxially, orange-red abaxially, ca. 5 cm in diam.; lobes semi-orbicular, flat and erect. Stamens inserted at base of corolla tube; filaments linear, 2–2.5 cm; anthers divergent, yellow. Style linear, ca. 3 cm; stigma compressed, 2-lobed. Capsule apex obtuse.

Locality: Cultivated. *Y. S. Lau 2384.*

Distribution: Areas S of Changjiang, Henan, Shandong, Hebei, Shaanxi (cultivated or wild); Japan, India, Pakistan and Vietnam.

Ecology: Flowering: May–Aug.

Uses: Ornamental, medicinal (folklore).

2. Pyrostegia C. Presl 炮仗藤属

Evergreen woody vines. Leaves opposite, palmately compound, 2–3-foliolate, terminal leaflet often modified into a 3-branched tendril. Inflorescences terminal, thyrsoid, racomose or paniculate. Calyx campanulate or ± tubular, truncate or 5-dentate. Corolla funnelform, tube slightly curved, lobes 5, valvate, reflexed at anthesis. Fertile stamens 4, didynamous, exserted. Disk annular or cupular. Ovary superior, linear, 2-locular, ovules many in (1–)2(–3)-series on each placentation; style 1, stigma 2-lobed. Capsules long linear, septicidally dehiscing, valve flat, leathery, smooth and striate. Seeds elliptic, winged, imbricate.

Three to four species distributed in tropical S America; one species introduced to S China; it is also cultivated in Hong Kong.

1. Pyrostegia venusta (Ker-Gawl.) Miers

炮仗花 **(Fig. 172; Photo 332)**

Proc. Roy. Hort. Soc. London 3: 188. 1863; FRPS 69: 3, pl. 3: 4–5. 1990; FFJ 5: 84, fig. 92. 1993.

Bignonia venusta Ker-Gawl., Bot. Reg. t. 249. 1818.

Pyrostegia ignea (Vell.) C. Presl, Bot. Bemerk. 93. 1845; FGZ 606, fig. 322. 1956; FHN 3: 530, fig. 906. 1974.

Stems robust, ridged; branchlets sulcate. Petiole ca. 2 cm; leaflets 2–3; petiolules 1–2.5 cm; leaf blades papery, ovate, 5–10 × 2.5–5 cm, base rounded, apex long acuminate, margin entire; glabrous and finely glandular on both surfaces; lateral veins 3–4 pairs; terminal leaflet often modified into a 3-branched tendril. Panicles terminal, 10–12 cm. Calyx campanulate, ca. 7 mm, 5-dentate. Corolla tubular, orange-red, 7–8 cm, with a ring of white hairs at middle adaxially, base constricted, upper part bilabiate, upper lip 2-lobed, lobes ca. 8 mm, erect, lower lip 3-lobed, lobes long elliptic, ca. 1.6 cm, reflexed, margin white pubescent. Filaments filiform, anthers divergent. Ovary cylindric; style slender, exserted; stigma 2-lobed, lobes lingulate, flat. Capsules long cylindric; valves leathery, boat-shaped. Seeds in many rows, with membranous wing.

Locality: Cultivated. *Y. S. Lau 2097.*

Distribution: S & SW China (cultivated); native to Brazil, widely cultivated in tropical regions.

Ecology: Flowering: Jan.–Jun.

Uses: Ornamental.



Figure 171. *Campsis grandiflora* (Thunb.) Schum.
1. flowering branch; *2.* stamen; *3.* pistil. (drawn by H. P. Yu)

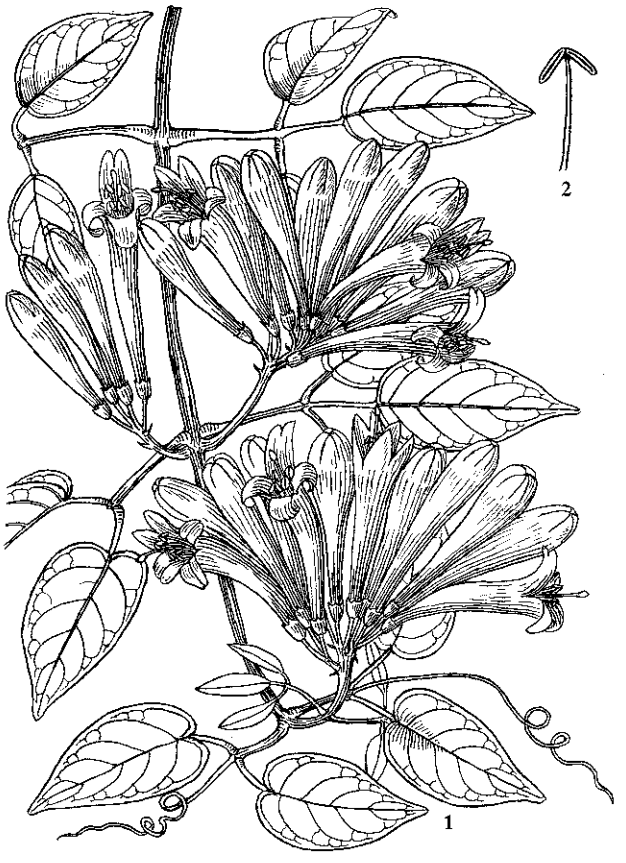


Figure 172. *Pyrostegia venusta* (Ker-Gawl.) Miers
1. flowering branch; 2. stamen. (drawn by H. P. Yu)

3. Crescentia L. 葫蘆樹屬

Trees and shrubs. Leaves simple or digitately compound, alternate or in clusters. Flowers solitary, or in clusters of 2–3 on stems. Calyx 2- or 5-divided, often bilabiate. Corolla tubular or campanulate, yellowish brown, with purplish red venations (especially on lobes and adaxial surface of tube), limb 5-lobed, lobes triangular, apex acuminate. Fertile stamens 4, didynamous, nearly exserted, anthers glabrous, thecae divergent. Disk cupular. Ovary oviod-ellipsoidal; ovules many in several rows on 4 lateral placentations. Berries subglobose; exocarp dry. Seeds many, not winged.

Six species distributed in tropical America; two species introduced into China; one species cultivated in Hong Kong.

1. Crescentia alata H. B. & K. 十字架樹 **(Photo 333)**

Nov. Gen. Sp. (quarto ed.) 3: 158. 1818 [1819]; FRPS 69: 58, pl. 16. 1990; FFJ 5: 86, fig. 94. 1993.

Small tree, 5–12 m tall, to 25 cm in d.b.h. Branches glabrous, terete, fissured. Leaves leathery, clustered on brachyblasts, usually simple leaves and digitately 3(–5)-foliolate compound leaves on the same brachyblast. Simple leaves subsessile, linear to elliptic-linear, 1.9–3.2 × 0.3–1 cm, similar to leaflets or petiole of compound leaves. Compound leaves: petiole winged, 2.7–11.5 × 0.3–1.5 cm, oblanceolate, lepidote; leaflets subsessile, oblanceolate, 1–4.5 × 0.3–1.2 cm, base cuneate to broadly cuneate, apex rotund or emarginate, margin entire, lepidote and glabrous on both surfaces. Flowers solitary or in clusters of 2 on stems. Pedicels lepidote, 5–8 mm. Calyx divided to base, lobes 2, ovate, 1.5–2 cm, subequal, glabrous, slightly lepidote at base, often with impressed plateform glands. Corolla yellowish brown, with purplish red patches and stripes, campanulate, swollen at one side, tube 2.8–5.5 cm; limb 5-lobed, lobes broadly triangular, 1–1.5 cm, apex mucronate, glandular-lepidote abaxially. Fertile stamens 4, slightly exserted, thecae partly divergent. Ovary conical, glabrous and lepidote, 5–6 mm; ovules in many rows on 4 lateral placentations. Style filiform, exserted. Berries subglobose, 7–10 cm. Seeds small, thin, 6–7 × 7–9 mm, not winged.

Locality: Cultivated. *Y. S. Lau 1224; HK sheet 32500, 39028.*

Distribution: S & SW China (cultivated); native to Mexico to Costa Rica, widely cultivated in tropical Asia.

Ecology: Flowering: Summer to autumn.

Uses: Ornamental, medicinal (folklore).

4. Tabebuia Gomes ex DC. 黃鐘木屬

Shrubs to large trees. Leaves palmate or simple; leaflets 3–9, entire or toothed. Inflorescence a terminal panicle, sometimes reduced to a few-flowered raceme or single flower. Calyx cup-shaped, campanulate or tubular, truncate or 2-lipped to slightly 5-lobed. Corolla tubular to funnel-shaped or campanulate, hairless or hairy on outside of tube. Stamens sometimes projecting. Fruit a linear to oblong capsule, dehiscing perpendicular to the septum.

About 100 species distributed from Mexico to N Argentina; three species introduced into China; one species cultivated in Hong Kong.

1. Tabebuia chrysantha (Jacq.) G. Nicholson 黃鐘木(風鈴木) **(Photos 334–335)**

Ill. Dict. Gard. 4: 1. 1887.

Tabebuia chrysotricha (Mart ex DC.) Standl., Field Mus. Nat. Hist., Bot. Ser. 11(5): 176. 1936.

Small tree, semi-deciduous, 5–10 m tall, erect, many-branched, crown umbellate. Leaves opposite, palmately compound, with 4–5 leaflets, ovate, papery, margin serrate, covered with fine pubescence. Cyme terminal; flowers bisexual, zygomorphic, 5-merous; calyx tube irregularly lobed; corolla golden yellow, funnelform; stamens 4, didynamous, attached to corolla, anther 2-celled, splitting by longitudinal slits. Pistils 2, connate; ovary 2-locular. Capsule linear, dehiscing loculicidally. Seeds winged.

Locality: Cultivated. *Y. S. Lau 3283; HK sheet 34328, 39962.*

Distribution: S China (cultivated); native to tropical America.

Ecology: Flowering: Spring.

Uses: Ornamental.

5. Jacaranda Juss. 藍花楹屬

Trees, sometimes shrubs; stems glabrous or hairy. Leaves opposite, (1–)2-pinnately compound, rarely simple, leaflets many, small. Inflorescences terminal or axillary, paniculate. Calyx small, campanulate to tubular, truncate or 5-dentate. Corolla blue or bluish purple, tubular to campanulate, limb slightly bilabiate, 5-lobed, finely pubescent abaxially. Stamens 4, included; anthers glabrous, thecae unequal or 1-celled. Staminodes elongate, glandular, longer than fertile stamens. Disk annular. Ovary compressed conical, hairy; ovules in 8 rows per locule. Capsules woody, elliptic or oblong, tardily dehiscent. Seeds flat, transparent or brown winged.

About 50 species distributed in tropical America; two species introduced to China; one species cultivated in Hong Kong.

1. Jacaranda mimosifolia D. Don. 藍花楹 **(Fig. 173; Photo 336)**

Bot. Reg. 8: 631, t. 631. 1822; FRPS 69: 56. 1990; FFJ 5: 91, fig. 100. 1993.

Jacaranda acutifolia auct. non Humb. & Bonpl.: FGZ 609. 1956; FHN 3: 533. 1974.

Deciduous tree to 15 m tall, 45 cm in d.b.h.; bark grey. Leaves 2-pinnately compound, 15–30 cm, pinnae over 10 pairs; pinnae 5–10 cm, leaflets 16–24 pairs; leaflets small, papery, sessile, narrowly elliptic, 0.6–1.2 × 0.2–0.7 cm, base cuneate, apex abruptly acuminate, margin entire, slightly revolute, glabrous or puberulent along veins and margin. Panicles terminal, many-flowered. Calyx campanulate, ca. 1 mm, apex 5-dentate. Corolla bilabiate, bluish purple, tube tubular-campanulate, 3–4 mm, white adaxially, throat 0.7–1.2 cm wide, lobes 0.3–0.8 cm, pubescent abaxially. Stamens didynamous; filaments pubescent at lower half; anthers 1-celled, ca. 2 mm; staminodes 2–2.5 cm, glandular hairy at upper part. Pistil 2.2–2.5 cm; ovary 2–3.5 mm, glabrous. Capsule orbicular, ca. 5 cm in diam.

Locality: Cultivated. *Y. S. Lau 1830; HK sheet 21204.*

Distribution: Hainan, Guangdong, Guangxi, Fujian, Yunnan (cultivated); native to Brazil, widely cultivated in tropical regions of the world.

Ecology: Flowering: Apr.– Jun.

Uses: Ornamental.

6. Oroxylum Vent. 木蝴蝶屬

Trees, few-branched. Leaves opposite, large, 2–3-pinnately compound; leaflets ovate, entire. Inflorescences racemose, terminal, erect and long. Calyx large, purple, leathery, broadly campanulate, fleshy, apex subtruncate or inconspicuously dentate. Corolla large, purple-red, campanulate; limb slightly bilabiate; lobes 5, spreading, apex rounded, margin sinuous. Stamens 5, subequal, all fertile; filaments slender, long, compressed; anthers ellipsoidal, 2-celled, glabrous; thecae parallel. Style filiform; stigma lingulate, compressed. Capsule dehiscing septicidally, long lanceolate, woody, compressed, to 1 m; septum woody, flat. Seeds in several rows, very thin, compressed, orbicular, surrounded by a transparent broad wing.

One species distributed Bhutan, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Vietnam; one species in China; it also occurs in Hong Kong.

1. Oroxylum indicum (L.) Benth. ex Kurz
木蝴蝶(千層紙) **(Fig. 174; Photo 337)**

Forest Fl. Burma 2: 237. 1877; FOC 18: 215. 1998.

Bignonia indica L., Sp. Pl. 2: 625. 1753.

Bignonia pentandra Lour., Fl. Cochinch. 2: 379. 1790.

Calosanthes indica (L.) Blume, Bijdr. Fl. Ned. Ind. 760. 1826.

Oroxylum indicum (L.) Vent., Dec. Gen. Nov. 8. 1808, *nom. inval*; FKH 196. 1912; FGZ 610. 1956; FHN 3: 533, fig. 911. 1974; FYN 2: 696, pl. 194: 1–3. 1979; FRPS 69: 11, pl. 4: 1–3. 1990; FFJ 5: 92, fig. 101. 1993; Check List HK Plants 257. 2002; 88. 2004.

Trees 6–10(–15) m tall, 15–20 cm in d.b.h. Bark greyish brown. Leaves 2–3(–4)-pinnately compound, borne nearly at stem apex, 50–150 cm; petiolules 5–20 cm; leaflets ovate to elliptic, 5–14 × 3–10 cm, base subrounded or cordate, oblique, apex short acuminate, glabrous, becoming blue after drying; lateral veins 5–6 pairs. Inflorescences 40–150 cm. Flowers usually open at night, with foul smell. Pedicel 2–7 cm, bracteolate. Calyx purple, campanulate, 2.2–4.5 × 2–3 cm, glabrous, leathery, becoming subwoody in fruit. Corolla purple-red; tube fleshy, 4–4.5 cm; mouth 5.5–8 cm in diam.; upper lip 2-lobed, lower lip 3-lobed, lobes slightly reflexed. Stamens inserted at middle of

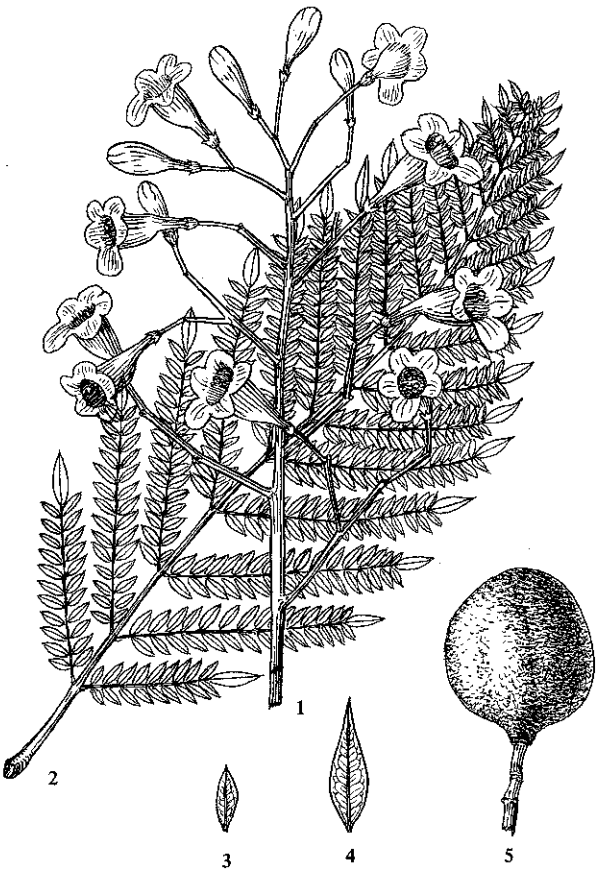


Figure 173. *Jacaranda mimosifolia* D. Don.
1. inflorescence; *2.* leaf; *3.* lateral pinnule; *4.* terminal pinnule; *5.* fruit. (drawn by H. P. Yu)

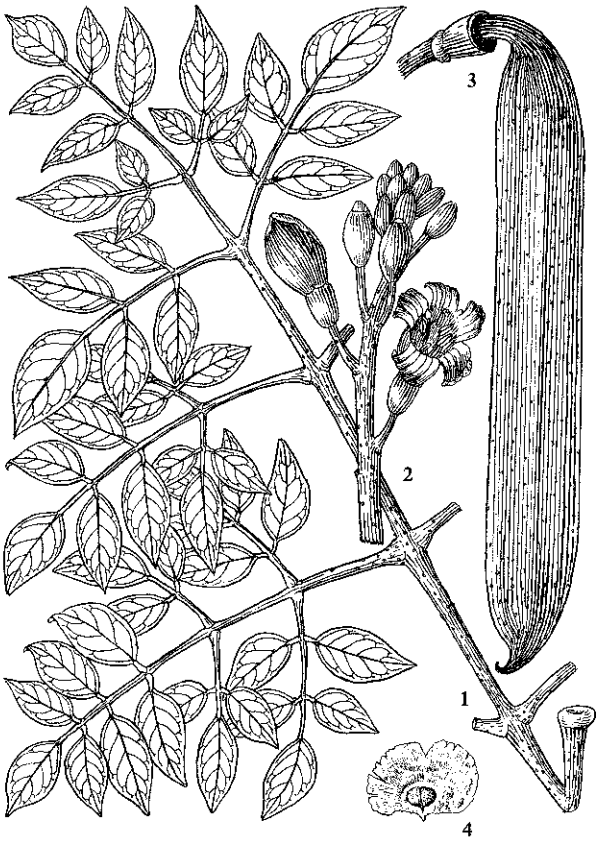


Figure 174. *Oroxylum indicum* (L.) Benth. ex Kurz
1. leaf; *2.* inflorescence; *3.* fruit; *4.* seed. (drawn by H. P. Yu)

corolla tube; filaments ca. 4 cm, slightly exserted from corolla tube, tomentose basally. Disk large, fleshy, 5-lobed, 4–5 mm thick, ca. 1.5 cm in diam. Style 5–7 cm; stigma 2-parted, ca. 7 mm. Capsule woody, 40–120 × 5–9 cm, ca. 1 cm thick; valves with midrib, margin convex. Seeds orbicular, 6–7 × 3.5–4 cm including white membranous wing.

Locality: Sai Kung, Tai Po Kau, Lam Tsuen. *S. T. Dunn 1173; HK sheet 21143.*

Distribution: Hainan, Guangdong, Guangxi, Fujian, Taiwan, Sichuan, Yunnan, Guizhou; tropical Asia.

Ecology: Forests near villages. Flowering: Sep.–Nov.; fruiting: Nov.–Jan. of the following year.

Uses: Medicinal (folklore), environmental.

7. Tecoma Juss. 黃鐘花屬

Shrubs or small trees, erect or scandent. Stems often hairy. Leaves opposite, usually simple, 3-foliolate or odd-pinnately compound; leaflets serrate at margin. Inflorescences terminal, paniculate or racemose. Calyx campanulate, 5-lobed. Corolla tubular or funnelform, slightly curved, bilabiate. Fertile stamens 4, exserted, thecae pendulous, divergent. Ovary 2-locular; ovules many per locule. Disk cupular. Capsule linear, compressed, loculicidal. Seeds winged.

About 14 species distributed in tropical Africa and tropical America; two species introduced to China; one species cultivated in Hong Kong.

1. Tecoma stans (L.) Juss. ex Kunth 黃鐘花 **(Photo 338)**

Nov. Gen. Sp. (quarto ed.) 3: 144. 1818 [1819]; FGZ 610. 1956; FFJ 5: 89, fig. 98. 1993.

Bignonia stans L., Sp. Pl. ed. 2, 871. 1763.

Stenolobium stans (L.) Seem., Ann. Mag. Nat. Hist. 10: 30. 1862; FYN 2: 706. 1979; FRPS 69: 55, pl. 15: 4–6. 1990.

Erect shrub to 6 m. Leaves odd-pinnately compound, 10–20 cm; leaflets 3–13, sessile or subsessile, oblong-ovate to lanceolate, 4–10 × 3–5 cm, base cuneate, apex acuminate to caudate, margin serrate, subglabrous adaxially, densely grey tomentose abaxially. Inflorescences racemose-paniculate to 15 cm. Peduncles, pedicels, bracteoles and calyx hairy. Bracts subulate, ca. 1 mm. Calyx campanulate, 5-dentate. Corolla yellow to orange-yellow, tube narrowed at base, lobes 5, spreading, wavy at margin; anthers hairy. Ovary terete; style slender, stigma 2-lobed, lobes lingulate. Capsules 8–10 × 0.5 cm.

Locality: Cultivated. *Y. S. Lau 1623.*

Distribution: S China (cultivated); native to America, widely cultivated in tropical regions of the world.

Ecology: Flowering: Autumn to winter.

Uses: Ornamental.

8. Markhamia Seem. ex Baill. 貓尾木屬

Deciduous trees. Leaves opposite, pinnately compound, exstipulate. Inflorescences terminal, raceomose or thyrsoid, ± hirsute. Bracts inconspicuous. Flowers night-flowering. Calyx enclosed in buds, splitting to base at one side and spathaceous when flowering, greyish brown woolly abaxially, tuberculate. Corolla campanulate, tube short, swollen at one side, apex 5-lobed; lobes subequal, orbicular, thick and shrunk. Stamens 4, didynamous, included; filaments hairy at base; thecae divergent. Disk annular. Ovary ellipsoidal, woolly. Capsule long cylindric, flat, greyish brown tomentose and floccose, septum woody, flat. Seeds long elliptic, in 2 rows, membranous, with white transparent wings at both ends.

About 13 species distributed in Africa and tropical Asia; one species and one variety in China; one species in Hong Kong.

1. Markhamia stipulata (Wall.) Seem. ex K. Schum. var. **kerrii** Sprague 貓尾木 **(Fig. 175)**

Kew Bull. 1919: 310. 1919; FOC 18: 224. 1998.

Markhamia cauda-felina (Hance) Benth. & Hook. ex Hemsl., J. Linn. Soc. Bot. 26: 235. 1890; FGZ 611, fig. 324. 1956.

Dolichandrone cauda-felina (Hance) Benth. & Hook. f., Gen. Pl. 2: 1046. 1876; FHN 3: 534, fig. 912. 1974; FYN 2: 722, pl. 200: 2–3. 1979; FRPS 69: 50, pl. 14: 3–4. 1990; FFJ 5: 87, fig. 95. 1993; Check List HK Plants 256. 2002; 88. 2004.

Spathodea cauda-felina Hance, Journ. Bot. 10: 257. 1872.

Dolichandrone stipulata var. *kerrii* (Sprague) C. Y. Wu & W. C. Yin, FYN 2: 724. 1979; FRPS 69: 52, pl. 14: 2. 1990.

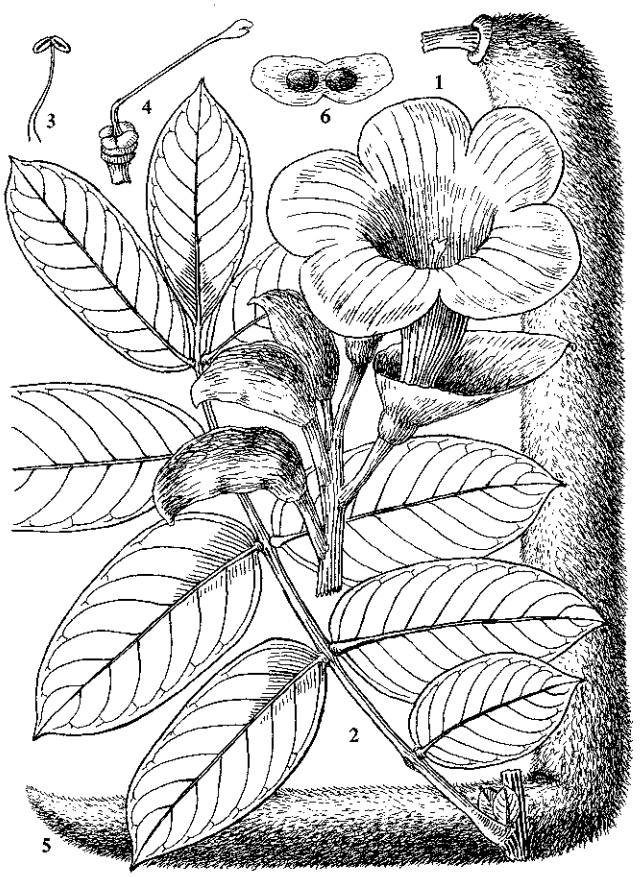


Figure 175. *Markhamia stipulata* var. *kerrii* Sprague

1. portion of inflorescence; *2.* leaf; *3.* stamen; *4.* pistil; *5.* fruit; *6.* seed. (drawn by H. P. Yu)

Tree 5–15 m tall. Young branches, leaves, and peduncles yellowish brown pubescent to tomentose. Leaves 40–50 cm, exstipulate, often with rudimentary simple leaves at the base of petiole; leaflets 3–9 pairs; petiolules 1–3 mm or subsessile; leaf blades papery, oblong, elliptic-oblong, elliptic-lanceolate or ovate-lanceolate, 5–28 × 4–9 cm, base rounded, apex caudate-acuminate, margin entire to serrulate, rusty yellow pubescent when young, glabrescent adaxially, pubescent to puberulent abaxially; lateral veins 8–9 pairs; petiolules 1–4 mm or leaflets subsessile. Racemes rusty yellow pubescent, 4–10-flowered. Flowers 10–12 cm in diam. Pedicel 2–6 cm. Calyx 3.3–5.5 cm, yellowish brown tomentose to floccose, apex with 6–8 black tubercles. Corolla dark purple, yellow at upper part, funnelform, ca. 10 cm; tube red-brown or purple on lower part, 1.5–2 cm in diam. at base; mouth 10–15 cm in diam.; lobes irregularly wrinkled. Stamens and style included; staminodes present or absent. Capsule linear, compressed, 30–70 × 2–3 cm, densely yellowish brown tomentose or floccose. Seeds long elliptic, including wing 3–5 × 1–1.3 cm.

Locality: Cultivated. *H. C. Tang 2102; Y. S. Lau 644, 1708.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan (cultivated or wild); Thailand, Laos, Myanmar, Vietnam.

Ecology: Flowering: Oct.–Nov.; fruiting: Apr.–Jun.

Uses: Environmental (landscaping).

9. Spathodea P. Beauv. 火焰樹屬

Evergreen trees. Leaves opposite, odd-pinnately compound. Inflorescences terminal, dense, paniculate or racemose. Calyx large, spathaceous. Corolla broadly campanulate, orange-red to bright red, tube shrunk at base, swollen at one side in middle; limb 5-lobed, lobes unequal, corrugated. Stamens 4, didynamous, inserted on corolla-tube; filaments glabrous; anthers divergent. Disk annular. Ovary narrowly ovoid, 2-locular, ovules many; stigma 2-lobed, lobes lingulate. Capsules slender, flat, loculicidally dehiscing; valves subwoody. Seeds many, membranous winged.

One species distributed in tropical Africa; it is widely cultivated in S China; it also occurs in Hong Kong.

1. Spathodea campanulata P. Beauv.

火焰樹 **(Fig. 176; Photos 339–340)**

Fl. Oware 1: 47–48, t. 27, 28. 1805; FRPS 69: 23, pl. 7. 1990; FFJ 5: 88, fig. 96. 1993.

Tree to 12 m; bark greyish brown. Branches appressed puberulent when young, subglabrous and greyish white lenticellate when old. Leaves with petiole to 45 cm; leaflets (3–)9–13(–17), subsessile, elliptic to obovate, 5–10 × 2.5–5 cm, base subrounded, apex acuminate, entire, subglabrous on both surfaces; lateral veins 5–7 pairs. Inflorescences terminal, dense; rachis ca. 12 cm, brown puberulent. Pedicels 2–4 cm. Bracts lanceolate, ca. 2 cm. Bracteoles 2, 0.2–1 cm. Calyx spathaceous, tomentose abaxially. Corolla orange-red to bright red, campanulate; tube swollen at one side; lobes erect, broadly ovate, unequal, corrugated, 3 × 3–4 cm. Stamens exserted; filaments 5–7 cm; anthers ca. 8 mm. Ovary glabrous; style 6 cm; stigma 2-lobed; lobes ovate-lanceolate. Capsule blackish brown, 15–25 × 3.5 cm. Seeds suborbicular, with peripheral wing.

Locality: Cultivated. *H. C. Tang 125; L. T. Lo 29.*

Distribution: S China (cultivated); native to Africa, widely cultivated in tropical regions of the world.

Ecology: Flowering: Jan.–May.

Uses: Environmental.

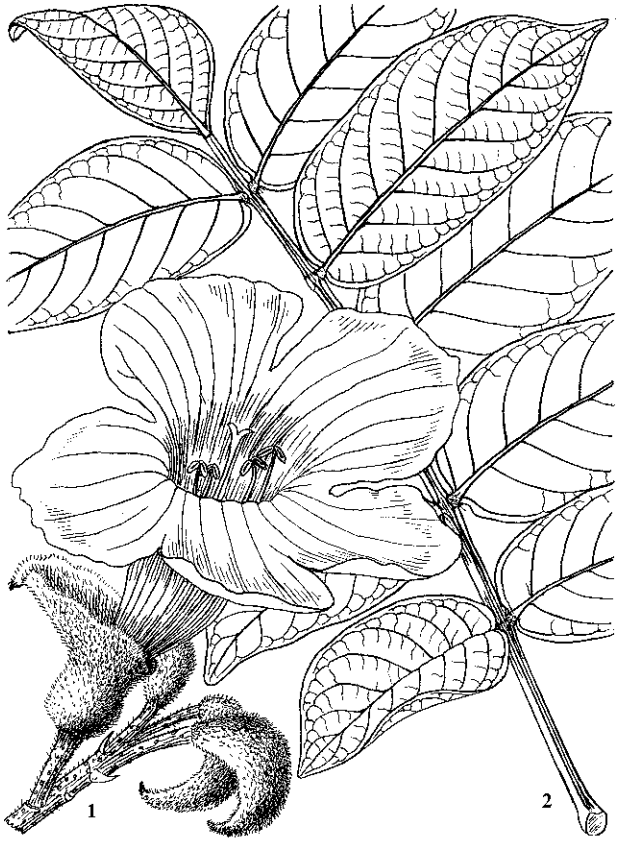


Figure 176. *Spathodea campanulata* P. Beauv.
1. portion of inflorescence; *2*. leaf. (drawn by H. P. Yu)

308. LENTIBULARIACEAE 狸藻科

HU Qi-ming 胡啟明

Perennial or annual herbs, terrestrial or aquatic. Stems usually modified to rhizoids, stolons or rhizomes, rarely developed, usually with traps (bladders) on stolons or leaves. Leaves alternate or in basal rosette, simple or 1–many times divided, exstipulate. Flowers perfect, zygomorphic, usually in racemes on scapes, rarely solitary. Calyx 2–4(–5)-lobed, lobes imbricate, persistent. Corolla with short tube, limb 2-lipped, upper lip entire or 2–3-lobed, lower lip entire or 2–3(–6)-lobed; lobes imbricate; spur subulate, cylindric, conical or saccate. Stamens 2, attached to the base of corolla-tube, included; filaments short, linear; anthers dorsifixed, thecae 2, divaricate, usually confluent. Ovary superior, 1-locular, with several ovules on a short free central placenta; style short, with 2-lipped stigma. Fruit usually capsular, loculicidally or circumscissilely dehiscent, rarely indehiscent. Seeds few to numerous, minute, variously shaped and sculptured, without endosperm.

Three genera and about 240 species mainly in tropical regions; two genera and 19 species in China; one genus and six species in Hong Kong.

Taylor (Kew Bull. Add. Ser., Vol. 14. 1989) provided a worldwide taxonomic study of the genus.

1. Utricularia L. 狸藻屬

Perennial or annual, marsh or aquatic herbs, without true roots. Stems modified to rhizoids and stolons, rarely developed. Leaves alternate or in basal rosette, simple or 1–many times divided, 1–3-veined, rarely with dichotomously branched or pinnate veins. Traps small bladder-like, borne on stolons or leaves. Flowers irregular, in terminal racemes on scapes, rarely solitary. Calyx deeply 2-lobed; lobes usually unequal. Corolla spurred, bilabiate, upper lip entire or 2–3-lobed, lower lip larger, entire or 2–3(–6)-lobed, with a variously raised palate in throat. Capsule globose, ovoid or ellipsoidal, opening by longitudinal slits or circumscissile, rarely indehiscent. Seeds few to many, with various prominences or appendages.

About 200 species cosmopolitan but mainly in tropics; 17 species in China; six species in Hong Kong.

1a. Aquatic herbs; leaves divided into capillary segments, conspicuous at anthesis.
  2a. Leaves 2–8 cm; scales on peduncle absent; pedicels sharply deflexed after anthesis; persistent style ca. twice as long as capsule ..... 1. *U. aurea*
  2b. Leaves 0.5–1.5 cm; scales on peduncle 1; pedicels erect or spreading; persistent style shorter than capsule ..... 2. *U. gibba*
1b. Terrestrial herbs; leaves absent or inconspicuous at anthesis.
  3a. Bracts and bracteoles basifixed.
    4a. Corolla yellow; pedicels strongly recurved in fruit ..... 3. *U. bifida*
    4b. Corolla lilac, violet or white; pedicels erect or spreading in fruit ..... 4. *U. uliginosa*
  3b. Bracts and bracteoles attached just above or below the middle.
    5a. Leaves linear to linear-obovate; bracts and bracteoles attached just above the middle; pedicels 0.5–1 mm ..... 5. *U. caerulea*
    5b. Leaves obovate, orbicular or transversely elliptic; bracts and bracteoles attached below the middle; pedicels 2–6 mm ..... 6. *U. striatula*

1. Utricularia aurea Lour. 黃花狸藻 **(Photo 341)**

Fl. Cochinch. 1: 26. 1790; Taylor, Fl. Males. ser. 1, 8: 296, fig. 21–23. 1977; Taylor, Kew Bull. Add. Ser. 14: 623, fig. 190. 1989; FRPS 69: 604. 1990; FTW ed. 2, 4: 719, pl. 329, photo 368. 1998.

Utricularia flexuosa Vahl, Enum. Pl. 1: 198. 1804; FHK 255. 1861; FKH 191. 1912.

Floating small herbs, with filiform, branched stolons, extending to 30 cm or longer. Leaves all submerged and root-like, alternate on stolons, 2–8 cm long, pinnately divided, each pinna dichotomously divided into numerous capillary segments, interspersed with little globular traps or bladders. Traps obliquely ovoid, 1–4 mm, stalked. Scapes usually 7–15 cm, bearing a raceme of 3–6(–10) flowers; scales absent; bracts basifixed. Pedicels erect and slender at flowering time, turned downward at fruiting time. Calyx deeply bilobed; lobes ovate, unequal, enlarged and spreading in fruit. Corolla yellow, 10–15 mm, upper lip broadly ovate, apex rounded, about twice the length of upper calyx-lobe, lower lip larger, transversely elliptic; the spur obtuse, about the length of lower corolla-lip. Ovary ovoid; style distinct. Capsule globose, 4–5 mm in diam., circumscissile; persistent style about twice as long as the capsule.

Locality: Hong Kong Island, Yuen Long. *W. J. Tutcher 8130; HK sheet 20925.*

Distribution: Hainan, Guangdong, Guangxi, Sichuan, Hunan, Jiangxi, Anhui, Zhejiang, Fujian, Taiwan; E to S Asia and Australia.

Ecology: Ponds and paddy fields. Flowering: Apr.–Nov.

2. Utricularia gibba L. 少花狸藻 **(Photo 342)**

Sp. Pl. 18. 1753; FTW ed. 2, 4: 724, pl. 333. 1998.

Uricularia exoleta R. Br., Prodr. 430. 1810; Taylor, Fl. Males. ser. 1, 8: 294, fig. 20. 1977; Taylor, Kew Bull. Add. Ser. 14: 572, fig. 179. 1989; FRPS 69: 598. 1990; Check List HK Plants 258. 2002; 89. 2004.

Utricularia diantha Roxb. ex Roem. & Schult., Mant. 1: 169. 1822; FHK 256. 1861; FKH 191. 1912.

Floating small herbs, with filiform, branched stolons seldom above 5 cm long. Leaves all submerged and root-like, alternate on stolons, 0.5–1.5 cm long, unbranched or dichotomously divided into a few capillary segments. Traps lateral on leaf segments, ovoid, 1–2.5 mm, stalked. Scapes slender, 5–10 cm, bearing a raceme of 1–2(–3) flowers; scales 1, similar to the bracts; bracts basifixed. Pedicels erect or spreading, 2–12 mm. Calyx bilobed nearly to the base; lobes broadly ovate to suborbicular, subequal, 1.5–2 mm. Corolla yellow, 4–8 mm long, upper lip orbicular or broadly ovate, about twice the length of upper calyx-lobe, apex obscurely 3-lobed, lower lip slightly smaller; the spur conical, as long as the lower corolla-lip, or slightly longer. Ovary ovoid; style distinct. Capsule globose, 2–3 mm in diam., opening by valves.

Locality: Happy Valley, Sha Tin, Tung Chung. *HK sheet 4216, 38212.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Sichuan, Hubei, Hunan, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; widely distributed in tropical and subtropical regions.

Ecology: Ponds and paddy fields. Flowering: Jun.–Nov.; fruiting: Jul.–Dec.

3. Utricularia bifida L. 挖耳草 **(Fig. 177; Photo 343)**

Sp. Pl. 18. 1753; FHK 256. 1861; FKH 192. 1912; Taylor, Fl. Males. ser. 1, 8: 281, fig. 4. 1977; Taylor, Kew Bull. Add. Ser. 14: 307, fig. 82. 1989; FRPS 69: 588, pl. 162: 4–10. 1990; FTW ed. 2, 4: 721, pl. 331. 1998.

Small marsh herbs, with branched capillary stolons. Leaves alternate on stolons, linear to linear-oblanceolate, 7–20(–30) × 1–4 mm, base tapering into a short petiole, apex or obtuse, margin entire, membranous, 1-veined. Traps borne on stolons and leaf margins, globose, 0.5–1 mm, short-stalked. Scapes usually 10–20 cm, bearing a raceme of 1–10(–16) flowers; scales present, similar to the bracts; bracts basifixed, ovate, 1–2 mm. Pedicels 2–5 mm, initially spreading, turned downward at fruiting time, usually flat and dilated under the calyx. Calyx deeply bilobed; lobes slightly unequal, 3–4 mm at flowering time, 5–6 mm in fruit. Corolla yellow, 6–10 mm long, upper lip oblong to oblong-obovate, apex rounded, lower lip suborbicular; the spur subulate, about the length of lower corolla-lip. Ovary ovoid; style short. Capsule broadly ellipsoidal, ca. 2.5 mm long, opening by longitudinal slits.

Locality: Hong Kong Island, Tai Mo Shan, Sheung Shui, Sai Kung, Lo Wu, Lantau Island. *S. P. Lau 40, 2318; Y. S. Lau 738.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Sichuan, Hunan, Hubei, Henan, Shangdong, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; S to SE Asia to Australia.

Ecology: Marshes. Flowering & fruiting: Aug.–Jan. of the following year.

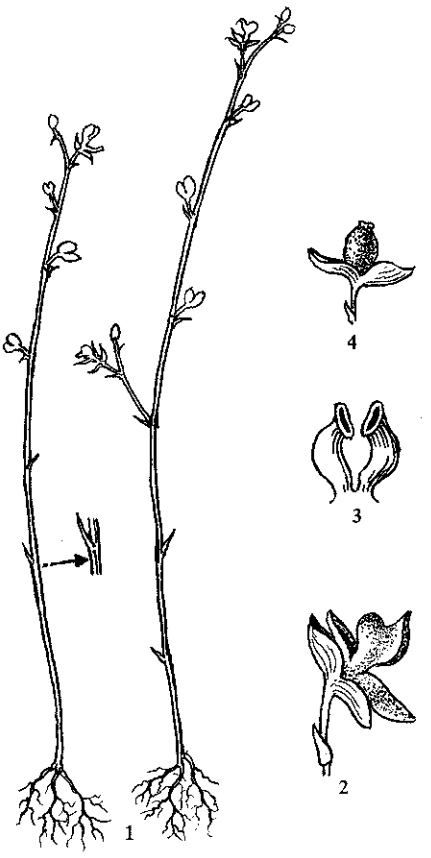


Figure 177. *Utricularia bifida* L.
1. whole plant; *2.* flower; *3.* stamens; *4.* fruit. (drawn by H. P. Yu)

4. Utricularia uliginosa Vahl 濕地挖耳草 **(Photo 344)**

Enum. Pl. 1: 203. 1804; Taylor, Fl. Males. ser. 1, 8: 282, fig. 5. 1977; Taylor, Kew Bull. Add. Ser. 14: 333, fig. 92. 1989; FTW ed. 2, 4: 729, pl. 335. 1998.

Utricularia affinis Wight, Hooker's J. Bot. Kew Gard. Misc. 1: 373, t. 1580. 1849.

Utricularia caerulea auct. non L.: FHK 256. 1861; FKH 192. 1912.

Small marsh herbs, with slender, simple, or rarely branched stolons, usually without any leaves at flowering time. Leaves alternate on stolons, linear to narrowly obovate, 25–45 × 1.5–6 mm, base attenuate, apex rounded to acute, margin entire, membranous, 3-veined. Traps borne on stolons and leaf margins, globose, 1–1.5 mm, stalked. Scapes usually 3–12(–15) cm, bearing a raceme of 1–10 flowers; scales few, similar to the bracts; bracts basifixed, narrowly ovate, 0.8–1 mm. Pedicels filiform, 1–1.5 mm, lengthening to 5 mm in fruit, usually flat or narrowly winged. Calyx deeply bilobed; lobes subequal, broadly ovate or suborbicular, 2–2.5 mm, thin and membranous. Corolla lilac, violet or white, 3–7 mm long, upper lip oblong, apex rounded or emarginate, about the length of the upper calyx-lobe, lower lip suborbicular; the spur subulate, about the length of lower corolla-lip. Ovary ovoid; style short. Capsule ovoid, 2–4 mm long, opening by longitudinal slits.

Locality: Cape D'Aguilar, Bride's Pool, Pat Sin Leng, Sai Kung, Lantau Island. *Y. W. Lam 408, 1253; HK sheet 39845.*

Distribution: Hainan, Guangdong, Taiwan; tropical Asia, extending to S Japan and Korea, also in Australia.

Ecology: Marshes. Flowering & fruiting: Aug.–Dec.

5. Utricularia caerulea L. 短梗挖耳草 **(Photo 345)**

Sp. Pl. 18. 1753; Taylor, Fl. Males. ser. 1, 8: 287, fig. 12. 1977; Taylor, Kew Bull. Add. Ser. 14: 187, fig. 43. 1989; FRPS 69: 593, pl. 163: 8–11. 1990; FTW ed. 2, 4: 724, pl. 332. 1998.

Utricularia racemosa Wall. ex Walp., Nov. Actorum Acad. Caes. Leop.-Carol. Nat. Cur. 19(Suppl. 1): 401. 1843; FHK 256. 1861; FKH 192. 1912.

Annual marsh herbs, with branched capillary stolons, usually without any leaves at flowering time. Leaves borne on stolons nodes and at the base of scape, linear to linear-obovate, 3–20 × 0.5–2 mm, base tapering into a short petiole, apex rounded, margin entire, membranous, 1-veined. Traps borne on stolons and leaf margins, ovoid, 0.25–1 mm, stalked. Scapes usually 5–20 cm, bearing a raceme of 1–10(–16) flowers; scales few, similar to the bracts; bracts attached just above the middle, free and pointed at both ends. Pedicels very short, 0.2–1 mm. Calyx deeply bilobed; lobes unequal, upper lobe oblong, 2–3 mm, lower lobe shorter, transversely elliptic. Corolla violet, pink or white, 4–10 mm, upper lip oblong to ovate-oblong, apex retuse, lower lip broadly ovate, apex rounded or emarginate; the spur narrowly conical, usually slightly longer than the lower corolla-lip. Ovary globose; style short. Capsule globose or ellipsoidal, 1.5–2 mm, opening by longitudinal short slits.

Locality: Hong Kong Island, Ma On Shan, Ho Pui, Lantau Island. *Y. S. Lau 2453; Y. W. Lam 956, 1254.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Guizhou, Hunan, Jiangxi, Anhui, Jiangsu, Shandong, Zhejiang, Fujian, Taiwan; S & SE Asia to Australia.

Ecology: Marshes. Flowering & fruiting: Aug.–Jan. of the following year.

6. Utricularia striatula Sm. 圓葉挖耳草 **(Photo 346)**

Cycl. 37: Utricularia no. 17. 1819; Taylor, Fl. Males. ser. 1, 8: 289, fig. 13–14. 1977; Taylor, Kew Bull. Add. Ser. 14: 479, fig. 147. 1989; FRPS 69: 595, pl. 163: 1–5. 1990; FTW ed. 2, 4: 727, pl. 369. 1998.

Utricularia orbiculata Wall. ex A. DC., Prodr. 8: 18. 1844; FHK 256. 1861; FKH 192. 1912.

Utricularia harlandii Oliv. ex Benth., FHK 257. 1861; FKH 192. 1912.

Perennial lithophytic or marsh herbs, with simple, capillary stolons. Leaves borne on stolon nodes and clustered near the base of scape, persistent to the time of flowering; petioles slender, usually longer than the blade; leaf blades orbicular to transversely elliptic, 3–10 × 2–6 mm, base broadly cuneate to rounded, apex rounded, margin entire, membranous, with dichotomous veins. Traps borne on stolons, ovate, 0.6–0.8 mm, stalked. Scapes usually 5–15 cm, bearing a raceme of 1–10 flowers; scales few, similar to the bracts; bracts attached just below the middle, narrowly ovate or oblong, 1–1.5 mm. Pedicels 2–6 mm, initially spreading, turned downward after anthesis. Calyx deeply bilobed; lobes unequal, upper lip suborbicular or broadly obcordate, 1.5–2.5 mm, apex rounded or emarginate, lower lip much smaller, oblong-elliptic. Corolla lilac or white, 5–10 mm long, upper lip smaller, subobovate, apex 2-toothed, lower lip orbicular to transversely elliptic, apex 3–5-lobed; the spur subulate, about the length of lower corolla-lip. Ovary globose; style short. Capsule broadly ellipsoidal, ca. 2.5 mm long, opening by longitudinal slits.

Locality: Happy Valley, Tai Tam, Victoria Peak, Shing Mun, Lantau Island. *Y. S. Lau 1463; HK sheet 34406, 40768.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, SE Xizang, Sichuan, Hunan, Jiangxi, Anhui, Zhejiang, Fujian, Taiwan; tropical Asia and Africa.

Ecology: Marshes and rocks by streams. Flowering: Jun.–Oct.; fruiting: Jul.–Nov.

Notes: The syntype specimens of *Utricularia harlandii* (*Harland 307*, K; *Wilford 92*, K) were collected from Hong Kong Island around 1857.

311. CAMPANULACEAE 桔梗科

HU Qi-ming 胡啟明

Mostly perennial herbs, with milky latex. Leaves simple, alternate, rarely opposite or whorled, without stipules. Flowers perfect or rarely imperfect, solitary or clustered, or more often in terminal spike, racemes, or leafy panicles. Calyx-tube adnate to the ovary; lobes 3–10, usually 5, persistent. Corolla regular or irregular; lobes 3–10, usually 5, valvate in the bud. Stamens as many as the corolla-lobes and alternate with them, hypogynous and free from the corolla-tube, or very rarely united to it at the base; anthers opening longitudinally, or united in a ring round the style. Ovary inferior or half-inferior, 2–5(–6)-locular, with axile placentation and numerous ovules in each locule; style simple, entire or 2–5(–6)-lobed. Fruit usually a capsule, opening either in short valves at the top or in lateral pores or slits, rarely an indehiscent berry.

About 80 genera and over 2000 species, cosmopolitan but most abundant in the temperate regions of the N hemisphere or of S Africa; 15 genera and about 170 species in China; seven genera and ten species in Hong Kong.

1a. Corolla actinomorphic; stamens free.
  2a. Juice not milky; flowers in compact spikes; ovary 2-locular; capsule circumscissile ..... 1. *Sphenoclea*
  2b. Juice milky; flowers solitary or in cymes; ovary 3–5-locular; capsule opening by apical valves.
    3a. Twining or scandent herbs; ovary inferior, 3-locular ..... 2. *Codonopsis*
    3b. Erect or decumbent herbs.
      4a. Leaves whorled or opposite; flowers 4–5 cm in diam.; capsule 5-valved ..... 3. *Platycodon*
      4b. Leaves alternate; flowers less than 1 cm in diam.; capsule 3-valved ..... 4. *Wahlenbergia*
1b. Corolla zygomorphic; stamens connate.
  5a. Corolla-tube entire; fruit a capsule ..... 5. *Laurentia*
  5b. Corolla-tube slit dorsally.
    6a. Fruit a capsule, loculicidially 2-valved ..... 6. *Lobelia*
    6b. Fruit a berry, indehiscent ..... 7. *Pratia*

1. Sphenoclea Gaertn. 尖瓣花屬

Annual herbs, without milky latex. Leaves alternate, entire. Flowers bisexual, sessile, in terminal and compact spikes, each flower subtended by a bract and 2 bracteoles. Calyx synsepalous, persistent; lobes 5, imbricate, connivent over the top of the ovary. Corolla regular, urceolate-campanulate; lobes 5, imbricate. Stamens 5, attached to the base of corolla-tube, alternate with the corolla-lobes; filaments short; anthers 2-celled, opening by longitudinal slits. Ovary inferior or half-inferior, bilocular, with numerous ovules in each locule; style very short; stigma capitate or indistinctly 2-lobed. Fruit a membranous, circumscissile capsule; seeds numerous.

A small genus with only two species, one pantropical, one in W Africa; one species in Hong Kong.

1. Sphenoclea zeylanica Gaertn. 尖瓣花 **(Fig. 178; Photo 347)**

Fruct. Sem. Pl. 1: 113, pl. 24, fig. 5. 1788; FKH 153. 1912; FRPS 73(2): 176. 1983; FGD 3: 326, fig. 213. 1995; FTW ed. 2, 4: 801, pl. 372, photo 403. 1998.

Annual herbs, glabrous throughout. Stems erect, 20–70 cm tall, usually many-branched. Leaves alternate; petioles ca. 1 cm; leaf blades oblong to oblong-lanceolate or ovate-lanceolate, 2–9 × 0.5–2 cm, base cuneate, apex obtuse or acute, entire, adaxially green, abaxially greyish green; lateral veins slender, inconspicuous. Spikes densely flowered, 1–4 cm, 5–8 mm in diam., terminal or leaf-opposite. Flowers small, sessile; calyx green, lobes 5, ovate; corolla white, campanulate, with 5 spreading lobes; stamens 5, attached to the lower part of the corolla-tube, alternate with the corolla-lobes; ovary inferior, bilocular, with numerous ovules in each locule. Capsule depressed globose, 2–4 mm in diam., circumscissile, with numerous seeds.

Locality: Tuen Mun, Kuk Po, Lantau Island. *Y. S. Lau 3272; F. W. Xing 7843; HK sheet 39068.*

Distribution: Guangdong, Guangxi, Yunnan, Fujian, Taiwan; widely distributed in tropical regions.

Ecology: Margins of paddy fields and other wet places. Flowering: Jul.–Aug.

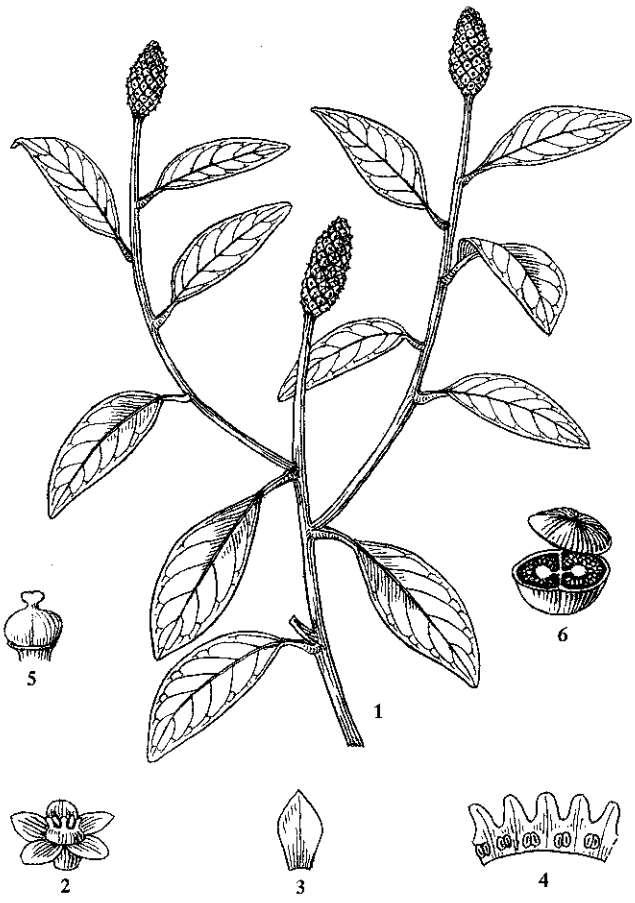


Figure 178. *Sphenoclea zeylanica* Gaertn.
1. flowering branch; *2.* flower; *3.* bract; *4.* corolla opened; *5.* pistil; *6.* fruit. (drawn by H. P. Yu)

2. Codonopsis Wall. 黨參屬

Perennial herbs, with milky latex and thick fleshy rootstock. Stems twining or scandent, rarely erect. Leaves alternate, opposite or in clusters. Flowers solitary or in pairs in axils of leaves, or forming few-flowered cymes terminal on short branches, usually pedicellate. Calyx-tube adnate to the ovary; limb 5-lobed. Corolla campanulate, attached to the ovary at base; limb 5-lobed. Stamens 5, attached nearly to the base of corolla-tube; filaments flattened below middle. Ovary inferior, 3–5-locular, with numerous ovules on axile placenta; style simple, usually 3-lobed. Fruit a berry or loculicidal capsule; seeds numerous, sometimes winged.

About 45 species in C, E & S Asia; 44 species in China; two species in Hong Kong.

1a. Corolla 1–1.3 cm, white or light green, with purple stripes inside; fruit a berry ..... 1. *C. javanica*
1b. Corolla 2–3 cm, creamy white outside, purple inside; fruit a capsule ..... 2. *C. lanceolata*

1. Codonopsis javanica (Blume) Hook. f. 金錢豹 **(Photo 348)**

Ill. Himal. Pl. 116, t. 16B. 1855.

Campanumoea javanica Blume, Bijdr. Fl. Ned. Ind. 13: 727. 1825; FRPS 73(2): 70. 1983; FGD 3: 320. 1995.

Campanumoea pilosula auct. non Franch.: FKH 153. 1912.

Perennial twining herbs, glabrous throughout. Tap root thick and fleshy, cylindric or obconical, 5–10 cm, to 5 cm in diam. Leaves opposite, very rarely alternate; petioles 2–5 cm; leaf blade ovate, 2–7 × 1.5–6 cm, base cordate, apex obtuse or acute, margin entire crenulate. Flowers solitary and axillary. Calyx not attached to ovary; 5-lobed nearly to the base; lobes oblong or ovate-lanceolate, 1–2 cm, persistent. Corolla campanulate, 1–1.3 cm, white or light green, with purple stripes inside; 5-lobed to middle; lobes ovate. Stamens 5; filaments filiform, 3–9 mm; anthers 2–6 mm. Ovary 4–5-locular, with numerous ovules. Fruit a berry, depressed globose, 10–12(–15) mm in diam.; purplish red when mature.

Locality: Tai Mo Shan, Kap Lung, Castle Peak. *W. J. Tutcher 10550; P. S. Choi 134; HK sheet 31588.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan; Sikkim, Bhutan to Indonesia.

Ecology: Wet places in thickets and thin forests. Flowering: Sep.–Dec.

Uses: Medicinal (folklore).

2. Codonopsis lanceolata (Siebold & Zucc.) Trautv. 羊乳 **(Fig. 179; Photo 349)**

Trudy Imp. S.-Peterburgsk. Bot. Sada 6: 46. 1879; Hemsl., J. Soc. Bot. 26: 5. 1889; FKH 153. 1912; FRPS 73(2): 37. 1983; FGD 3: 321, fig. 208. 1995.

Campanumoea lanceolata Siebold & Zucc., Fl. Jap. 1: 174, t. 91. 1835.

Perennial twining herbs, usually glabrous throughout. Tap root thick and fleshy, fusiform, to 20 cm long and 6 cm in diam., with milky latex. Leaves alternate on stems (usually small), 2–4 opposite or in false whorls at apex of branches; petioles short, 1–5 mm;

leaf blade rhombic-ovate or elliptic, 3–7(–10) × 1.5–3(–4.5) cm, base attenuate, apex acute or obtuse, margin entire or undulate-serrate. Flowers solitary or in pairs terminal on branches. Calyx-tube attached to the middle of the ovary; lobes 5, ovate-lanceolate, 12–15 × 5–7 mm, persistent and slightly enlarged in fruit. Corolla broadly campanulate, 2–3 cm; lobes 5, triangular, 0.5–1 cm, creamy white outside, purple inside. Ovary half-inferior; stigma 3-lobed. Capsule hemispheric, 2–2.5 cm in diam.; seeds winged.

Locality: Ma On Shan. *P. Chow 138; F. W. Xing 7340; HK sheet 40895.*

Distribution: SE to NE China; Russia (Far East), Korea, Japan.

Ecology: Thin forests and grassy hillslopes. Flowering: Aug.–Sep.

Uses: Medicinal (folklore).

Notes: Listed in *Rare and Precious Plants of Hong Kong.*

3. Platycodon A. DC. 桔梗屬

Perennial herbs, with milky latex. Leaves whorled, or sometimes opposite or alternate. Flowers solitary and terminal, or 2 or 3 in a loose raceme. Calyx-tube turbinate or hemispheric, adnate to the ovary; limb 5-lobed. Corolla broadly campanulate, deep blue, 5-lobed. Stamens 5, free; filaments flattened at base. Ovary inferior, 5-locular, with numerous ovules in each locule; style simple, stigma 5-lobed. Fruit a capsule, opening at the top loculicidally in 5 valves.

A single species in E Asia.

1. **Platycodon grandiflorus** (Jacq.) A. DC.
桔梗 **(Fig. 180; Photo 350)**

Monogr. Camp. 125. 1830; FKH 153. 1912; FRPS 73(2): 77. 1983; FGD 3: 322, fig. 209. 1995.

Campanula grandiflora Jacq., Hort. Bot. Vindob. 3: 4, t. 2. 1776.

Wahlenbergia grandiflora Schrad., Cat. Hort. Götting. (ann. 1814); FHK 197. 1861.

Perennial herbs, 40–100 cm tall, glabrous and somewhat glaucous, with thick fleshy tap root. Leaves in whorls of 3 or opposite, rarely alternate on the upper part of stem, subsessile; leaf blades ovate, elliptic or lanceolate, 2–7 × 0.5–3.5 cm, base broadly cuneate or obtuse, apex acute, margin serrulate. Flowers solitary or 2–3 in terminal loose raceme. Calyx-tube hemispheric; lobes 5, triangular to narrowly triangular, 2–8 mm. Corolla broadly campanulate, deep blue, 3–5 cm in diam.; lobes 5, triangular, apex acute. Stamens 5, flattened at base, hairy on the inner side. Capsule obovoid or globose, ca. 1 cm in diam., opening in 5 valves opposite to the calyx-lobes.

Locality: Hong Kong Island, Castle Peak, Long Ke. *H. C. Tang 270; Y. S. Lau 2337; HK sheet 39269.*

Distribution: Widely distributed in China except NW regions; Russia (Far East), Korea, Japan.

Ecology: Sunny grassy hillslopes. Flowering: Jul.–Sep.

Uses: Medicinal (folklore), ornamental.

Notes: Listed in *Rare and Precious Plants of Hong Kong.*

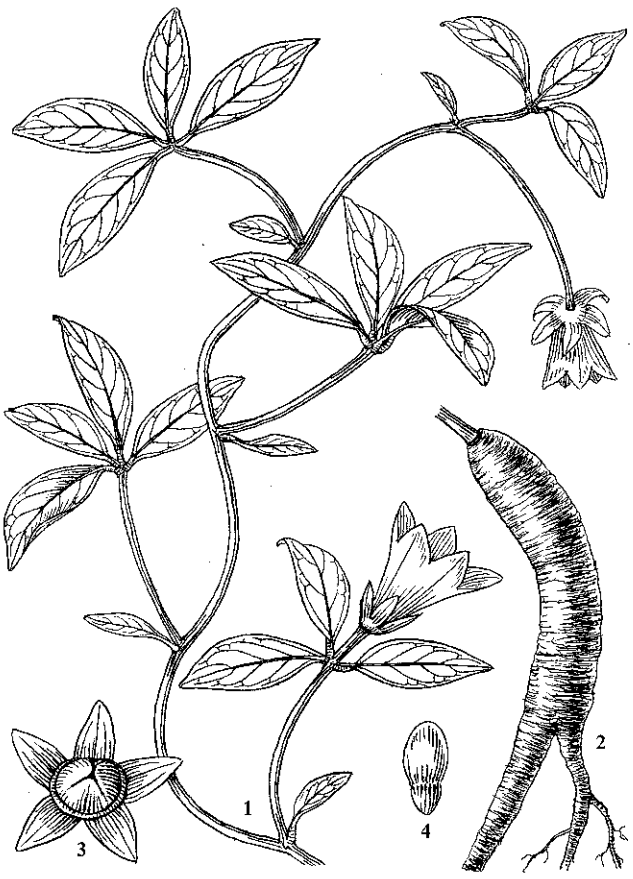


Figure 179. *Codonopsis lanceolata* (Siebold & Zucc.) Trautv.
1. flowering branch; *2.* root; *3.* fruit; *4.* seed. (drawn by H. P. Yu)

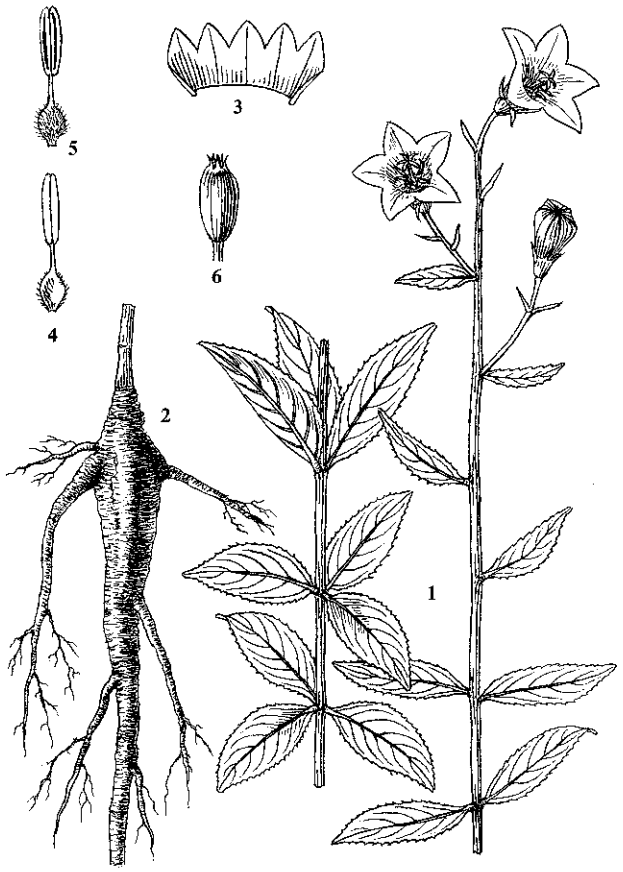


Figure 180. *Platycodon grandiflorus* (Jacq.) A. DC.
1. flowering branch; *2.* root; *3.* corolla opened; *4–5.* dorsal and ventral views of stamens; *6.* fruit. (drawn by H. P. Yu)

4. Wahlenbergia Schrad. ex Roth, *nom. cons.* 藍花參屬

Annual or perennial herbs, with milky latex. Stems erect or ascendent. Leaves alternate, spirally arranged, rarely opposite. Flowers solitary, terminal or in the upper axils of leaves, or forming loose terminal dichotomous leafy panicles. Calyx-tube adnate to the ovary; limb 3–5-lobed, persistent. Corolla regular, campanulate, 5-lobed. Stamens 5, free, alternate to the corolla-lobes; filaments usually flattened at base, ciliate. Ovary inferior, 2–3(–5)-locular, with numerous ovules in each locule; stigma 2–3(–5)-lobed. Fruit a capsule, opening at the top loculicidally in as many valves as locule.

About 200 species subcosmopolitan, especially in S temperate regions; one species in China and in Hong Kong.

1. Wahlenbergia marginata (Thunb.) A. DC. **(Fig. 181)**

藍花參

Monogr. Campan. 143. 1830; FRPS 73(2): 29. 1983; FGD 3: 323, fig. 210. 1995; FTW ed. 2, 4: 798, pl. 371, photo 402. 1998.

Campanula marginata Thunb., Syst. Veg. ed. 14, 211. 1784.

Wahlenbergia agrestis A. DC., Monogr. Campan. 145. 1830; FHK 197. 1861.

Wahlenbergia gracilis auct. non (Forst. f.) Schrad.: Dunn & Tutcher, FKH 152. 1912.

Perennial herbs, 10–40 cm tall. Stems erect or ascendent, branched from the base, glabrous or sparsely hirsute on the lower part. Leaves alternate, subsessile; leaf blade linear to narrowly elliptic, 1–5 × 0.2–0.6 cm, base cuneate or obtuse, apex acute or obtuse, margin undulate, slightly toothed or entire, glabrous or sparsely hirsute on the abaxial surface. Flowers solitary and terminal, or 2–3 forming a loose terminal dichotomous cyme. Pedicels slender, 1–10 cm. Calyx-tube obovoid, ca. 2 mm, glabrous, with 10 indistinct vertical veins; lobes 3–5, lanceolate. Corolla campanulate, 5–8 mm, blue or rarely white; lobes 3–5, ovate. Stamens 5; style short; stigma 3-lobed. Capsule obconical, 5–7 × 2.5–3.5 mm, shortly 3-valved at the top.

Locality: Fanling, Yuen Long, Lantau Island. *W. J. Tutcher 9168; K. L. Yip 4256; HK sheet 39467.*

Distribution: Areas S of Changjiang; widely distributed in tropical and subtropical Asia.

Ecology: Rice fields, wastelands. Flowering: Feb.–May.

Uses: Medicinal (folklore).

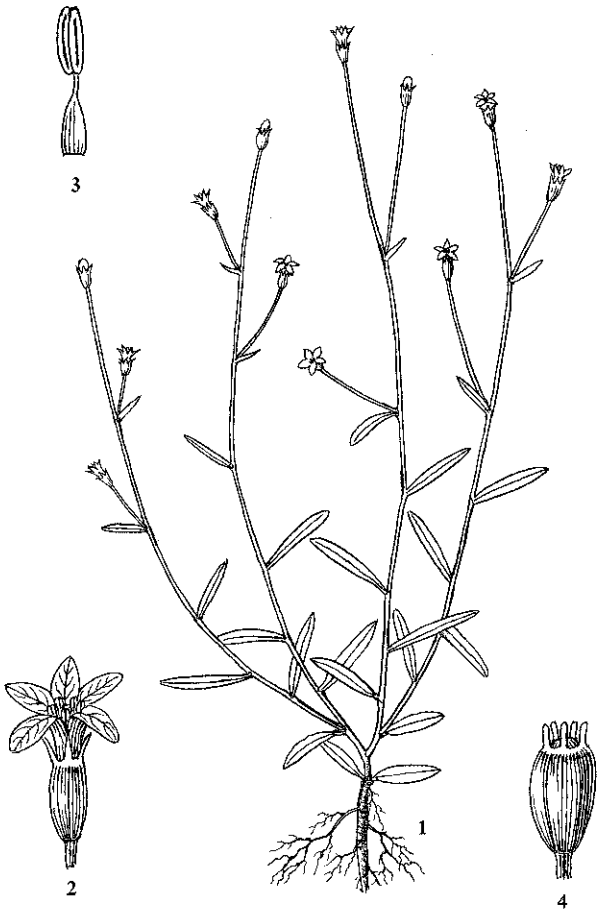


Figure 181. *Wahlenbergia marginata* (Thunb.) A. DC.
1. whole plant; *2.* flower; *3.* stamen; *4.* fruit. (drawn by H. P. Yu)

5. Laurentia Adans. 同瓣草屬

Annual or perennial herbs, with milky latex. Leaves alternate, spirally arranged, rarely radical and forming rosette. Flowers solitary in axils of leaves or in terminal racemes. Calyx 5-lobed; lobes unequal or subequal. Corolla salverform, slightly zygomorphic; limb 5-lobed, subequal. Stamens 5, partly or all adnate to corolla-tube; anthers coherent, sometimes bearded at apex. Ovary inferior, 2-locular, with numerous ovules; style slender; stigma 2-lobed. Fruit a capsule, opening by 2 valves.

About 25 species in W North America, Australia, Mediterranean region and S Africa; one species naturalized in S China and in Hong Kong.

1. Laurentia longiflora (L.) Endl. 同瓣草 **(Photo 351)**

Gen. Pl. 512. 1838; E. Wimm., Field Mus. Nat. Hist., Bot. Ser. 13(6/2): 474–475. 1937; Das Pflanzenreich. IV. 276b (Heft 107): 405. 1953; FGD 3: 331, fig. 217. 1995.

Hippobroma longiflora (L.) D. Don, Gen. Hist. 3: 717. 1834; FTW ed. 2, 4: 787, pl. 364. 1998.

Isotoma longiflora C. Presl, Prodr. Monogr. Lobel. 42. 1836.; FKH 152. 1912.

Lobelia longiflora L., Sp. Pl. 930. 1753.

Perennial herbs. Stems erect, to 50 cm tall, ± pubescent, marked with raised lines descending from base of petioles. Leaves alternate; petioles very short or almost obsolete; leaf blades oblong-oblanceolate or lanceolate, 6–16 × 2–3 cm, base attenuate, apex acute, margin coarsely serrate, sparsely pubescent on both surfaces when young. Flowers solitary in axils of upper leaves; pedicels 5–8 mm, densely hirsute; bracteoles 2, linear, attached to the base of pedicels. Calyx 5-lobed; lobes linear, 8–10 mm, hairy and irregularly serrate. Corolla white, hairy; tube slender, 5–9 cm; lobes 5, subequal, lanceolate, 1.5–2 cm. Stamens adnate to the middle of corolla-tube; anthers coherent, bearded at apex. Ovary usually with 10 ribs, densely hairy, especially on the ribs. Capsule ellipsoidal, ca. 1.5 cm.

Locality: Cultivated and naturalized in Hong Kong. *Y. S. Lau 351, 2036; L. T. Lo 66.*

Distribution: Guangdong, Guangxi; native to W Indies and S America; widely cultivated or naturalized elsewhere in tropical regions.

Ecology: Wastelands. Flowering: May–Nov.

Uses: Ornamental, poison (mammals).

6. Lobelia L. 半邊蓮屬

Herbs or rarely subshrubs, usually with milky latex. Leaves alternate, distichous or spirally arranged, sometimes rosulate. Flowers bisexual, rarely unisexual, solitary and axillary, or in terminal racemes or panicles. Bracts present or absent. Calyx-tube short or ovoid; limb 5-lobed, persistent. Corolla synpetalous, zygomorphic, slit open on the upper side to the base, ± bilabiate; lobes 5, the 2 upper lobes usually shorter and erect, forming an upper lip; the 3 lower lobes spreading and forming a lower lip, sometimes all the lobes spreading horizontally. Stamens 5, attached to the corolla-tube and alternate with the corolla-lobes; filaments free; anthers united into a ring round the style; stigma 2-lobed. Ovary inferior or half-inferior, 2 locular, with numerous ovules on axile placenta. Fruit a capsule opening at the top in 2 loculicidal valves.

About 350 species mainly in tropical and subtropical regions; 17 species in China; three species in Hong Kong.

1a. Plants glabrous; leaves linear, elliptic or obovate, 5–25 × 2–7 mm, subsessile or with very short stalked.
  2a. Corolla lobes all in a plane; leaves linear to lanceolate ..... 1. *L. chinensis*
  2b. Corolla 2-lipped, not in a plane; leaves ovate to ovate-lanceolate ..... 2. *L. alsinoides* subsp. *hancei*
1b. Plants sparsely pubescent; leaves ovate, 1.5–4 × 1–3 cm, petioles 1–2 cm ..... 3. *L. zeylanica*

1. Lobelia chinensis Lour. 半邊蓮 **(Fig. 182; Photo 352)**

Fl. Cochinch. 514. 1790; FKH 152. 1912; FRPS 73(2): 154. 1983; FGD 3: 329, fig. 215. 1995; FTW ed. 2, 4: 789, pl. 366, photo 397. 1998.

Lobelia radicans Thunb., Trans. Linn. Soc. London 2: 330–331. 1794; FKH 152. 1912.

Perennial herbs, glabrous. Stems decumbent or ascendent, 6–15 cm or longer, rooting at the nodes. Leaves alternate, sessile or nearly so, linear to lanceolate 8–25 × 2–6 mm, base rounded or slightly narrowed, apex acute or obtuse, margin entire or shallowly serrate above middle. Flowers solitary in axils of upper leaves; pedicels 2–3 cm. Calyx-tube 3–5 mm, narrowed at base; lobes 5, lanceolate, about the length of the tube, entire or with a pair of teeth on the lower part. Corolla pink, light purple or white, 10–15 mm, slit open on the upper side nearly to the base; tube white pubescent; limb 5-lobed, lobes spreading in a plane, the 2 lateral longer, lanceolate, the other 3 oblong-lanceolate; filaments united above middle, the free parts pubescent laterally; anther-tube glabrous or sparsely pubescent dorsally, the 2 lower ones bearded at the top. Capsule obconical, 5–6 mm long.

Locality: Sha Tin, Tai Mo Shan, Tai Po, Fanling, Ng Tung Chai, Tsiu Hang, Wu Kau Tang, Lantau Island. *Y. S. Lau 1607; L. T. Lo 76, 396.*

Distribution: S, C & E China; SE Asia.

Ecology: Lower banks of paddy fields and other wet places. Flowering : Feb.–Oct.

Uses: Medicinal (folklore).

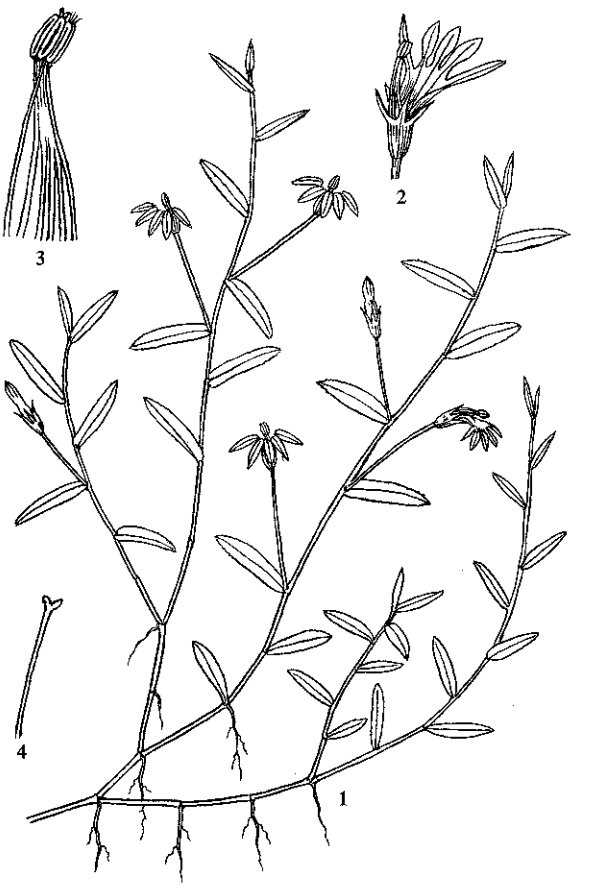


Figure 182. *Lobelia chinensis* Lour.
1. portion of plant; *2*. flower; *3*. stamens; *4*. style and stigma. (drawn by H. P. Yu)

2. Lobelia alsinoides Lam. subsp. **hancei** (Hara) Lammers 假半邊蓮 **(Photo 353)**

Bot. Bull. Acad. Sin. 33: 286. 1992.

Lobelia hancei Hara, J. Jap. Bot. 17: 23. 1941; Check List HK Plants 89. 2004.

Lobelia alsinoides var. *cantonensis* (E. Wimm. ex Danguy) E. Wimm., Ann. Naturhist. Mus. Wien 56: 360. 1948.

Lobelia chinensis Lour. var. *cantonensis* E. Wimm. ex Danguy, Fl. Gén. Indo-Chine 3: 681. 1930.

Lobelia alsinoides auct. non Lam.: FGD 3: 329. 1995.

Annual herbs, 10–30 cm tall, glabrous. Stems succulent, erect or ascending, simple or few-branched, angular. Leaves alternate, spirally arranged; petioles 1–3 mm; leaf blades ovate to ovate-lanceolate, 5–20 × 3–7 mm, base attenuate or obtuse, apex rounded or acute, margin crenate. Flowers solitary, axillary; pedicels slender, 1–1.5 cm, with 2 lanceolate bracteoles at base. Calyx tube turbinate, 2–3 mm; calyx lobes linear-lanceolate,

entire. Corolla pale blue, 4–8 mm, 2-lipped, upper lobes oblong-oblanceolate, erect, lower lobes oblong-elliptic, patent. Filaments connate above middle; anthers all barbate at apex. Capsule hemispheric or ovoid, 3–5 mm.

Locality: Sai Kung. *HK sheet 39668.*

Distribution: Hainan, Guangdong, Guangxi, Taiwan, Xizang, Yunnan; Japan.

Ecology: Paddy fields and other wet places by water. Flowering & fruiting: Almost all year round.

3. Lobelia zeylanica L. 疏毛半邊蓮 **(Photo 354)**

Sp. Pl. 932. 1753; FKH 152. 1912; FRPS 73(2): 148. 1983; FGD 3: 329. 1995; FTW ed. 2, 4: 792, pl. 369, photo 400. 1998.

Lobelia affinis Wall. ex G. Don, Gard. Dict. 3: 709. 1834; FKH 152. 1912.

Lobelia trigona auct. non Roxb.: FHK 196. 1861.

Annual herbs. Stems slender, decumbent or prostrate, 10–30(–40) cm, sparsely pubescent or glabrous, rooting at the lower nodes. Leaves alternate, spirally arranged; petioles 3–12 cm, sparsely pubescent; leaf blades ovate to broadly ovate, 1.5–4 × 1–3 cm, base truncate, shallowly cordate or cuneate, apex acute or obtuse, margin entire serrate, adaxially pubescent, abaxially sparsely covered with small coarse hairs on the veins. Flowers solitary in axils of leaves; pedicels 1–2 cm, sparsely pubescent. Calyx campanulate, 2–3 mm, sparsely pubescent; lobes 5, lanceolate or narrowly triangular, 3–5 mm, ciliate. Corolla light purple or white, bilabiate, 5–9 mm, the 2 upper lobes shorter, obovate-oblong, the 3 lower ones ovate to spathulate; filaments with the upper 1/3 united; anthers 5, all shortly bearded at the top. Capsule obovoid, 3–7 mm long.

Locality: Tai Mo Shan, Ng Tung Chai, Lantau Island. *L. T. Lo 317; Y. W. Lam 1312; HK sheet 16499.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Zhejiang, Fujian, Taiwan; E to SE Asia.

Ecology: Paddy fields and other wet places. Flowering & fruiting: Jun.–Feb. of the following year.

7. Pratia Gaudich. 銅錘玉帶屬

Annual or perennial herbs. Stems usually prostrate, rooting at the nodes. Leaves alternate. Flowers solitary, axillary, rarely in racemes. Calyx adnate to the ovary; lobes 5, subequal, entire or toothed, persistent. Corolla zygomorphic, slit open on the upper side nearly to the base; limb 5-lobed, ± bilabiate, the 2 upper lobes linear, the 3 lower lobes lanceolate or oblong. Stamens 5, free from the corolla; anthers purplish blue or straw-yellow, united into a ring round the style, the 2 lower ones hairy at the top; stigma slightly 2-lobed. Ovary inferior, 2-locular, with numerous ovules. Fruit a berry or dry and indehiscent.

About 30–40 species in tropical and subtropical regions; six species in China; one species in Hong Kong.

1. Pratia nummularia (Lam.) A. Braun & Asch.
銅錘玉帶草 **(Fig. 183; Photo 355)**

Index Sem. (Berlin) 1861, Append. 6. 1861; FHN 3: 446. 1974; FRPS 73(2): 168. 1983; FGD 3: 332, fig. 218. 1995.

Lobelia nummularia Lam., Dict. 3: 589. 1789; FTW ed. 2, 4: 792, pl. 367, photo 398. 1998.

Piddingtonia nummularia A. DC., Prodr. 7: 341. 1839; FHK 196. 1861.

Pratia begonifolia Lindl., Bot. Reg. 16: sub t. 1373. 1830; FKH 152. 1912.

Perennial herbs, juice milky. Stems prostrate, 12–55 cm, usually pubescent, rooting at the nodes. Leaves alternate, distichous; petioles 2–7 mm, pubescent; leaf blade ovate, or nearly orbicular, 8–16 × 6–18 mm, base cordate, apex subrounded or ± acute, margin serrate, sparsely pubescent on both surfaces. Flowers solitary in axils of leaves. Pedicels 7–35 mm, glabrous. Calyx-tube urn-shaped, 3–4 mm, glabrous; lobes 5, linear-lanceolate, 3–4 mm. Corolla usually light purple, 6–7 mm, bilabiate, the 2 upper lobes linear-lanceolate, the 3 lower lobes lanceolate, shorter than the upper ones. Anthers united into a ring, ca. 1 mm, the 2 lower ones with a short bristle on the top. Berry ovoid-globular, purplish red, 8–10 mm in diam.

Locality: Tai Mo Shan, Tai Po, Ta Ti Yan, Lam Tsuen Valley, Sunset Peak. *H. C. Tang 2502; Y. S. Lau 1523.*

Distribution: S, E & SW China; E & S Asia to New Guinea and Australia.

Ecology: Wet places on margins of forests and in grassy slopes. Flowering & fruiting: Apr.–Dec.

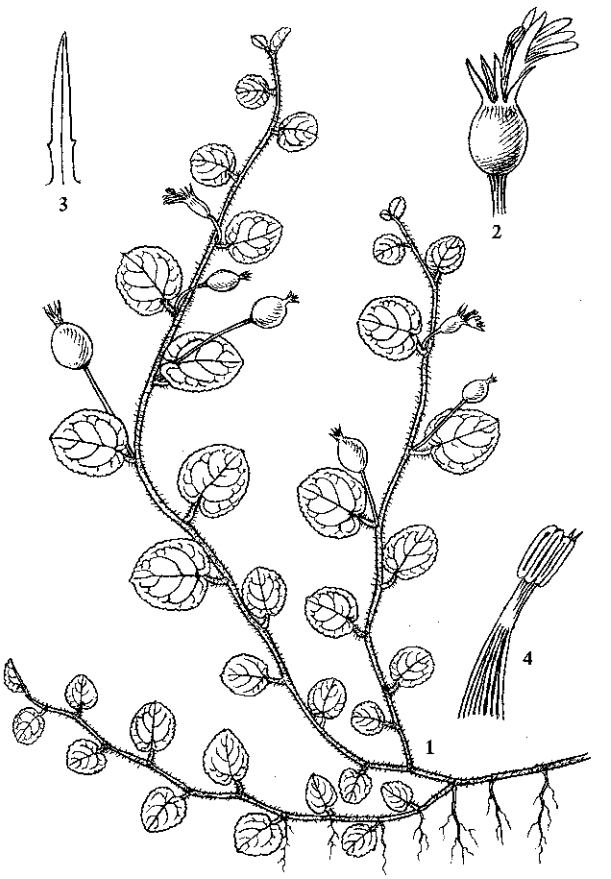


Figure 183. *Pratia nummularia* (Lam.) A. Braun & Asch.
1. portion of plant; *2.* flower; *3.* calyx-lobe; *4.* stamens. (drawn by H. P. Yu)

312. STYLIDIACEAE 花柱草科

YIP Kwok-leung 葉國樑 • AU Wai-chun 區偉臻

Herbs or small shrubs, some members moss-like, without laticifers. Stipules absent. Leaves alternate, simple, often grass-like. Inflorescence a raceme, cyme, or lax spike. Flowers perfect or unisexual, zygomorphic. Calyx and corolla 5-merous. Calyx synsepalous; tube adnate to ovary; limb often 2-labiate, with 2–5 lobes; lobes imbricate. Corolla synpetalous, often irregular, 5(or 6)-lobed; 4 lobes similar but anterior one (labellum) often different in shape and reflexed. Stamens 2, at lateral sides, adnate with style, forming a gynostemium; anthers extrorse, 2-celled. Ovary inferior, 2-locular, incompletely 2-locular, or even 1-locular due to reduction of septum; ovules usually numerous, on axile or free-central placentas, anatropous; stigma entire or 2-fid, adnate with anthers. Fruit a capsule, usually septicidal. Seeds few to more, often numerous, minute; seed-coat thin; embryo small, embedded in copious endosperm.

Protandrous and entomophilous; gynostemium often irritable, normally bent to labellum side but snapping to an oppositely bent position when touched.

Four or five genera and ca. 150 species in Australia, New Zealand, S end of South America, with only *Stylidium* extending into tropical Asia; one genus and two species in S China and in Hong Kong.

1. Stylidium Sw. ex Willd., *nom. cons.* 花柱草屬

Herbs, annual or perennial, often covered with glandular hairs. Leaves alternate, simple, cauline or in a basal rosette. Inflorescences a cyme, raceme, or lax spike, terminal. Flowers perfect, zygomorphic. Calyx with anterior 2 lobes often connate into a shallowly 2-lobed segment. Corolla irregular, lobes distinct or 2 or 4 connate, anterior one small and reflexed; corona often present, formed by glandular appendix at throat. Stamens at lateral sides, completely adnate with style, forming a long gynostemium usually exserted from corolla, bent and irritable, base movable; anthers sessile, just below stigma. Ovary 2-locular or partially 1-locular; ovules numerous.

About 120 species in Australia (where most species occur) and tropical Asia (eight species, four endemic to Asia); two species in S China and in Hong Kong.

1a. Leaves basal and generally in a rosette, each with a short petiole; leaf blade ovate-orbicular, ovate, or obovate.... 1. *S. uliginosum*
1b. Leaves cauline, scattered along stem, sessile; leaf blade oblong-obovate to lanceolate.... 2. *S. tenellum*

1. Stylidium uliginosum Sw. 花柱草 **(Fig. 184; Photo 356)**

Ges. Naturf. Freunde Berlin Mag. Neuesten Entdeck. Gesammten Naturk. 1: 52. 1807; FHK 195. 1861; FKH 151. 1912; FRPS 73(2): 181. 1983; FGD 3: 333. 1995.

Stylidium sinicum Hance, Walp. Ann. Syst. 2: 1030. 1851.

Herbs, annual, 5–13(–19) cm tall. Leaves all basal, generally in a rosette, each with a short petiole; leaf blade ovate-orbicular, ovate, or obovate, 4–10 × 2–6 mm, apex obtuse to rounded, margin entire, glabrous, veins obscure. Stems 1–3, leafless, simple or dichotomously branched, covered with sparse short glandular trichomes. Inflorescences a long and lax spike; bracts ovate, less than 1 mm. Flowers small, sessile. Calyx tube (hypanthium) narrow, with sparse glandular trichomes; lobes minute, anterior 2 connate into a shallowly 2-lobed segment, ca. 1.8 mm, but others 3 linear and ca. 1.2 mm. Corolla white, ca. 2 mm; tube short; anterior lobe extremely small, ovate, reflexed, becoming a labellum; 4 remaining lobes patent toward posterior side with 2 most posterior longer, base with an appendage, apex shallowly 2-lobed. Gynostemium ca. 3.5 mm, exserted. Ovary 2-locular. Capsule columnar, 6–8 mm.

Locality: Tai Mo Shan, Pat Sin Leng, Lantau Island. *L. T. Lo 435; HK sheet 19097.*

Distribution: Hainan, Guangdong; India, Sri Lanka, NE Australia.

Ecology: Wet places by streams. Flowering: Oct.–Nov.

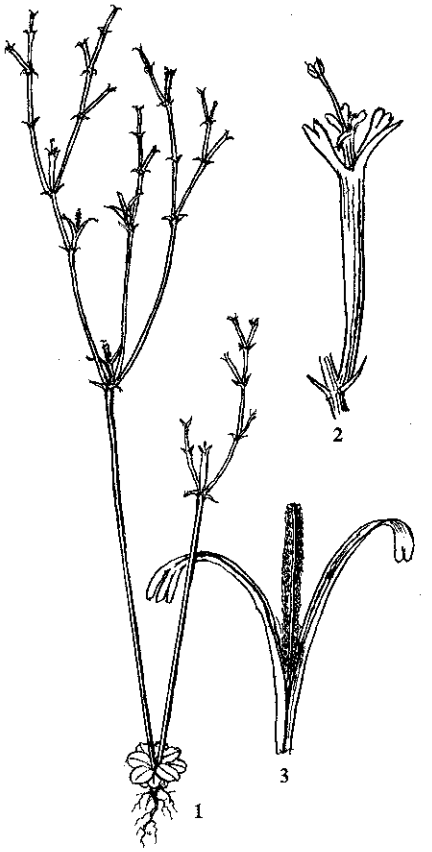


Figure 184. *Stylidium uliginosum* Sw.
1. whole plant; *2.* flower; *3.* dehiscent fruit. (drawn by H. P. Yu)

2. Stylidium tenellum Sw. 狹葉花柱草 **(Photos 357–358)**

Ges. Naturf. Freunde Berlin Mag. Neuesten Entdeck. Gesammten Naturk. 1: 51. 1807; FKH 151. 1912; FRPS 73(2): 181. 1983; FGD 3: 334. 1995.

Stylidium roseum Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 46(2): 212. 1877.

Stylidium tenellum var. *minimum* C. B. Clarke, in Hook. f., Fl. Brit. India 3: 420. 1881, '*minima*'.
Epilobium tonkinense H. Lév., Bull. Herb. Boissier ser. 2, 7: 588. 1907.

Herbs, annual, erect, 6–16 cm tall. Stems slender, simple or laxly dichotomously branched, glabrous. Leaves alternate, few, sessile or nearly sessile; leaf blades oblong-obovate to oblanceolate, 4–10 × 0.8–2 mm, apical ones smaller and graduating into bracts, glabrous, veins 3 inconspicuous and arcuate, base cuneate, apex obtuse, margin entire. Inflorescences terminal. Flowers solitary, in a spike of 2 or 3, or in a dichotomous inflorescence, sessile. Calyx glabrous or with glandular trichomes; tube (hypanthium) elongate, ca. 1 cm; 2 lobes connate into a slightly 2-lobed segment. Corolla white or pink or rose purple, less than 2 mm, with sparse glandular trichomes; tube slightly longer than calyx-lobes; lobes distinct, posterior one 2-lobed, anterior ones much smaller; labellum minute, subulate; appendage at throat minute but visible. Capsule thinly columnar, to 1.5 cm.

Locality: Hong Kong Island, Pat Sin Leng. *HK sheet 2743.*

Distribution: S Fujian, Guangdong, Hainan, Yunnan (Xishuangbanna); India, Bangladesh, Cambodia, Laos, Myanmar, Vietnam, Malaysia, Indonesia.

Ecology: Paddy fields, swamps. Flowering: Oct.–Nov.

315. GOODENIACEAE 草海桐科

HU Qi-ming 胡啓明

Herbs, subshrubs or shrubs. Leaves simple, alternate or radical, rarely opposite, pinnately-veined; stipules absent. Flowers bisexual, zygomorphic, usually in cymes, or sometimes in racemes or spikes. Calyx-tube adnate to the ovary; limb 3–5-lobed or entire. Corolla 5-lobed at apex; lobes very thin, induplicate, with membranous margin. Stamens 5, alternate with corolla-lobes; filaments free, rarely connate to base of corolla-tube; anthers dorsifixed, introrse, 2-celled, opening by longitudinal slits. Disk absent. Ovary inferior, half-inferior or superior, 1–2-locular, with 1–many ovules in each locule; style entire or 2–3-lobed; stigma surrounded by a cup-shaped or peltate indusium, usually ciliate on the margin. Fruit a capsule opening in valves, or sometime drupaceous. Seeds 1–many, usually with a fleshy albumen and straight embryo.

About 14 genera and 300 species mainly distributed in Australia; two genera and three species in China and in Hong Kong.

1a. Shrubs or subshrubs; fruit drupaceous ..... 1. *Scaevola*
1b. Herbs; fruit a capsule, opening in 2 valves ..... 2. *Calogyne*

1. Scaevola L. 草海桐屬

Herbs or shrubs, erect or scandent. Leaves alternate, spirally arranged, entire or toothed. Flowers usually 5-merous, forming cymes or sometimes solitary. Calyx-tube adnate to the ovary; limb short, ring- to cup-shaped or toothed. Corolla open on the upper side to the base, deeply 5-lobed; lobes subequal or the upper 2 slightly shorter, usually spreading digitately at full blooming. Anthers free. Ovary inferior, rarely half-inferior, 1–4-locular, with 1 ovule in each locule; stigma surrounded by a cup-shaped indusium and ciliate on the margin. Fruit drupaceous, indehiscent, 1–4-seeded.

About 80 species mainly in Australasia, with two species widely spread in tropical regions; two species in China and in Hong Kong.

1a. Small subshrubs; leaves linear-spathulate, 1.2–2.5 × 0.2–0.5 cm; flowers solitary ..... 1. *S. hainanensis*
1b. Large shrubs or small trees; leaves obovate or spathulate, 22–20 × 4–8 cm; flowers in cymes ..... 2. *S. taccada*

1. Scaevola hainanensis Hance 海南草海桐 **(Photos 359–360)**

J. Bot. 16(188): 229. 1878; FKH 151. 1912; FRPS 73(2): 179. 1983; FGD 2: 360, fig. 245. 1991; FTW ed. 2, 4: 803, pl. 373. 1998.

Small diffuse shrubs; stems thick, greyish, sparsely hirsute and with greyish woolly hairs in leaf-axils. Leaves sessile, fasciculate at apex of short branches; leaf blade linear-spathulate, 1.2–2.5 × 0.2–0.5 cm, ± succulent, base attenuate, apex obtuse, margin entire; midvein obscure. Flowers sessile to short-petiolate, solitary in axils of upper leaves; bracts 2, similar to leaves, but slightly smaller. Calyx adnate to ovary; tube ca. 4 mm; limb cup-shaped, obscurely 5-lobed. Corolla initially pink, gradually turning white, ca. 10 mm when full blooming; tube 5–6 mm glandular and hairy adaxially, ± pubescent abaxially; lobes 5, slightly shorter than or equal to the tube, margin membranous, folded inwards. Drupe ellipsoidal, 6–7 × 4–6 mm, apex crowned with enlarged calyx-lobes.

Locality: Cape D'Aguilar, Cheung Shue Tan, Kiu Tsui, Kau Sai Chau. *L. T. Lo 639; Y. W. Lam 42, 361.*

Distribution: Hainan, Guangdong, Guangxi, Taiwan; Vietnam.

Ecology: Sandy shores. Flowering & fruiting: May–Nov.

2. Scaevola taccada (Gaertn.) Roxb. 草海桐 **(Fig. 185; Photos 361–362)**

Fl. Ind. 1: 527. 1820; R. K. Shannon, W. L. Wagner & D. H. Nicolson, Taxon 46(4): 801. 1997; FTW ed. 2, 4: 805, pl. 374. 1998.

Lobelia taccada Gaertn., Fruct. Sem. Pl. 1: 119, pl. 25, fig. 5. 1788.

Scaevola sericea Vahl, Symb. Bot. 2: 37. 1791; FRPS 73(2): 178. 1983; FGD 2: 361. 1991.

Scaevola lobelia L., Syst. Veg. ed. 13, 178. 1774; FHK 198. 1861.

Scaevola koenigii Vahl, Symb. Bot. 3: 36. 1794; FKH 151. 1912.

Shrubs or small trees, with a thick, ± succulent stem; branches, leaves and inflorescence silky-pubescent or nearly glabrous, but always with a tuft of woolly or long silky hairs in leaf-axils. Leaves alternate, crowded towards apex of branches; leaf blade obovate-oblong to spathulate, 22–20 × 4–8 cm, , base narrowed into a very short and broad petiole, apex round to broadly obtuse, margin entire, rarely obscurely toothed; midvein raised on both surfaces, lateral veins indistinct. Cymes axillary, lax-flowered, shorter than the leaves; peduncle 1–2 cm; bracts linear-lanceolate, 6–8 mm, hairy at the base. Calyx-tube turbinate, 3–5 mm; lobes 5, oblong-linear, about the length of the tube. Corolla usually white, 20–22 mm, ± pubescent abaxially and always hairy adaxially; tube 10–12 mm; lobes 5, lanceolate, about half the length of the tube, spreading, bordered on each side with a narrow wing folded inward in the bud. Drupe ovoid or globose, 8–12 mm in diam., apex crowned with enlarged calyx-lobes.

Locality: Common in Hong Kong. *Y. S. Lau 227, 360; L. T. Lo 445.*

Distribution: Hainan, Guangdong, Guangxi, Fujian, Taiwan; Japan, Philippines, Malaysia, Indonesia, Australia.

Ecology: Sandy and rocky seashores. Flowering: Apr.–Dec.; fruiting: Jul.–Dec.

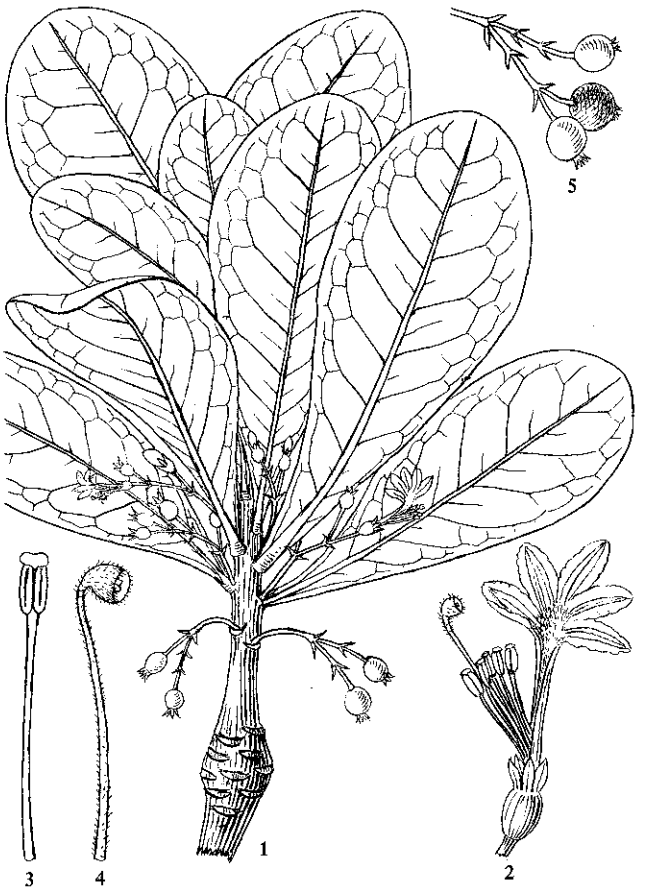


Figure 185. *Scaevola taccada* (Gaertn.) Roxb.
1. flowering and fruiting branch; *2.* flower; *3.* stamen; *4.* pistil; *5.* fruit. (drawn by H. P. Yu)

2. Calogyne R. Br. 離根香屬

Annual perennial herbs. Leaves simple, alternate, spirally arranged, margin irregularly toothed. Flowers solitary in leaf-axils, ebracteate. Calyx-tube adnate to the ovary; limb with 5 small lobes. Corolla open on one side beyond middle; lobes 5, extending forward, margin winged. Stamens 5; filaments free. Ovary inferior, 2-locular, with many ovules in each locule; style 2–3-branched; the cup-shaped indusium of stigma slightly 2-lobed, densely hairy on the margin. Fruit a capsule, opening in 2 valves. Seeds compressed, slightly thickened at margin.

About six species mainly distributed in Australia; one species in China and in Hong Kong.

1. Calogyne pilosa R. Br. subsp. **chinensis** (Benth.) H. S. Kiu
火花離根香 **(Fig. 186)**

Guihaia 9(3): 194. 1989.

Calogyne chinensis Benth., J. Linn. Soc. 5: 78. 1861; FGD 2: 361. 1991.

Calogyne pilosa auct. non R. Br.: FRPS 73(2): 179. 1983.

Perennial herbs, 5–15 cm tall, aromatic when dry; Stems erect, sparsely pubescent; branches slender, diffuse or procumbent after anthesis. Leaves fasciculate at the base of stem, subsessile; leaf blade narrowly lanceolate to linear, 10–25 × 1–3 mm, base attenuate, apex acute, sparsely hirsute on both surfaces, margin remotely undulate-dentate, ciliate; upper stem leaves alternate and smaller, sometimes with ear-like lobes at the base. Flowers solitary, axillary; pedicels slender, 5–10(–20) mm. Calyx-tube ovoid, less than 2 mm, covered with white short hairs; lobes 5, lanceolate, 4–5 × 1–1.5 mm. Corolla yellow, 6–7 mm, hairy abaxially. Stamens 5; filaments ca. 2.5 mm. Capsule ovoid, 4–4.5 × 3–3.5 mm, 7–12-seeded.

Locality: Fanling. *W. J. Tutcher 10484.*

Distribution: Hainan, Guangdong, Guangxi, Fujian.

Ecology: Moist places, grassy hillslopes, pine forests. Flowering: May–Dec.



Figure 186. *Calogyne pilosa* subsp. *chinensis* (Benth.) H. S. Kiu
1. whole plant; *2.* upper portion of style and stigma. (drawn by H. P. Yu)

316. RUBIACEAE 茜草科

Hu Qi-ming 胡启明

Trees, shrubs, herbs, or rarely climbers. Leaves opposite or whorled, simple and usually entire. Stipules usually interpetiolar, fused at each node or distinct, sometimes leafy or reduced to a stipular line, seldom intrapetiolar and small. Inflorescence various, basically composed of cymes. Flowers bisexual and regular, rarely unisexual or polygamous, often heterostylic. Calyx-tube fused with ovary, apex 4–5-lobed, rarely subentire, sometimes one of the lobes enlarged. Corolla tubular, funnel-shaped, salverform, bell-shaped or rotate, 4–5-lobed; lobes valvate, imbricate or contorted in bud. Stamens as many as lobes of corolla, alternating with them and inserted in the tube; anthers 2-celled, opening by longitudinal slits, or rarely by apical pores. Ovary usually inferior, usually 2-locular and with axile, apical or basal placentas, rarely 1-locular with parietal placentas; styles simple, with a simple terminal stigma, or with as many stigmatic lobes as cells of the ovary. Fruit a capsule, berry, drupe or schizocarp; seeds sometimes winged.

About 637 genera with 10700 species mainly in tropics and subtropics, and with a few species in temperate and cold regions; 96 genera and about 670 species in China; 35 genera, 78 species and two varieties in Hong Kong.

1a. Flowers in globular heads.
- 2a. Ovules and seeds solitary in each locule; leaves opposite or whorled ..... 1. *Cephalanthus*
- 2b. Ovules and seeds many in each locule; leaves opposite.
  - 3a. Woody climbers, with hooked spines ..... 2. *Uncaria*
  - 3b. Shrubs or trees, without spines.
    - 4a. Flowering heads solitary, terminal ..... 3. *Nauclea*
    - 4b. Flowering heads 1–several, axillary, or axillary and terminal.
      - 5a. Terminal vegetative bud inconspicuous, loosely enveloped by stipules deeply 2-lobed ..... 4. *Adina*
      - 5b. Terminal vegetative bud conspicuous, conical; stipules entire, rarely notched at apex ..... 5. *Pertusadina*

1b. Flowers not in globular heads.
- 6a. Corolla-lobes valvate.
  - 7a. Ovules and seeds 2–many in each locule of the ovary.
    - 8a. Fruit indehiscent; 2 outer calyx-lobes in the inflorescence very large and coloured ..... 6. *Mussaenda*
    - 8b. Fruit dehiscent when mature; outer calyx-lobes not enlarged.
      - 9a. Flowers usually 4-merous.
        - 10a. Seeds angled; disk usually small, slightly 4-lobed ..... 7. *Hedyotis*
        - 10b. Seeds peltate, navicular or flat, not angled; disk inconspicuous ..... 8. *Neanotis*
      - 9b. Flowers 5-merous.
        - 11a. Sepals unequal; capsule ovoid ..... 9. *Pentas*
        - 11b. Sepals equal; capsule broader than long ..... 10. *Ophiorrhiza*
  - 7b. Ovules and seeds solitary in each locule of the ovary.
    - 12a. Fruits united in one compound berry ..... 11. *Morinda*
    - 12b. Fruits distinct.
      - 13a. Stipules fused with petioles and fringed with bristles.
        - 14a. Small shrubs; flowers solitary in small terminal clusters ..... 12. *Serissa*
        - 14b. Herbs or subshrubs.
          - 15a. Inflorescence axillary, subsessile ..... 13. *Spermacoce*
          - 15b. Inflorescence terminal, pedunculate ..... 14. *Knoxia*
      - 13b. Stipules not as above mentioned.
        - 16a. Herbs or climbing shrubs.
          - 17a. Leaves whorled.
            - 18a. Fruit dry, with hooked bristles; leaves 1(or 3–5)-veined ..... 15. *Galium*
            - 18b. Fruit fleshy, glabrous; leaves palmately- or pinnately-veined ..... 16. *Rubia*
          - 17b. Leaves opposite.
            - 19a. Erect or decumbent herbs.
              - 20a. Flowers 6-merous; ovary and fruit 3-celled ..... 17. *Richardia*
              - 20b. Flowers 4-merous; ovary and fruit 2-celled.
                - 21a. Fruit a fleshy drupe, indehiscent; calyx-lobes equal ..... 18. *Geophila*
                - 21b. Fruit circumscissile; calyx-lobes 2 large and 2 small ..... 19. *Mitracarpus*
            - 19b. Climbing shrubs; flowers in terminal or axillary panicles.
              - 22a. Plants climbing by aerial roots; corolla tube shorter than lobes ..... 23. *Psychotria*
              - 22b. Plants without aerial roots; corolla tube longer than lobes ..... 20. *Paederia*
        - 16b. Shrubs or trees.
          - 23a. Ovary 3–9-locular; styles 3–9; branches and leaves crashed with disagreeable smell ..... 21. *Lasianthus*
          - 23b. Ovary 2-locular; styles 2; branches and leaves not smelling disagreeably.

24a. Flowers in axillary clusters or cymes ..... 22. *Canthium*
24b. Flowers in terminal cymes or panicles ..... 23. *Psychotria*

6b. Corolla-lobes contorted or imbricate.
25a. Corolla-lobes imbricate.
26a. Woody climbers; fruit a capsule ..... 24. *Coptosapelta*
26b. Shrubs; fruit a berry or a drupe.
27a. Flowers 5-merous; calyx-lobes equal; leaves in whorls of 3 ..... 25. *Hamelia*
27b. Flowers 4-merous; calyx-lobes unequal; leaves opposite ..... 26. *Antirhea*
25b. Corolla-lobes contorted.
28a. Ovules and seeds solitary in each locule of the ovary.
29a. Flowers 5-merous; corolla-tube shorter than lobes ..... 27. *Tarenna*
29b. Flowers 4-merous; corolla-tube slender, longer than lobes.
30a. Style bifid at the top, with recurved lobes ..... 28. *Ixora*
30b. Style entire, with clavate stigma ..... 29. *Pavetta*
28b. Ovules and seeds 2–many in each locule of the ovary.
31a. Flowers large, solitary; ovary 1-locular, with parietal placentas ..... 30. *Gardenia*
31b. Flowers smaller, in clusters or cymes; ovary 2-locular.
32a. Shrubs or sometimes half-climbing, with axillary spines.
33a. Corolla bell-shaped; fruit 2–4 cm in diam. ..... 31. *Catunaregam*
33b. Corolla savlerform; fruit 0.8–1.2 cm in diam. ..... 32. *Oxyceros*
32b. Spineless shrubs.
34a. Flowers 4-merous, unisexual (plants dioecious) ..... 33. *Diplospora*
34b. Flowers 5-merous, bisexual.
35a. Ovules 4–many each locule; cymes usually many-crowded ..... 34. *Aidia*
35b. Ovules 2 each locule; flowers 1–5-clustered ..... 35. *Alleizettella*

1. Cephalanthus L. 風箱樹屬

Shrubs or small trees. Leaves opposite or in whorls of 3–4, short-petiolate. Stipules short, intrapetiolar. Flowers bisexual, regular, densely crowded in globular heads, on terminal or axillary peduncles, or sometimes paniculate; bractless or with bracteoles. Calyx-tube cup-shaped; limb unequally 4–5-toothed. Corolla tubular-funnel-shaped, yellow or white, glabrous at throat, apex 4-lobed; lobes imbricate. Stamens 4, inserted in throat of corolla; filaments short; anthers dorsifixed, with exserted connectives. Disk inconspicuous. Ovary inferior, 2-locular, with a solitary pendulous ovule in each locule; style linear, with capitate or clavate stigma. Aggregate fruit globular, composed of numerous leathery nutlets.

About six species in Asia, Africa and N America; one species in China and in Hong Kong.

1. Cephalanthus tetrandrus (Roxb.) Ridsdale & Bakh. f. 風箱樹 **(Fig. 187; Photo 363)**

Blumea 23(1): 182. 1976; FRPS 71(1): 279, pl. 75. 1999; FGD 6: 163, fig. 82. 2005.

Cephalanthus occidentalis auct. non L.: Dunn & Tutch., FKH 124. 1912.

Nauclea tetrandra Roxb., Fl. Ind. ed. 1820, 2: 125. 1824.

Deciduous shrubs or small trees, 1–5 m tall. Branchlets pubescent when young, brown and glabrous in age. Stipules broadly ovate, 3–5 mm, usually with a black gland at the cuspidate apex. Leaves opposite or in whorls, subleathery; petioles 5–10 mm; leaf blade ovate or ovate-lanceolate, 10–15 × 3–5 cm, base obtuse or subcordate, apex acute, adaxially glabrous or sparsely puberulent, abaxially glabrous or densely pubescent, especially in the axils of veins; lateral veins 8–12 on each side of midvein. Flowers heads globular, across calyces 8–12 cm in diam., terminal or axillary; peduncle 2.5–6 cm, simple or branched, pubescent. Calyx-tube 2–3 mm, sparsely puberulent; lobes 4, apex obtuse, densely puberulent, usually with a black gland at the sinus of the lobes. Corolla white, tube 7–12 mm, glabrous abaxially, puberulent adaxially; lobes 4, oblong, with a black gland at the sinus of the

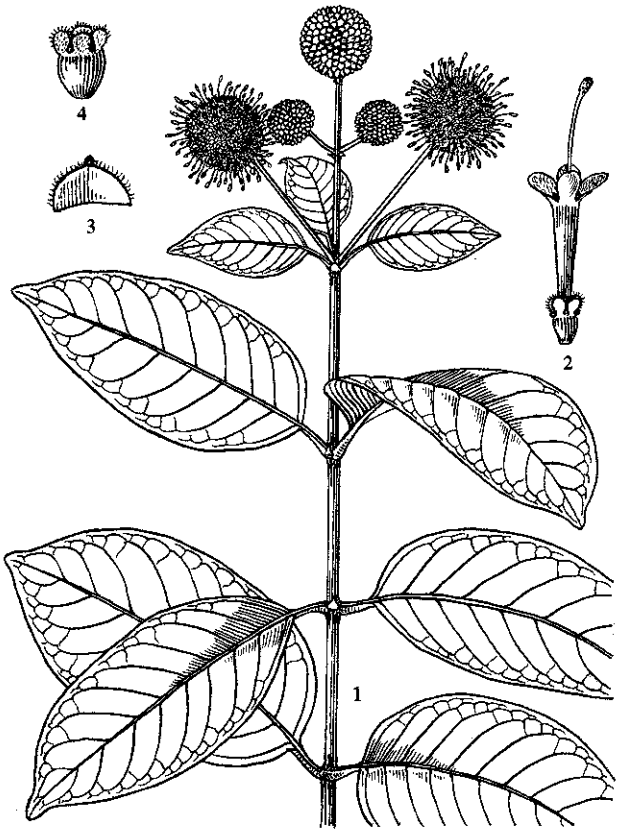


Figure 187. *Cephalanthus tetrandrus* (Roxb.) Ridsdale & Bakh. f.
1. flowering branch; *2*. flower; *3*. stipule; *4*. calyx. (drawn by H. P. Yu)

lobes. Ovary inferior; style long exserted. Aggregate fruit globose, 10–20 mm in diam.; nutlets 4–6 mm, with persistent calyx at apex.

Locality: San Wai, Ta Kwu Ling. *W. J. Tutcher 8153; HK sheet 40705.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Jiangxi, Zhejiang, Fujian, Taiwan; Indochina to India and Malesia.

Ecology: Thickets by streams. Flowering: Late spring to autumn; fruiting: Jun.–Oct..

Uses: Medicinal (folklore).

2. Uncaria Schreb., *nom. cons.* 鈎藤屬

Woody climber; stems and branches usually with hooked spines. Leaves opposite, usually with domatia in the axils of lateral veins. Stipules interpetiolar, entire or bifid. Flowers bisexual, regular, densely crowded in globular heads, on axillary or terminal peduncles, usually solitary, rarely paniculate. Calyx-tube spindle-shaped, limb bell-shaped or tubular, 5-lobed. Corolla salverform or funelform, limb 5-lobed; lobes valvate. Stamens 5, inserted in the throat of corolla; filaments short; anthers basifixed, exserted. Ovary inferior, 2-locular, with numerous ovules in each locule; style exserted, with capitate or clavate stigma. Fruit an elongate capsule, many-seeded, dehiscing septicidally into 2 valves; seed winged.

About 34 species mainly in tropical Asia and Australia, a few in tropical America and Africa; 11 species in China, three species in Hong Kong.

1a. Flowers and capsules distinctly pedicellate ..... 1. *U. macrophylla*

1b. Flowers and capsules sessile.

2a. Leaves leathery; flowering heads across corollas 40–50 mm in diam. ..... 2. *U. hirsuta*

2b. Leaves papery; flowering heads across corollas 25–28 mm in diam. ..... 3. *U. homomalla*

1. Uncaria macrophylla Wall.

大葉鈎藤 **(Fig. 188; Photo 364)**

Fl. Ind., ed. 1820, 2: 132. 1824; Hook. f., Fl. Brit. Ind. 3: 32. 1880; Pitard in Lecomte, Fl. Gen. Indo-Chine 3: 46. 1922; C. E. Ridsdale, Blumea 24(1): 78. 1978; FRPS 71(1): 249. 1999; FYN 15: 121. 2003; FGD 6: 155, fig. 74. 2005.

Woody climbers. Young shoots square to slightly angular, slightly hairy. Stipules ovate, deeply 2-lobed; lobes narrowly ovate, abaxially pubescent, adaxially glabrous or sparsely pubecent, with colleters at the base. Leaves opposite, subleathery; petioles 3–10 mm, glabrous or sparsely puberulous; leaf blade ovate or broadly elliptic, 10–16 × 6–12 cm, base obtuse or cordate, apex acute or acuminate, glabrous or ± pubescent on veins of adaxial surface, sparsely to densely hairy on abaxial surface, with hairy domatia in axils of lateral veins; midvein depressed adaxially, raised abaxially; lateral veins 6–9 on each side of midvein. Flowers densely crowded in globular heads of 4.5–5 cm in diam. across corollas. Receptacle densely hairy. Peduncles 3–7 cm, axillary, unbranched, or rarely 3 together at the ends of the branches, each bearing a flowering head; pedicels 2–5 mm. Calyx-tube funnelform, 2–3 mm, covered with sericeous short hairs abaxially, 5-lobed; lobes linear oblong, 3–4 mm, finely pubescent. Corolla-tube 9–10 mm, pubescent abaxially, 5-lobed; lobes oblong, ca. 2 mm, pubescent abaxially. Style ca. 6 mm, long exserted. Fruiting head 8–10 cm in diam.; fruitlets ca. 2 cm, pubescent.

Locality: Lantau Island. *N. H. Li 33; S. Y. Hu & P. P. H. But 24077; HK sheet 35603.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; Vietnam, Laos, Thailand, Myanmar, Bhutan, India.

Ecology: Forests. Flowering: Mar.; fruiting: Nov.

Uses: Medicinal (folklore).

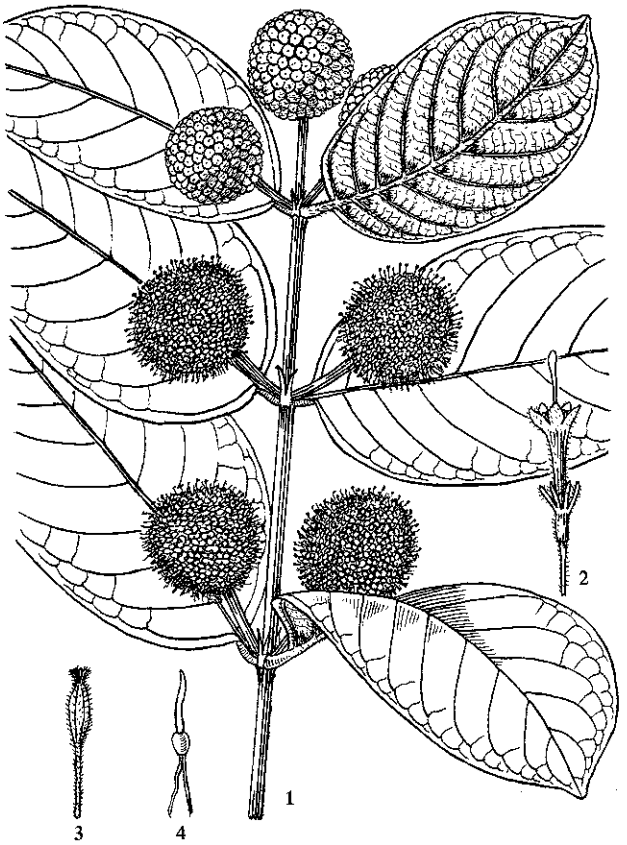


Figure 188. *Uncaria macrophylla* Wall.
1. flowering branch; *2.* flower; *3.* fruit; *4.* seed. (drawn by H. P. Yu)

2. Uncaria hirsuta Havil. 毛鈎藤 **(Photo 365)**

J. Linn. Soc., Bot. 33; 88. 1897; FKH 125. 1912; Ridsdale, Blumea 24(1): 94. 1978; FTW ed. 2, 4: 334. 1998; FRPS 71(1): 255. 1999; FGD 6: 157, fig. 75. 2005.

Woody climbers. Young shoots terete or slightly angular, hirsute. Stipules broadly ovate, deeply bifid; lobes ovate, sometimes with long acuminate apex, adaxially glabrous, but with glandular hairs at the base, abaxially puberulent, and with scattered long hairs. Leaves

opposite, leathery; petioles 3–10 mm, hairy; leaf blade ovate to elliptic, 8–12 × 5–7 cm, base obtuse, apex acuminate, adaxially somewhat scabrous with scattered hairs, abaxially sparsely to densely strigose, with hairy domatia in axils of lateral veins; lateral veins 7–10 on each side of midvein. Flowers subsessile, densely crowded in globular heads of 3–5 cm in diam. across corollas. Receptacle densely hairy. Peduncles 2.5–5 cm, unbranched, pubescent, axillary or rarely 3 together at the ends of the branches, each bearing a flower-head. Calyx-tube ca. 2 mm, pubescent abaxially, 5-lobed; lobes linear-oblong, 2–3 mm, densely hairy. Corolla-tube white, 7–10 mm, abaxially pubescent, 5-lobed; lobes oblong, 2–3 mm, densely hairy on abaxial surface. Style 4–6 mm, exserted. Fruiting head 4.5–5 cm in diam.; fruitlets 10–15 mm, pubescent.

Locality: Shek O, Ma On Shan, Kei Ling Ha, Lantau Island. *Y. S. Lau 1709; N. H. Li 37; K. Y. Tam 119.*

Distribution: Guangdong, Guangxi, Guizhou, Fujian, Taiwan.

Ecology: Thickets by streams or in ravines. Flowering: Mar.–Apr.

Notes: The holotype specimen (*C. Ford*, s.n., K) was collected by C. Ford from Lantau Island. How (1946) cited the specimen *W. J. Tutcher 613* as an "isotype", which was collected from Lantau Island in April 1896.

3. Uncaria homomalla Miq. 北越鈎藤

Fl. Ned. Ind. 2: 343. 1857; Ridsdale, Blumea 24(1): 95. 1978; FRPS 71(1): 258. 1999; FYN 15: 124. 2003.

Uncaria tonkinensis Havil., J. Linn. Soc. Bot. 33: 89, pl. 2, fig. 19–20. 1897; Pitard in Lecomte, Fl. Gen. Indo-Chine 3: 52. 1922.

Woody climbers, 10–25 m or longer. Young shoots tetragonal, slightly rusty puberulent. Stipules triangular to narrowly triangular, 5–8 mm, 2-lobed to middle; lobes lanceolate. Leaves opposite, papery; petioles 3–6 mm, pubescent; leaf blade elliptic, elliptic-lanceolate or ovate-lanceolate, 8.5–10 × 3.5–5.5 cm, base obtuse to subrounded, apex acuminate or caudate, covered with short hairs on both surfaces; lateral veins 8–9 on each side of midvein. Flowers greenish yellow, subsessile, densely crowded in globular heads of 2.5–2.8 cm in diam. across corollas. Peduncles 2.5–3 cm, axillary, compressed, bearing a terminal flower-head. Calyx-tube ca. 1.5 mm, 5-lobed; lobes linear, ca. 1 mm, puberulent. Corolla-tube 7.5–9 mm, puberulent outside, 5-lobed; lobes narrowly oblong, ca. 2 mm. Stamens attached to the apex of corolla-tube; anthers exserted. Style filiform, 10–11 mm, long exserted; stigma clavate. Fruiting head globose; fruitlets obovate, 4 × 2 mm.

Locality: Hong Kong Island (Glenealy). *W. J. Tutcher 8334.*

Distribution: Guangxi, Yunnan; Indochina, India subcontinent and Malesia.

Ecology: Thickets. Flowering: May–Oct.

3. Nauclea L. 烏檀屬

Trees or sometimes shrubby. Terminal vegetative bud strongly compressed, rarely conical. Stipules large, interpetiolar, elliptic or obovate, caducous. Leaves opposite, petiolate. Flowers 4–5-merous, bisexual, regular, densely crowded into a terminal globular head. Peduncles axillary or terminal, unbranched with a node bearing reduced leaves and stipules. Receptacles glabrous. Calyx-tubes coalescent, the limb 4–5-lobed; lobes persistent. Corolla funnel-shaped, usually 5-lobed; lobes imbricate. Stamens as many, inserted in the upper part of the tube; filaments short, glabrous; anthers basifixed, introrse. Ovary 2-locular, with numerous ovules in each locule; style exserted, with spindle-shaped stigma. Fruit a fleshy, globular syncarp, composed of numerous indehiscent drupelets; seeds ovoid or ellipsoidal, sometimes bilaterally compressed.

About ten species in tropical Asia, Australia and Africa; one species in China and in Hong Kong.

Nauclea orientalis L. (東方烏檀) was also cultivated in Hong Kong Botanical Garden previously (Sunyatsenia 6: 235. 1946).

1. Nauclea officinalis (Pierre ex Pit.) Merr. & Chun
烏檀 **(Fig. 189; Photo 366)**

Sunyatsenia 5: 188. 1940; FHN 3: 287, fig. 728. 1974; Ridsdale, Blumea 24(2): 328. 1978; FRPS 71(1): 260, pl. 66. 1999.

Evergreen trees, 4–12 m tall. Branchlets slender, smooth; terminal bud obovoid. Stipules obovate, 6–10 mm, apex rounded, caducous. Leaves opposite, papery; petioles 10–15 mm; leaf blade elliptic, rarely obovate, 7–9 × 3.5–5 cm, base cuneate, apex acuminate, tip ± blunt, glabrous; lateral veins slender, 5–7 on each side of midvein, slightly raised on both surfaces. Flowering head solitary, terminal. Peduncles 1–3 cm. Calyx-tubes connate, fleshy.

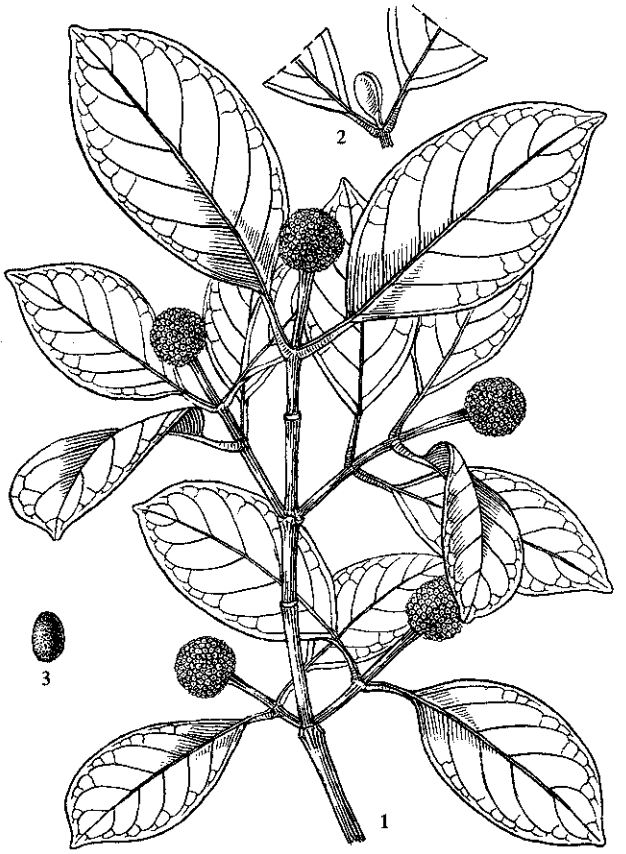


Figure 189. *Nauclea officinalis* (Pierre ex Pit.) Merr. & Chun
1. fruiting branch; *2.* portion of stem showing leaf base and stipule; *3.* seed. (drawn by H. P. Yu)

Corolla funnel-shaped, 5-lobed. Stamens 5, inserted in the upper part of the corolla-tube. Fruiting head globular, yellowish brown when ripen, 9–15 mm in diam., composed of numerous drupelets.

Locality: Sheung Wo Hang, Wu Kau Tang. *S. C. Ng 2644; Y. W. Lam 2012; F. W. Xing 8643.*

Distribution: Hainan, Guangdong, Guangxi; Indochina, Thailand, Malesia.

Ecology: Forests. Flowering: Summer; fruiting: Apr.–Dec.

Uses: Timber, medicinal (folklore).

Notes: Listed in *Rare and Precious Plants of Hong Kong*.

4. Adina Salisb. 水團花屬

Shrubs or small trees; terminal buds inconspicuous, loosely surrounded by stipules. Stipules interpetiolar, triangular, bifid, usually persistent. Leaves opposite, petiolate. Flowers bisexual, regular, densely crowded in globular heads on axillary or terminal peduncles, solitary or paniculate. Receptacles hairy. Calyx-tube short; limb 5-lobed, persistent. Corolla-tube slender, lobes 5, valvate in the bud. Stamens 5, inserted in corolla-tube; filaments short; anthers basifixed, introrse. Ovary 2-locular, with many ovules in each locule; style exserted, with capitate stigma. Fruit capsular, septicidally dehiscing into 2 valves, many-seeded; seeds narrow oblong, with a narrow edge or wing.

Three species in E Asia and Indochina; two species in China; one species in Hong Kong.

1. Adina pilulifera (Lam.) Franch. ex Drake

水團花 **(Fig. 190; Photo 367)**

J. Bot. (Morot) 9: 207. 1895; Hand.-Mazz., Symb. Sin. 8: 1018. 1936; FHN 3: 288, fig. 727. 1974; Ridsdale, Blumea 24(2): 357, fig. 1(d), 3(h). 1978; FRPS 71(1): 274, pl. 73: 1–2. 1999; FYN 15: 132, pl. 25: 6–9. 2003; FGD 6: 162. 2005.

Adina globiflora Salisb., Parad. Lond. pl. 115. 1807; FHK 146. 1861; FKH 124. 1912.

Cephalanthus pilulifera Lam., Encycl. 1: 678. 1785.

Evergreen shrubs or small trees, to 5 m tall, many-branched. Stipules bifid, caducous. Leaves opposite, thickly papery; petioles 2–6 mm; leaf blade elliptic to elliptic-lanceolate, or sometimes obovate-oblong or obovate-oblanceolate, 4–12 × 1.5–3 cm, base obtuse or cuneate, apex acute to acuminate, tip blunt, adaxially glabrous, abaxially glabrous or puberulent, with hairy domatia in axils of lateral veins; lateral veins 6–12 on each side of midvein. Flowering head globular, 8–12 mm in diam. across corollas. Peduncles axillary, 2–5 cm, unbranched, rarely 3 together at the ends of the branches, each bearing a flowering head. Calyx-tube 1.2–2 mm, pubescent at the base; lobes clavate to spathulate, 1–1.8 mm, glabrous or with a few scattered hairs. Corolla white, 3–5 mm, tube 2–3 mm, glabrous; lobes deltoid, ca. 0.5 mm. Stamens 5, inserted in the throat of corolla; filaments short; anthers 0.5–1 mm. Ovary 2-locular, with many ovules in each locule; style exserted, with small, globose or obovoid stigma. Fruiting head globose, 8–10 mm in diam.; fruitlets 2–4 mm, glabrous or with a few scattered hairs.

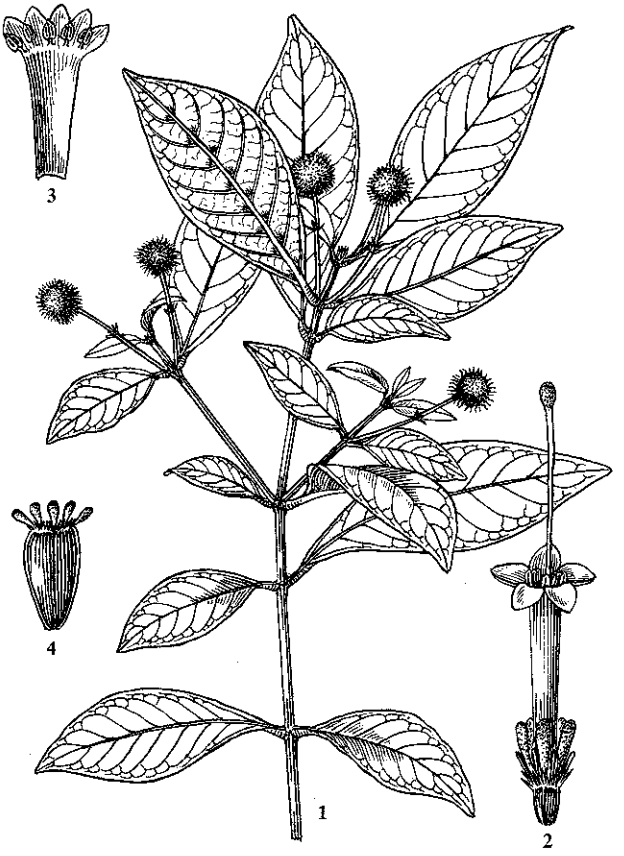


Figure 190. *Adina pilulifera* (Lam.) Franch. ex Drake
1. flowering branch; *2.* flower; *3.* corolla opened; *4.* fruit. (drawn by H. P. Yu)

Locality: Common in Hong Kong. *S. Y. Hu & P. P. H. But 24058, 24084; HK Sheet 39081.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Jiangxi, Jiangsu, Zhejiang, Fujian; Japan, Vietnam.

Ecology: Thickets by streams and in ravines. Flowering: May–Oct.; fruiting: Jul.–Dec.

Uses: Medicinal (folklore).

5. Pertusadina Ridsdale 槽裂木屬

Trees, rarely shrubs. Terminal vegetative bud conical. Stipules narrowly triangular, sometimes bifid at apex, deciduous. Leaves opposite. Inflorescences globular capitate; peduncles usually axillary, unbranched or branched like a simple dichasium or trichasium. Flowers bisexual, regular, 4–5-merous, subsessile, densely crowded on the hairy receptacle; interfloral bracteoles spathulate to filiform-spathulate. Hypanthia mutually free. Calyx-tube short, lobes deltoid to elliptic-oblong, apex obtuse, persistent. Corolla hypocrateriform to narrowly infundibular; lobes valvate in the bud but subimbricate at the apex. Stamens inserted in the upper part of corolla-tube; filaments short, glabrous; anthers basifixed, introrse, protruding from the throat. Ovary 2-locular, with up to 10 pendulous

ovules in each locule; style exserted, stigma globose to obovoid. Infructescence a globular head, composed of numerous fruitlets with a hard endocarp splitting septicidally and loculicidally into 4 valves from base to apex.

Four species in E Asia to Malesia regions; one species in China and in Hong Kong.

1. Pertusadina metcalfii (Merr. ex H. L. Li) Y. F. Deng & C. M. Hu 海南槽裂木

Blumea 51: 559. 2006.

Pertusadina hainanensis (How) Ridsdale, Blumea 24(2): 354. 1978; FRPS 71(1): 272. 1999; FGD 6: 161. 2005.

Adina hainanensis How, Sunyatsenia 6: 240, fig. 29. 1946.

Adina affinis How, Sunyatsenia 6: 238. 1946.

Adina metcalfii Merr. ex H. L. Li, J. Arnold Arb. 24: 454. 1943.

Trees or shrubs, up to 30 m tall; branchlets glabrous or nearly so. Leaves opposite; stipules linear-oblong to subulate, 4–6 × 2 mm, glabrous; petioles 3–10(–25) mm, glabrous or pubescent; leaf blade thick-papery, elliptic to elliptic-oblong, 4–10 × 2–3.5 cm, base cuneate, apex acuminate, glabrous or pubescent on both surfaces, with domatia in axils of lateral veins; lateral veins 7–10 on each side of midvein; reticulation of veins inconspicuous. Flowering heads axillary, ca. 15 mm in diam. across corollas; peduncle unbranched or sometimes branched like a simple dichasium. Interfloral bracteoles filiform-clavate to filiform-spathulate, 0.5–1 mm, ciliate at apex. Hypanthium 0.5–0.7 mm, glabrous to sparsely hairy. Calyx-tube 1.5–2 mm, sparsely hairy; lobes linear-oblong, 1.2–1.6 mm. Corolla hypocrateriform, 3–3.5 mm, glabrous; lobes deltoid, 0.7–1 mm. Style 7–8 mm, exserted. Fruiting heads 4–6 mm in diam.

Locality: Lantau Peak. *W. Y. Chun 10036* (IBSC).

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Zhejiang, Fujian.

Ecology: Forests in ravines. Flowering: Jun.–Jul.

Uses: Timber.

Notes: The holotype specimen (*W. Y. Chun 10036*) of *Adina affinis* How was collected from "Phoenix Mt." (Lantau Peak) in October 1934.

6. Mussaenda L. 玉葉金花屬

Erect or scandent shrubs, rarely small trees. Stipules interpetiolar, 2-lobed or sometimes divided into 2 separate segments, usually deciduous. Leaves opposite or in whorls of 3, petiolate. Flowers bisexual, in terminal corymbs. Calyx-tube ellipsoidal or turbinate, the limb 5-lobed, one of the lobes in a few of the outer flowers of each corymb often enlarged into a stalked, bract-like, coloured leaf. Corolla funnel-shaped, tube usually elongate, hairy at the throat; lobes 5, valvate in bud. Stamens 5, inserted in upper part of the tube; filaments very short; anthers basifixed, included in the tube or nearly so. Ovary 2-locular, with numerous ovules in each locule. Fruit a berry, indehiscent; seeds numerous, small.

About 120 species in tropical and subtropical regions of Asia, Pacific islands and Africa; 31 species in China; three species in Hong Kong.

Mussaenda erythophylla Schum. & Thonn. (紅葉金花; Photo 368) was also cultivated in Hong Kong.

1a. Branchlets glabrous; calyx-lobes very short ..... 1. *M. erosa*

1b. Branchlets pubescent.

2a. Stipules 2-lobed to 2/3 of its length; calyx-lobes 2–3 times as long as the tube ..... 2. *M. pubescens*

2b. Stipules 2-lobed to the base; calyx-lobes ca. 1.5 times as long as the tube ..... 3. *M. kwangtungensis*

1. Mussaenda erosa Champ. ex Benth. 楠藤 (野白紙扇) **(Photo 369)**

Hooker's J. Bot. Kew Gard. Misc. 4: 193. 1852; FHK 153. 1861; FKH 130. 1912; FRPS 71(1): 293, pl. 78: 4–6. 1999; FYN 14: 146, pl. 28: 1–5. 2003; FGD 6: 167. 2005.

Evergreen scandent shrubs, to 3 m tall. Branchlets glabrous. Stipules narrowly triangular, 7–8 mm, glabrous or strigose, deeply 2-lobed. Leaves opposite, papery; petioles 1–1.5 cm; leaf blade oblong, ovate to ovate-oblong, 6–12 × 3.5–5 cm, base cuneate, apex acute to long-acuminate, initially slightly pubescent on veins of adaxial surface, sparsely appressed-pubescent on abaxial surface, but glabrous on both surfaces in age. Corymbs terminal, large and loose, long-pedunculate. Calyx-tube ellipsoidal, 3–3.5 mm, glabrous; lobes linear-lanceolate, 2–2.5 mm, sparsely covered with short hairs at the base, one of them in a few of the outer flowers enlarged, broadly elliptic, white, 4–6 × 3–4 cm, apex rounded or acute, base abruptly narrowed into a long (0.9–1 cm) petiole, glabrous. Corolla yellow, tube 1.2–1.8 cm, pubescent abaxially, densely covered with clavate hairs at throat; lobes ovate, ca. 5 mm, apex acute, with minute yellow tubercles inside. Berries subglobular to broadly ellipsoidal, 8–10 mm in diam., glabrous.

Locality: Hong Kong Island, Ma On Shan, Tai Po, Ng Tung Chai, Ping Shan Chai, Fanling, Pat Sin Leng, Lantau Island. *H. C. Tang 390, 558; Y. S. Lau 616.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Fujian, Taiwan; Japan, Vietnam.

Ecology: Ravines. Flowering: Feb.–Jul.; fruiting: May–Dec.

Uses: Medicinal (folklore).

Notes: The type specimen was collected by J. G. Champion from Happy Valley between 1847 and 1850.

2. Mussaenda pubescens W. T. Aiton 玉叶金花 **(Photo 370)**

Hort. Kew. ed. 2, 1: 372. 1810; FHK 153. 1861; FKH 130. 1912; H. L. Li, Woody Fl. Taiwan 863, fig. 348. 1963; FTW ed. 2, 4: 302. 1998; FRPS 71(1): 296, pl. 79: 5–7. 1999; FYN 14: 146. 2003; FGD 6: 168. 2005.

Evergreen scandent shrubs. Branchlets densely appressed-pubescent. Stipules 5–7 mm, lobed to 2/3 of its length; lobes subulate. Leaves opposite or sometimes subverticillate; petioles 3–8 mm, pubescent; leaf blade oblong-elliptic, obovate-elliptic to ovate-lanceolate, 5–9 × 2–3.5 cm, base cuneate, apex shortly acuminate, pubescent, but the hairs denser on abaxial surface. Cymes corymbiform, terminal. Peduncle 0–7 mm. Pedicels scarcely 1 mm. Calyx-tube turbinate, 2–2.5 mm, pubescent; lobes subulate, 6–7 mm, one of them in a few of the outer flowers enlarged, broadly ovate or orbicular, white, 2–4.5 × 1–3.5 cm, apex obtuse or acute, base narrowed into a 1–2.8 cm long petiole. Corolla salverform; tube slender, 1.2–1.8 cm, green, sparsely appressed-pubescent abaxially, densely yellowish villose on throat; lobes bright yellow, oblong-lanceolate, ca. 4 × 2 mm, spreading, with minute golden-yellow tubercles inside. Style short, included. Berries globular, 8–10 mm in diam., sparsely pubescent.

Locality: Common in Hong Kong. *Y. S. Lau 2143; Y. W. Lam 259; HK sheet 39950.*

Distribution: Hainan, Guangdong, Guangxi, Hunan, Jiangxi, Zhejiang, Fujian, Taiwan.

Ecology: Thickets on roadsides and in ravines. Flowering: Apr.–Jul.; fruiting: May–Oct.

Uses: Ornamental, medicinal (folklore).

3. Mussaenda kwangtungensis H. L. Li

廣東玉葉金花 **(Fig. 191)**

J. Arnold Arb. 25: 427. 1944; FRPS 71(1): 302, pl. 80: 4–6. 1999; FGD 6: 169, fig. 85. 2005.

Evergreen scandent shrubs 1–2.5 m tall. Branchlets covered with grey short hairs. Stipules 1.5–2 mm, divided to the base; lobes linear, puberulent. Leaves opposite; petioles ca. 5 mm, densely puberulent; leaf blade elliptic-lanceolate, 7–8 × 2–3 cm, base attenuate, apex long acuminate, both surfaces pubescent on veins, other parts sparsely puberulent or glabrescent. Corymbs terminal. Peduncle ca. 5 mm. Calyx-tube oblong, 2–2.5 mm, puberulent; lobes linear, 3–3.5 mm, densely puberulent, one of them in a few of the outer flowers enlarged, oblong-ovate, white, 3.5–5 × 1.5–2.5 cm, apex acute, base narrowed into a 1.5 cm long petiole, pubescent. Corolla yellow, tube ca. 4 cm, puberulent abaxially, covered with clavate hairs on the upper part inside the tube; lobes ovate, ca. 5 mm, apex acute, densely pubescent abaxially, with minute golden yellow tubercle adaxially. Style short, included; stigma bifid.

Locality: Bowen Rd. *W. Y. Chun 9183* (IBSC).

Distribution: SE Guangdong.

Ecology: Forests. Flowering: Spring to summer.

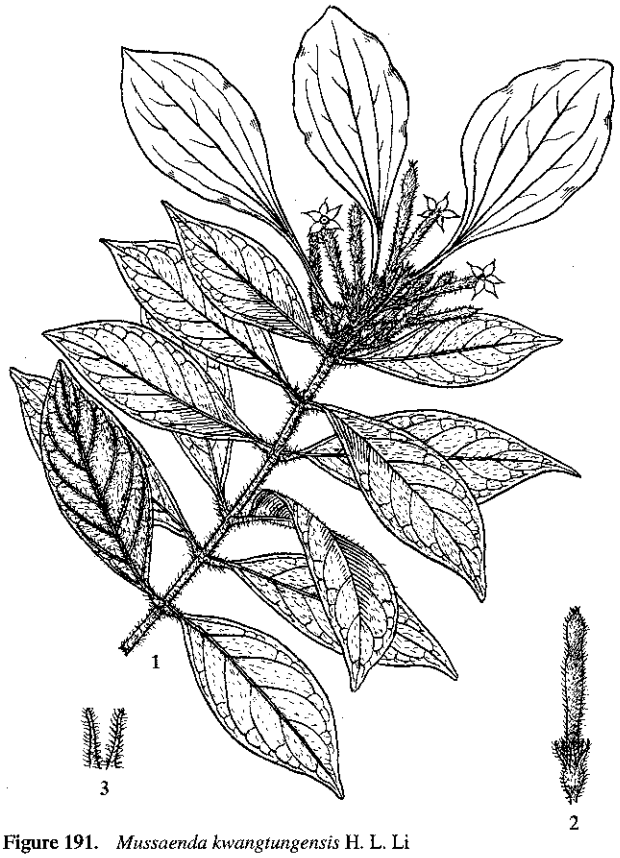


Figure 191. *Mussaenda kwangtungensis* H. L. Li
1. flowering branch; *2.* flower bud; *3.* stipule. (drawn by H. P. Yu)

7. Hedyotis L. 耳草屬

Herbs or subshrubs. Stems erect or half-scandent, terete or quadrangular. Leaves opposite, or rarely whorled. Stipules free or united with the petioles in a short sheath, entire or fringed with bristle-like subulate lobes. Flowers in axillary clusters or terminal panicles, or rarely in axillary pedunculate cymes. Calyx-tube usually turbinate or obconical, limb distinct or inconspicuous, usually 4–5-lobed; lobes persistent. Corolla-tube usually short, limb 4–5-lobed; lobes spreading, valvate in bud, and usually hairy adaxially at base. Stamens as many as and alternate with the corolla-lobes; anthers basifixed, exserted from corolla-tube. Ovary 2(–3)-locular, with several ovules in each locule; style linear; stigma 2-lobed. Fruit a capsule, subglobular to ovoid or ellipsoidal, dehiscent or indehiscent.

A large genus, with more than 400 species widely distributed over tropical and subtropical regions of the world; 59 species in China; 19 species in Hong Kong.

1a. Leaves linear to linear-lanceolate, 1–3 mm broad, lateral veins obsolete, sessile.
  2a. Flowers sessile, in axillary or terminal clusters; peduncles none.
    3a. Leaves glabrous; flowers 2–3 in axillary clusters; capsules glabrous ..... 1. *H. tenelliflora*
    3b. Leaves scabrous or hirtellous on both surfaces; flowers 3–10 in terminal and axillary glomerule; capsules hirsute on the upper part ..... 2. *H. pinifolia*
  2b. Flowers pedicellate, solitary, in pairs or in cymes.
    4a. Flowers in axillary cymes; peduncles filiform, 3–12 mm; capsules narrowed at the base, scarcely over 2 mm in diam. ..... 3. *H. corymbosa*

4b. Flowers solitary or in pairs; peduncles none; capsules broadly rounded at the base, 2–3.5 mm in diam. ... 4. *H. diffusa*

1b. Leaves lanceolate to oblong or elliptic, broader than 6 mm, lateral veins ± distinct.

5a. Stipules apex truncate, with long bristles.

6a. Flowers in sessile axillary clusters.

7a. Leaves hispidulous on both surfaces, lateral veins obscure; corolla-lobes barbate at apex; capsules dehiscing at apex ... 5. *H. verticillata*

7b. Leaves glabrous, or pulverulent abaxially, with raised lateral veins; corolla-lobes not barbate; capsules indehiscent ... 6. *H. auricularia*

6b. Flowers in cymes or umbels on peduncles.

8a. Flowers umbellate, on trichotomous peduncles, or in terminal panicles ... 7. *H. hedyotidea*

8b. Flowers in compound cymes ... 8. *H. costata*

5b. Stipules ovate or triangular.

9a. Flowers densely crowded in a head.

10a. Flowering head sessile ... 9. *H. uncinella*

10b. Flowering head pedunculate ... 10. *H. bracteosa*

9b. Flowers in cymes or panicles.

11a. Annual herbs; capsules 2–4 ribbed, opening loculicidally ... 11. *H. biflora*

11b. Perennial herbs; capsules without ribs, opening septicidally.

12a. Inflorescence terminal.

13a. Inflorescence very loose, with divaricate and often zigzag branches ... 12. *H. effusa*

13b. Inflorescence condensed, branches not divaricate or zigzag.

14a. Leaves petiolate; stems and branches terete or slightly angled ... 13. *H. vachellii*

14b. Leaves sessile or nearly so; stems and branches winged or acutely 4-angled.

15a. Slender herbs; stipules oblong-ovate, apex acuminate ... 14. *H. consanguinea*

15b. Robust herbs; stipules ovate or broadly triangular.

16a. Stems with 4 sharp ribs or wings; leaves leathery; stipules ovate or triangular, entire or with glandular teeth ... 15. *H. acutangula*

16b. Stems obtusely quadrangular; leaves thickly papery; stipules lacerate ... 16. *H. shiuyingiae*

12b. Inflorescence axillary or borne on axillary branchlets.

17a. Small shrubs, branchlets and peduncles puberulous ... 17. *H. bodinieri*

17b. Perennial herbs or somewhat woody at the base, branchlets and peduncles glabrous.

18a. Stipules entire; peduncles bearing a trichotomous cyme of 10–20 flowers ... 18. *H. loganioides*

18b. Stipules with glandular teeth or lobes; peduncles bearing a few-flowered dichotomous cyme ... 19. *H. matthewii*

1. Hedyotis tenelliflora Blume 纖花耳草 **(Photo 371)**

Bijdr. Fl. Ned. Ind. 971. 1826; FKH 128. 1912; FHN 3: 300. 1974; FTW ed. 2, 4: 271, pl. 118. 1998; FRPS 71(1): 41. 1999; FYN 14: 36. 2003; FGD 6: 121. 2005.

Oldenlandia angustifolia Benth., FHK 151. 1861.

Hedyotis angustifolia Cham. & Schltdl., Linnaea 4: 153. 1829.

Perennial herbs. Stems diffuse or decumbent, 15–40 cm or longer; branchlets quadrangular, glabrous. Stipules 3–6 mm, united at the base, slightly pubescent, with several bristle-like teeth. Leaves opposite, almost sessile, thin-leathery; leaf blade linear to linear lanceolate, 2–5 × 0.2–0.4 cm, base cuneate, slightly decurrent, apex acute or acuminate, in dry state margin ± revolute, adaxial surface turning black, covered with rounded, pellucid minute scales, abaxial surface paler, smooth; midvein depressed adaxially, raised abaxially; lateral veins inconspicuous. Flowers 4-merous, sessile, 2–3 clustered in axils of leaves. Calyx-tube obovate, ca. 1 mm; calyx-teeth linear-lanceolate, ca. 1.8 mm, ciliate. Corolla white, tube ca. 2 mm; lobes oblong, 1–1.5 mm. Stamens inserted in the throat of corolla-tube; filaments ca. 1.5 mm; anthers exserted. Ovary inferior; style ca. 4 mm; stigma bifid. Capsules ovoid or nearly globular, 1.5–2 mm in diam., crowned by the linear lanceolate calyx-teeth.

Locality: Hong Kong Island, Ping Shan Chai, Ng Tung Chai, Po Toi Islands. *H. C. Tang 1407; Y. S. Lau 1661; Y. W. Lam 898.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Jiangxi, Zhejiang, Taiwan.

Ecology: Abandoned farmlands, margins of fields. Flowering & fruiting: Jul.–Oct.

Uses: Medicinal (folklore).

2. Hedyotis pinifolia Wall. ex G. Don 松葉耳草

Gen. Hist. 3: 526. 1834; Hook. f., Fl. Brit. Ind. 3: 60. 1880; FKH 128. 1912; FHN 3: 301. 1974; FRPS 71(1): 43, pl. 4: 9–14. 1999; FYN 14: 36. 2003; FGD 6: 122. 2005.

Annual diffuse herbs, 10–25 cm tall. Stems many-branched; branchlets slender, sharply 4-angular, turning dark brown when dry. Stipules united into a short sheath at the base, apex truncate, fringed with 2–4 bristles. Leaves whorled or opposite, sessile; leaf blade

linear, 1.2–4 × 0.1–0.2 cm, base cuneate, apex acute, margin revolute when dry, both surfaces scabrous, rarely pubescent; midvein depressed adaxially, raised abaxially; lateral veins inconspicuous. Flowers 4-merous, 3–10 together, in axillary or terminal glomerules. Peduncles none. Pedicels ca. 1 mm. Calyx-tube obconical, 1–1.5 mm, sparsely hispidulous; calyx-teeth subulate, ca. 1 mm, ciliate. Corolla white, tube 4–4.2 mm; lobes oblong, equal to the tube. Stamens inserted in the throat of the tube; filaments ca. 2 mm; anthers exserted. Ovary inferior; style ca. 9 mm; stigma 2-lobed; lobes linear, ca. 1 mm, spreading. Capsules ovoid, 2.5–3 × 1.5–2 mm, sparsely hispidulous, opening at apex when mature.

Locality: Aberdeen, Shek O, Tsim Shan, Lamma Island, Lantau Island, Po Toi Islands. *Y. W. Lam 772, 1061; K. Y. Tam 147.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; India, Nepal, Vietnam, Malesia.

Ecology: Open fields, grasslands. Flowering & fruiting: Apr.–Sep.

Uses: Medicinal (folklore).

3. Hedyotis corymbosa (L.) Lam. 伞房花耳草 **(Photo 372)**

Tabl. Encycl. 1: 272. 1791; FHN 3: 307. 1974; FTW 2, 4: 267. 1998; FRPS 71(1): 72. 1999; FYN 14: 44. 2003; FGD 6: 133. 2005.

Oldenlandia herbacea DC., Prodr. 4: 425. 1830; FHK 151. 1861.

Oldenlandia corymbosa L., Sp. 1: 119. 1753; FKH 128. 1912.

Annual slender herbs, 10–50 cm tall. Stems diffuse, many-branched; branches glabrous or sparsely pubescent on the edge of angles. Stipule membranous, sheathing, 1–1.5 mm, apex truncate, fringed with short bristle-like teeth. Leaves opposite, almost sessile, membranous; leaf blade linear to linear lanceolate, 1–2.5 × 0.1–0.3 cm, narrowed at the base, apex acute, margin revolute when dry, scabrous on both surfaces or slightly puberulent on the midvein adaxially; midvein depressed adaxially, plane or slightly raised abaxially; lateral veins obsolete. Peduncles axillary, usually solitary and shorter than the leaves, bearing either a single flower or a 2–5-flowered cyme. Pedicels filiform, 5–10 mm. Flowers 4-merous. Calyx-tube tubular, slightly pubescent, 1–1.2 mm; calyx-teeth narrowly triangular, ca. 1 mm, ciliate. Corolla white or pink, tube 1.2–1.5 mm; lobes oblong, ca. 1 mm. Stamens inserted in the corolla-tube; filaments very short. Ovary inferior; style 1.3 mm; stigma bifid. Capsules globular, 1.5–1.8 mm in diam., with minute calyx-teeth in a ring around the apex.

Locality: Common in Hong Kong. *S. P. Lau 1; Y. S. Lau 1973; Y. W. Lam 908.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Sichuan, Fujian, Zhejiang, Taiwan; tropical Asia, Africa and America.

Ecology: Wastelands, grasslands. Flowering & fruiting: May–Oct.

Uses: Medicinal (folklore).

4. Hedyotis diffusa Willd. 白花蛇舌草 **(Photo 373)**

Sp. Pl. 1: 566. 1797; FHN 3: 307. 1974; FTW ed. 2, 4: 267. 1998; FRPS 71(1): 75. 1999; FYN 14: 45, pl. 7: 4–6. 2003; FGD 6: 134. 2005.

Oldenlandia diffusa (Willd.) Roxb., Hort. Bengal. 11. 1814; FKH 128. 1912.

Oldenlandia herbacea L. var. *uniflora* Benth., FHK 150. 1861.

Annual diffuse herbs, 20–50 cm tall, glabrous throughout; branches slender, quadrangular. Stipules triangular, 1–2 mm, united at the base, apex aristate. Leaves opposite, membranous, sessile; leaf blade linear, 1–3 × 0.1–0.3 cm, narrowed at the base, apex acute, margin revolute when dry, adaxially smooth, abaxially sometimes scabrous; midvein depressed adaxially, raised abaxially; lateral veins inconspicuous. Flowers 4-merous, solitary or in pairs in axils of leaves. Pedicels 2–5 mm, rarely longer. Calyx-tube tubular, ca. 1.5 mm; calyx-teeth linear oblong-lanceolate, 1.5–2 mm, ciliate. Corolla white, tube 1.5–2 mm, glabrous; lobes ovate-oblong, ca. 2 mm. Stamens inserted in the throat of the tube; filaments very short. Ovary inferior; style 2–3 mm; stigma bifid. Capsules membranous, depressed globular, 2–2.5 mm, in diam., opening loculicidally at apex.

Locality: Mount Parker, Mount Gough, Sai Kung, Tai Po, Fung Yuen, Fanling, Lantau Island. *Y. W. Lam 301, 2310; HK sheet 39827.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Anhui; tropical Asia.

Ecology: Wastelands, grasslands. Flowering & fruiting: Mar.–Oct.

Uses: Medicinal (folklore).

5. Hedyotis verticillata (L.) Lam. 粗葉耳草(輪葉耳草) **(Photo 374)**

Tabl. Encycl. 1: 271. 1792; Hara & al., Enum. Flow. Pl. Nepal. 2: 202. 1979; FTW ed. 2, 4: 271. 1998; FRPS 71(1): 42. 1999; FYN 14: 37. 2003; FGD 6: 121. 2005.

Hedyotis hispida Retz., Observ. Bot. 4: 23. 1786.

Annual diffuse herbs, 25–30 cm tall. Branches often decumbent, sparsely or densely hirtellous. Stipules united with petioles into a sheath, apex almost truncate, fringed with bristles. Leaves opposite, sessile or nearly so; leaf blade papery or thinly leathery, elliptic, ovate-elliptic or lanceolate, 2.5–6.5 × 0.6–2 cm, base cuneate or obtuse, apex acute or acuminate, hispidulous on both surfaces, margin revolute when dry; midvein depressed adaxially, raised; lateral veins inconspicuous. Flowers 4-merous, in axillary glomerules. Peduncles and pedicels none. Calyx-tube obconical, ca. 1 mm, hispidulous; calyx-teeth lanceolate, 1–1.5 mm. Corolla white, tube ca. 2 mm; lobes lanceolate, 1.8–2 mm, barbate at apex. Stamens inserted in throat of the tube; filaments ca. 2 mm; anthers exserted. Ovary inferior; style 4–4.5 mm; stigma capitate. Capsules ovoid, 1.5–2 mm in diam., hispidulous, opening only at apex when mature.

Locality: Hong Kong Island, Tai Po, Fung Yuen, Ta Kwu Ling, Lantau Island, Peng Chau. *Y. S. Lau 1961; Y. W. Lam 874, 909.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Zhejiang, Taiwan.

Ecology: Ravines. Flowering & fruiting: Apr.–Oct.
Uses: Medicinal (folklore).

6. Hedyotis auricularia L. 耳草 **(Photo 375)**

Sp. Pl. 101. 1753; FHK 150. 1861; FKH 128. 1912; FHN 3: 299. 1974; FRPS 71(1): 37. 1999; FYN 14: 35. 2003; FGD 6: 119. 2005.
Oldenlandia auricularia (L.) F. Muell., Syst. Cons. Austral. Pl. 74. 1882.
Exallage auricularia (L.) Bremek., Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Tweede Sect. 48: 142. 1952.

Perennial herbs, 0.3–1 m tall. Stems almost erect or decumbent; young shoots ± quadrangular, densely hispidulous, or rarely glabrous in age. Stipules membranous, pubescent, united at the base into a short sheath, apex fringed with 5–7 bristle-like lobes. Leaves opposite, subleathery; petioles ca. 2.5 mm; leaf blade lanceolate or elliptic, rarely ovate, 3–8 × 1–2.5 cm, base cuneate or slightly decurrent, apex acute or acuminate, adaxially smooth or scabrous, abaxially usually puberulent; lateral veins 4–6 on each side of midvein, conspicuous, obliquely ascending and in an acute angle with the midvein. Flowers 4-merous, in axillary, densely flowered, head-like cymes. Peduncles none. Pedicels ca. 1 mm or almost obsolete. Calyx-tube pubescent, tube ca. 1 mm; calyx-teeth lanceolate, 1–1.2 mm. Corolla white, tube 1–1.5 mm, hairy on throat; lobes lanceolate, 1.5–2 mm, spreading. Stamens inserted in throat of corolla-tube; filaments very short. Ovary inferior; style ca. 1 mm, hairy; stigma bifid. Capsules globose, 1.2–1.5 mm in diam., sparsely hispidulous or almost glabrous, indehiscent.

Locality: Kwai Chung, Shing Mun. *Y. W. Lam 1018, 1545.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan; Indochina, India, Nepal, Thailand, Myanmar, Malesia, Australia and tropical Africa.

Ecology: Grassy slopes, thickets. Flowering: Jul.–Oct.; fruting: Sep.–Oct.
Uses: Medicinal (folklore).

7. Hedyotis hedyotidea (DC.) Merr. 牛白藤 **(Photo 376)**

Lingnan. Sci. J. 13: 48. 1934; FTW ed. 2, 4: 268, pl. 116. 1998; FRPS 71(1): 67, pl. 12: 1–6. 1999; FYN 14: 42. 2003; FGD 6: 131. 2005.
Hedyotis recurva Benth., Lond. J. Bot. 1: 486. 1842; FHK 148. 1861.
Hedyotis macrostemon Hook. & Arn., Bot. Beechey Voy. 192. 1833; FKH 128. 1912.

Half-climbing subshrubs, 1–3 m or longer. Stems and old branches terete or nearly so; young shoots quadrangular, pulverulent. Stipules 4–6 mm, apex truncate, fringed with 4–6 bristles. Leaves opposite, membranous or papery; petioles 3–10 mm; leaf blade ovate to ovate-oblong, 4–10 × 2.5–4 cm, base cuneate or obtuse, apex acute or shortly acuminate, adaxially scabrous, abaxially pubescent; lateral veins 4–5 on each side of midvein, obliquely ascending, appressed adaxially, raised abaxially. Flowers 4-merous, heterostylic, 10–20 together, in little umbels on short peduncles in the upper axils, the upper ones forming a terminal oblong panicle. Peduncles 1.5–2.5 cm, puberulent. Pedicels ca. 2 mm. Calyx-tube turbinate, ca. 1.5 mm; calyx-teeth linear-lanceolate, ca. 2.5 mm, recurved outward. Corolla white, tube ca. 2.5 mm; lobes lanceolate, 4–4.5 mm, spreading or recurved, sparsely pubescent on adaxial surface. Stamens included in long-styled flowers, exserted in short-styled flowers; filaments barbate at the base. Ovary inferior; stigma bifid. Capsules subglobose, ca. 3 × 2 mm, apex projecting from the calyx, separating septicidally in the upper part into 2 carpels; carpels opening loculicidally in 2 valves.

Locality: Common in Hong Kong. *H. C. Tang 1401, 2191; Y. S. Lau 1322.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Fujian, Taiwan; Vietnam.

Ecology: Hillslopes, forests and thickets. Flowering & fruiting: All year round.

Uses: Medicinal (folklore).

8. Hedyotis costata (Roxb.) Kurz 脈耳草

J. Asiat. Soc. Bengal. 45: 135. 1876; FHN 3: 297. 1974; FRPS 71(1): 32, pl. 4: 1–8. 1999; FYN 14: 33, pl. 6: 6–9. 2003; FGD 6: 117, fig. 51. 2005.
Spermacoce costata Roxb., Hort. Bengal. 10. 1814.

Perennial diffuse herbs, 30–50 cm tall, except for the flowers and fruits all parts sparsely covered with long hairs, which becoming golden yellow when dry. Stipules membranous, united at the base, apex truncate, fringed with several bristles. Leaves opposite, membranous; petioles 5–10 mm; leaf blade lanceolate to elliptic-lanceolate, 5–8 × 1.5–2.8 cm, base cuneate, slightly decurrent, apex acuminate; lateral veins slender, 4–5 on each side of midvein, obliquely ascending at an acute angle from the midvein. Flowers 4(–5)-merous, in axillary, simple or compound cymes. Peduncles 5–12 mm. Pedicels very short or almost obsolete. Calyx-tube turbinate, ca. 0.5 mm; calyx-teeth lanceolate, ca. 1 mm, recurved outward. Corolla white or purplish, tube 1.2–1.5 mm, apex hairy; lobes oblong, ca. 1 mm. Stamens attached to the top of corolla-tube; filaments ca. 1 mm; anthers exserted. Ovary inferior; style 1.2–1.5 mm, hairy on the upper half; stigma bifid. Capsules subglobose, 1–1.5 mm in diam., indehiscent.

Locality: Tung Chung, Tai Ho, San Tau, Pui O. *Y. W. Lam 662, 799, 1248.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; Indochina, India, Malesia, Philippines.

Ecology: Margins of forests, grassy slopes. Flowering: Apr.–Dec.; fruiting: Dec.
Uses: Medicinal (folklore).

9. Hedyotis uncinella Hook. & Arn. 長節耳草 **(Photo 377)**

Bot. Beechey Voy. 192. 1833; FHK 149. 1861; FKH 127. 1912; FHN 3: 304. 1974; FTW ed. 2, 4: 271, pl. 119. 1998; FRPS 71(1): 59. 1999; FYN 14: 38. 2003; FGD 6: 128. 2005.

Hedyotis borrerioides Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 4: 171. 1852.

Perennial herbs. Stems erect, quadrangular, glabrous, or rarely puberulent. Stipules triangular, 11–12 mm, united at the base, apex with several teeth or lobes. Leaves opposite, papery; petioles very short or almost obsolete; leaf blade ovate to ovate-lanceolate, 3.5–7.5 × 1–3 cm, base obtuse or attenuate and decurrent, apex acuminate, glabrous or sparsely puberulent on the veins of adaxial surface, rarely puberulent on both surfaces; lateral veins slender, 4–5 on each side of midvein, obliquely ascending at an acute angle from the midvein; reticulation of veins inconspicuous. Flowers 4-merous, densely crowded in terminal or axillary heads of 12–15 mm in diam., subsessile. Pedicels obsolete or very short. Calyx-tube subglobular, ca. 3 mm; calyx-teeth oblong-lanceolate, ca. 3 mm, apex obtuse, glabrous or ciliolate. Corolla white or purple, tube ca. 3 mm, tomentose at throat; lobes oblong-lanceolate, shorter than the tube. Stamens attached to the top of corolla-tube; filaments very short; anthers included. Ovary inferior; style ca. 2 mm; stigma bifid. Capsules broadly ovate, 1.8–2 mm in diam., top flat, separating septicidally into 2 carpels; carpels opening ventrally.

Locality: Hong Kong Island, Tai Mo Shan, Tai Au Mun, Shing Mun, Sai Kung, Ma On Shan. *S. P. Lau 30; L. T. Lo 300, 456.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Taiwan; India.

Ecology: Grasslands. Flowering & fruiting: May–Oct.

Uses: Medicinal (folklore).

Notes: The type specimen of *Hedyotis borrerioides* was collected by J. G. Champion from "Chuckchow" (Stanley), Hong Kong Island, between 1847 and 1850.

10. Hedyotis bracteosa Hance 大苞耳草 **(Photo 378)**

J. Bot. 23: 323. 1885; FKH 128. 1912; FRPS 71(1): 56, pl. 9: 1–4. 1999; FGD 6: 127. 2005.

Oldenlandia bracteosa (Hance) Kuntze, Revis. Gen. Pl. 1: 292. 1891.

Perennial herbs, to 50 cm tall, glabrous throughout. Stems erect, quadrangular. Stipules broadly triangular, 9–10 mm long, 7 mm at base, apex acute, margin revolute, with black glandular dots. Leaves opposite, or subverticillate on the upper part, sessile or nearly so; leaf blade papery, oblong to oblong-lanceolate, 12–15 × 2–4 cm, base broadly cuneate or obtuse, apex acute or shortly acuminate, tip blunt; midvein depressed adaxially; lateral veins slender, 7 on each side of midvein, obliquely ascending at an acute angle from the midvein, prominent on both surfaces. Flowers 4-merous, in axillary heads of 1.6 cm in diam. Peduncles 4–15 cm. Pedicels none. Bracts 4, broadly ovate, 1.5–2.5 × 1–1.8 cm, subtending the flowering heads. Calyx-tube oblong, ca. 2 mm; calyx-teeth ovate to ovate-lanceolate, 2.5–3 × 1.8–2 mm, apex acute, sometimes ciliolate. Corolla white, ca. 5 mm; lobes lanceolate, equal to the tube, recurved outward. Stamens attached to the upper part of the corolla-tube; filaments very short; anthers included. Ovary inferior; style exserted; stigma bifid. Capsules subglobose, ca. 3 × 2 mm, separating septicidally into 2 carpels when mature; carpels opening ventrally.

Locality: Wu Kau Tang, Bride's Pool, Mirror Pool, Pat Sin Leng. *Y. S. Lau 2808, 3195; Y. W. Lam 829.*

Distribution: Guangdong. Flowering: May–Dec.; fruiting: Aug.–Dec.

Ecology: Forests.

11. Hedyotis biflora (L.) Lam.

雙花耳草 **(Fig. 192; Photos 379–380)**

Tabl. Encycl. 1: 272. 1792; FHN 3: 308. 1974; FTW 2, 4: 265, pl. 115. 1998; FRPS 71(1): 77. 1999; FYN 14: 45, pl. 7: 7–10. 2003; FGD 6: 135. 2005.

Oldenlandia paniculata L., Sp. Pl. 119. 1753; FHK 152. 1861; FKH 128. 1912.

Oldenlandia biflora L. Sp. Pl. 1: 119. 1753.

Annual slender herbs, glabrous except flowers. Stems diffuse or nearly erect, 10–50 cm tall, usually many-branched. Stipules membranous, ca. 2 mm, united at the base, apex cuspidate. Leaves opposite, membranous; petioles 2–5 mm; leaf blade oblong or elliptic-ovate, 1–4 × 0.3–1 cm, base cuneate or decurrent, apex acute or shortly acuminate; midvein plane adaxially, slightly raised abaxially; lateral veins inconspicuous. Flowers 4-merous, 3–8 together, in cymes on peduncles in the upper axils, sometimes paniculate. Peduncles slender, 8–18 mm. Pedicels slender,

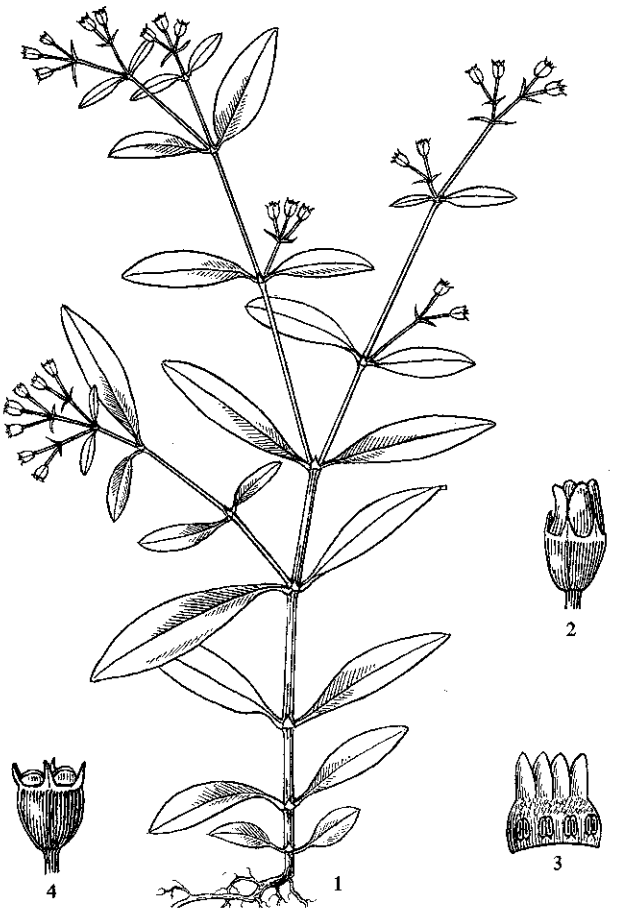


Figure 192. *Hedyotis biflora* (L.) Lam.

1. whole plant; *2*. flower; *3*. corolla opened up showing stamens; *4*. fruit. (drawn by H. P. Yu)

6–10 mm. Calyx-tube turbinate, 1–1.2 mm; calyx-teeth triangular, ca. 0.5 mm. Corolla white, tube ca. 1 mm, pilose in throat; lobes oblong, 1.2–1.5 mm. Stamens sessile, inserted in the tube, included. Ovary inferior; style 0.8–1 mm, hairy on the upper part; stigma bifid. Capsules turbinate, membranous, 2.5–3 mm in diam., with 2–4 prominent ribs, opening loculicidally when mature.

Locality: Pok Fu Lam, Wong Nai Chung Gap, Wong Chuk Hang, Tai Au Mun, Shing Mun, Lantau Island. *Y. S. Lau 2976; Y. W. Lam 689, 1478.*

Distribution: Guangdong, Guangxi, Yunnan, Jiangsu, Taiwan; Indochina, Malesia, Polynesia.

Ecology: Grasslands. Flowering & fruiting: Apr.–Oct.

12. Hedyotis effusa Hance 鼎湖耳草

J. Bot. 17: 11. 1879; FKH 127. 1912; FRPS 71(1): 44. 1999; FGD 6: 123, fig. 55. 2005.

Oldenlandia effusa (Hance) Kuntze, Revis. Gen. Pl. 1: 292. 1891.

Perennial glabrous herbs. Stems erect, 0.5–1 m tall, woody at base. Stipules 2–3 mm, triangular or truncate but with a mucro at apex, margin entire. Leaves opposite, papery; petioles 2–5 mm; leaf blade ovate-lanceolate, 4–9.5 × 2–4 cm, base subrounded or cuneate, apex acute, tip blunt; lateral veins slender, inconspicuous. Flowers 4-merous, in dichotomous cymes, forming terminal panicles to 10–15 cm long and 4–10 cm broad, branches divaricate and often zigzag. Peduncles slender, 2–4 cm. Pedicels 2–4 mm. Calyx-tube ovoid, ca. 0.7 mm; calyx-teeth triangular, ca. 0.4 mm. Corolla white, tube ca. 2 mm; the lobes lanceolate, ca. 3 mm, spreading or recurved,. Stamens inserted in the tube. Ovary inferior; style exserted; stigma bifid. Capsules subglobose, top flat, separating septicidally into 2 carpels; carpels opening ventrally.

Locality: Tung Chung, Tai O, Lung Chai, San Tau. *Y. W. Lam 838, 1241, 1658.*

Distribution: Guangdong, Guangxi.

Ecology: Forests. Flowering & fruiting: Jun.–Dec.

13. Hedyotis vachellii Benth.

香港耳草(華氏耳草) **(Fig. 193; Photo 381)**

FHK 148. 1861; FKH 127. 1912; FRPS 71(1): 49. 1999.

Perennial herbs, 30–40 cm tall, glabrous throughout. Stems woody at base; branches terete or scarcely angular. Stipules triangular, apex acute, ciliolate. Leaves opposite; petioles ca. 2 mm, or almost obsolete in the upper leaves; leaf blade oblong-lanceolate, 4–7 × 1–2 cm, acute at both ends; midvein slightly raised adaxially, broad and plane abaxially; lateral veins almost invisible. Flowers 4-merous, in dichotomous or trichotomous cymes, forming a terminal oblong or corymbose panicle to 4–4.5 cm long and ca. 3.5 cm broad. Peduncles ca. 2 cm, primary rays ca. 1.5 cm, secondary rays 0.8–1 cm. Pedicels ca. 2 mm. Calyx-tube turbinate, ca. 0.5 mm; calyx-teeth lanceolate, equal to the tube, spreading, apex obtuse. Corolla white, tube ca. 3 mm, pilose inside; the lobes ovate-triangular, ca. 2 mm, glabrous. Stamens inserted in the tube, exserted. Ovary inferior; style included; stigma thick and bifid. Capsules subglobose, ca. 1.8 mm in diam., separating septicidally into 2 carpels; carpels opening ventrally.

Locality: Fanling, Lantau Island. *W. J. Tutcher 11162; P. S. Choi 96; Y. W. Lam 2209.*

Distribution: Endemic to Hong Kong.

Ecology: Valleys. Flowering: Mar.–Dec.; fruiting: Jun.–Dec.

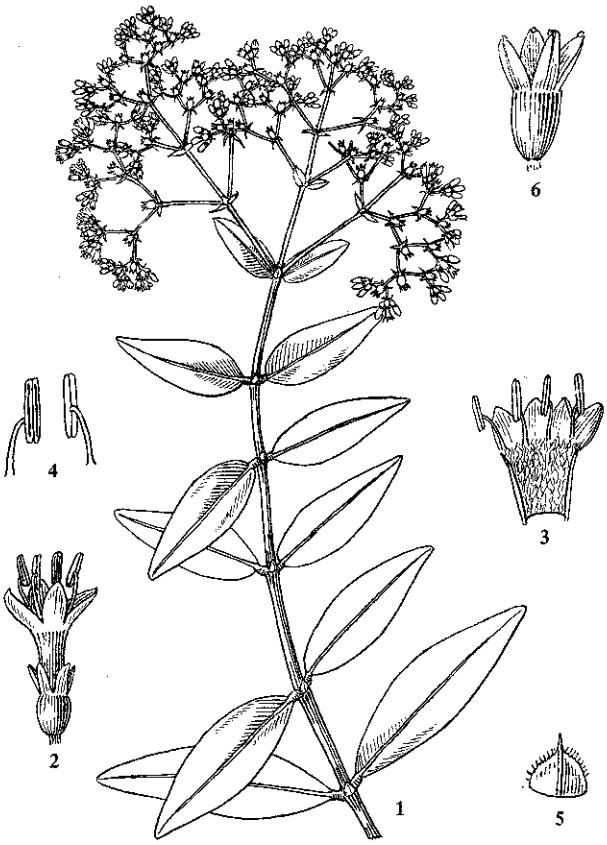


Figure 193. *Hedyotis vachellii* Benth.

1. flowering branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* stamens; *5.* stipule; *6.* fruit. (drawn by H. P. Yu)

14. Hedyotis consanguinea Hance 擬金草(紅花耳草) **(Photo 382)**

Ann. Sci. Nat., Bot., ser. 4, 18: 221. 1862; FKH 127. 1912; FRPS 71(1): 47. 1999; FGD 6: 124. 2005.

Oldenlandia consanguinea (Hance) Kuntze, Revis. Gen. Pl. 1: 292. 1891.

Erect herbs, 30–40 cm tall. Stems slender, unbranched, slightly angular, glabrous, becoming greyish yellow when dry. Stipules oblong-ovate, apex acuminate, fringed with minute, glandular teeth. Leaves opposite, subsessile; leaf blade lanceolate or oblong-ovate, 2–3 × 0.8–1 cm, base cuneate, apex acuminate, glabrous, except on the depressed midvein on adaxial surface, margin revolute when dry; lateral veins 2–3 on each side of midvein, obscure. Cymes terminal or axillary, or paniculate, 3–4 cm. Peduncles 2–3 cm. Pedicels 0–2 mm. Flowers 4-merous. Calyx-tube ca. 1.2 mm; calyx-teeth lanceolate, ca. 0.8 mm. Corolla white or slightly tinged with purple, tube 2–2.5 mm; lobes lanceolate, equal to the tube. Stamens attached to the upper part of the corolla-tube, exserted in short-styled flowers, included in long-styled flowers. Ovary inferior; style dimorphic (long or short); stigma bifid. Capsules ellipsoidal, ca. 3 × 2 mm, apex projecting from the calyx, separating septicidally into 2 carpels; carpels opening ventrally.

Locality: Lantau Island. *W. J. Tutcher 5285; H. C. Tang 1253; K. L. Yip 4419.*

Distribution: Guangdong, Fujian.

Ecology: Forests, grasslands. Flowering: Feb.–Sep.; fruiting: May–Jun.

Uses: Medicinal (folklore).

15. Hedyotis acutangula Champ. ex Benth. 金草(方骨草) **(Photo 383)**

Hooker's J. Bot. Kew Gard. Misc. 4: 171. 1852; FHK 148. 1861; FKH 127. 1912; FHN 3: 303. 1974; FRPS 71(1): 46, pl. 9: 5–9. 1999; FGD 6: 123. 2005.

Oldenlandia acutangula (Champ. ex Benth.) Kuntze, Revis. Gen. Pl. 1: 292. 1891.

Perennial herbs, somewhat shrubby, 25–60 cm tall, glabrous. Stems woody at base; branches very acutely quadrangular, or even 4-winged. Stipules ovate or triangular, 3–5 mm, margin entire or with minute glandular teeth. Leaves opposite, leathery, sessile or nearly so; leaf blade ovate-lanceolate or lanceolate, 5–12 × 1.5–2.5 cm, base rounded or cuneate, apex acute or shortly acuminate; midvein distinct; lateral veins and reticulation of veins inconspicuous. Flowers 4-merous, sessile, numerous, in loose dichotomous or trichotomous cymes, forming a terminal oblong or corymbose panicle. Peduncles 1.5–4(–6.5) cm. Calyx-tube turbinate, ca. 1 mm; calyx-teeth ovate, shorter than the tube. Corolla white, tube 2.2–3 mm, slightly expanded at throat, upper part tomentose inside; the lobes ovate-lanceolate, ± equal to the tube. Stamens attached to the top of the corolla-tube, included; filaments very short or almost wanting. Ovary inferior; style equal to the corolla; stigma bifid. Capsules obovate, 2–2.5 × 1–2 mm, top flat or slightly convex, separating septicidally into 2 carpels; carpels opening ventrally.

Locality: Common in Hong Kong. *H. C. Tang 1809; Y. S. Lau 24; HK sheet 40066.*

Distribution: Hainan, Guangdong.

Ecology: Hillslopes, thickets and forests. Flowering: Apr.–Sep.

Uses: Medicinal (folklore).

Notes: The type specimen was collected by J. G. Champion from Hong Kong Island between 1847 and 1850.

16. Hedyotis shiuyingiae T. Chen

秀英耳草 **(Fig. 194; Photo 384)**

Harv. Pap. Bot. 13(2): 283, fig. 1–2 A–C, E. 2008.

Perennial herbs or shrubs, erect, 15–35 cm tall, glabrous. Stems slightly quadrangular, internodes 1–3.5(–4.5) cm. Stipules triangular, 4–8 × 5–10 mm, acute at apex, with dense trichomes at margins. Leaves decussate, thick papery, subleathery when dry; petioles 5–10 mm or leaves subsessile; leaf blade broadly lanceolate or obovate-lanceolate, (2–)3–12.5(–19) × (1.4–)2–4.5(–8) cm, base decurrent and cuneate, apex acuminate or acute; midvein prominent abaxially, flattened adaxially or slightly impressed; lateral veins 5–7 on each side of midvein, inconspicuous abaxially, slightly conspicuous adaxially. Flowers 4-merous, heterostylic, shortly pedicellate, crowded in head-like clusters, these clusters 2–3 together forming a terminal compound cymes of 12–35 cm, terminal, or sometimes 2 or more in uppermost leaf axils. Peduncles ca. 10 cm; lower bracts leaf-like, becoming smaller upward and finally subulate. Calyx lobes 2.5–3 mm, subulate. Corolla purple outside; tube narrowly infundibuliform, 4–5 mm; abaxially glabrous, adaxially white hairy; lobes 4, reflexed, 2–2.5 × 1.5–1.8 mm; stamens 4, included; long-style ca. 5 mm, short-style 1–2 mm. Capsules globular, ca. 2.5 mm in diam.

Locality: Tai Mo Shan, Ng Tung Chai, Shing Mun Reservoir, Tai Po, Hoi Ha, Pat Sin Leng, Pin Fung Shan, Sai Kung. *H. C. Tang 2495, Y. S. Lau 422, L. T. Lo 612.*

Distribution: Endemic to Hong Kong.

Ecology: Thickets and forests on wet rocks. Flowering & fruiting: Apr.–Nov.

Notes: The type specimen (*T. Chen et al. 2007004*, HK, holotype; A, SZG, isotypes) was collected from Tai Po in 2007. The species was reported previously as *Hedyotis yangchunensis* W. C. Ko & Zhang (陽春耳草) (Check List HK Plants 265. 2002; 91. 2004).

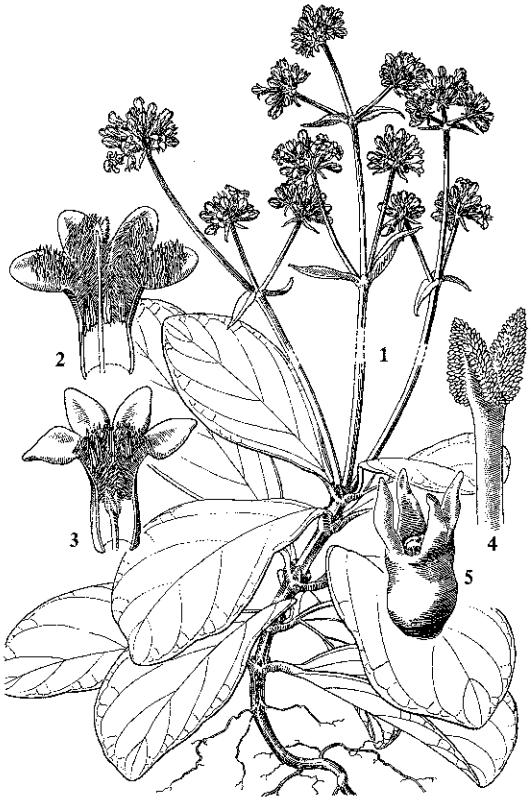


Figure 194. *Hedyotis shiuyingiae* T. Chen.

1. flowering plants; *2*. corolla of long-styled flower opened; *3*. corolla of short-styled flower opened; *4*. short style; *5*. fruit. (drawn by P. Ma) (Originally published in *Harvard Papers in Botany* 13(2): 284, fig. 1. 2008; reproduced with permission of the editors of *Harvard Papers in Botany*).

17. Hedyotis bodinieri Lévl. 大帽山耳草

Repert. Spec. Nov. Regni Veg. 11(274–278): 64. 1912; FRPS 71(1): 49. 1999.

Oldenlandia bodinieri (Lévl.) Chun, Sunyatsenia 1: 310. 1934.

Hedyotis lancea auct. non Thunb. ex Maxim.: FKH 127. 1912.

Small shrubs, to 50 cm tall. Stems erect, oppositely branched; branchlets terete, puberulous. Stipules ovate triangular, ca. 2 mm, entire, with short hairs on the margin. Leaves opposite, papery; petioles ca. 2 mm; leaf blade elliptic to ovate elliptic, 2–3.5 × 0.8–2 cm, base broadly cuneate to subrounded, apex acute, glabrous on both surfaces; midvein slightly raised abaxially; lateral nerves 3–4 on each side of midvein, obscure. Cymes axillary, 3-flowered or arranged in trichotomous cymes on axillary branchlets. Peduncles slender, 4–6 mm, puberulous. Pedicels 1–1.5 mm, puberulous. Flowers 4-merous; calyx-tube turbinate, ca. 1.5 mm, calyx-teeth ovate-lanceolate, slightly longer than the tube. Corolla white, ca. 4 mm; tube slightly longer than lobes, glarous. Capsules ellipsoid.

Locality: Tai Mo Shan. *N. K. Chun 40663* (IBSC); *HK sheet 39914, 39925.*

Distribution: Known only from Hong Kong.

Ecology: Forests in ravines. Flowering: Apr.; fruiting: Jul.–Sep.

Notes: The type specimen (*E. Bodinier 1158*) of this species was collected from Tai Mo Shan on 7 May 1895.

18. Hedyotis loganioides Benth. 粵港耳草 **(Photo 385)**

FHK 149. 1861; FKH 127. 1912; FRPS 71(1): 54. 1999; FGD 6: 126. 2005.

Oldenlandia loganioides (Benth.) Kuntze, Revis. Gen. Pl. 1: 292. 1891.

Perennial herbs, to 30 cm tall, glabrous. Stems ascending or erect; branches terete, obtusely angular, slightly compressed when young. Stipules ovate triangular, entire. Leaves opposite, papery; petioles ca. 4 mm; leaf blade oblong or lanceolate, 2.5–5 × 1.4–3 cm, acute on both ends; midvein slightly raised abaxially; lateral veins 3–5 on each side of midvein, obscure. Flowers 4-merous, 10–20 together in trichotomous cymes. Peduncles 14–20 mm. Pedicels very short. Calyx-tube turbinate, ca. 1.5 mm; calyx-teeth linear slightly shorter than the corolla. Corolla white, tube short and slender, glabrous. Capsules ellipsoidal, ca. 2 mm long, crowned by the calyx-lobes, the 2 carpels separating to the base, and opening wide by a fissure on the inner face.

Locality: Hong Kong Island, Clear Water Bay, Tai Mo Shan, Wu Kau Tang, Nam Chung, Pat Sin Leng, Ma On Shan, Lantau Island. *L. T. Lo 630; Y. S. Lau 3256; Y. W. Lam 1400.*

Distribution: Guangdong.

Ecology: Forests. Flowering: Feb.–Dec.; fruiting: May–Dec.

Notes: A syntype specimen was collected from Mount Gough, Hong Kong Island by C. Wilford in 1858.

19. Hedyotis matthewii Dunn 疏花耳草

J. Bot. 47: 376. 1909; FKH 128. 1912; FRPS 71(1): 54, pl. 6: 7–10. 1999; FGD 6: 127. 2005.

Oldenlandia matthewii (Dunn) Chun, Sunyatsenia 1(4): 312. 1934.

Perennial herbs 30–75 cm tall, except the flowers glabrous. Stems erect, ± woody at the base, lower part terete, upper part quadrangular. Stipules ovate triangular, ca. 2 mm, margin with minute, glandular teeth or deeply lobed. Leaves opposite, papery; petioles ca. 3 mm; leaf blade lanceolate to elliptic-lanceolate, 4–8 × 1.5–4 cm, base acute or cuneate, apex long acuminate; lateral veins 3 on each side of midvein, obliquely ascending at an acute angle from the midvein, appressed adaxially; veinlets obscure. Flowers 4-merous, in terminal or axillary dichotomous cymes. Peduncles 0.5–3 cm. Pedicels 2–4 mm. Calyx-tube turbinate or obovate, ca. 1 mm; calyx-teeth lanceolate, 2–2.2 mm, apex acute. Corolla white or tinged with purple, tube 2–2.5 mm; the lobes lanceolate, ca. 3 mm, recurved, tomentose on adaxial surface. Stamens attached to the corolla-tube. Ovary inferior; style ca. 8 mm, exserted; stigma capitate. Capsules ellipsoidal, 3–4 mm long, separating septicidally into 2 carpels; carpels opening ventrally.

Locality: Sunset Peak. *Y. S. Lau 2578; HK sheet 30343.*

Distribution: Guangdong.

Ecology: Forests and thickets. Flowering: Apr.–Dec.

8. Neanotis W. H. Lewis 新耳草屬

Annual or perennial herbs. Stems erect or decumbent. Leaves opposite, ovate to lanceolate. Stipules interpetiolar, united at the base, apex fringed with bristles. Flowers small, 4-merous, in axillary or terminal cymes or heads. Calyx-tube usually short; calyx-teeth erect or recurved, usually with wide sinus. Corolla funnel-shaped or tubular; lobes valvate in bud, usually shorter than the tube. Stamens attached to apex of corolla-tube; anthers basifixed, linear-oblong, included or exserted. Disk inconspicuous. Ovary 2(–4)-locular; style linear; stigma 2–4-lobed. Capsules in pairs, compressed, leathery or membranous, crowned by the calyx-lobes.

About 30 species mainly in tropical Asia and Australia; eight species in China; two species in Hong Kong.

1a. Plants glabrous; flowers in loose cymes or panicles ..... 1. *N. thwaitesiana*

1b. Plants hairy; flowers in head-like clusters ..... 2. *N. boerhaavioides*

1. Neanotis thwaitesiana (Hance) W. H. Lewis 新耳草

Ann. Missouri Bot. Gard. 53: 40. 1966; FRPS 71: 82, pl. 17: 1–4. 1999; FGD 6: 136. 2005.

Anotis thwaitesiana Hance, J. Bot. 6: 298. 1868; FKH 129. 1912.

Perennial diffuse herbs, glabrous except flowers. Stems slender, 4-angled, woody at base. Stipules pectinate, united at the base, apex with a few linear lobes. Leaves opposite, submembranous; petioles 1–5 mm; leaf blade ovate or ovate-lanceolate, 1–1.5 × 0.5–1 cm, base obtuse or subrounded, apex acute, scabrous on both surface and margins; lateral veins inconspicuous. Flowers white or pink, in

axillary cymes or paniculate, 2–many times longer than the subtending leaf. Peduncles slender, 1.5–3 cm. Pedicels slender, 3–4 mm. Calyx-tube cup-shaped, 2–2.5 mm; calyx-teeth triangular ca. 2 mm. Corolla-tube ca. 1 mm, pubescent outside; lobes oblong-lanceolate, ca. 3 mm. Stamens exserted. Ovary inferior; stigma clavate, bifid. Capsule oblate, 2–3 mm in diam., crowned with calyx-teeth.

Locality: Yi O. *HK sheet 35357, 40187.*

Distribution: Guangdong.

Ecology: Wastelands, grasslands. Flowering: Apr.

2. Neanotis boerhaavioides (Hance) W. H. Lewis 卷毛新耳草

Ann. Missouri Bot. Gard. 53: 37. 1966; FRPS 71: 82. 1999; FGD 6: 135. 2005.

Hedyotis boerhaavioides Hance, J. Bot. 8(88): 73. 1870.

Anotis boerhaavioides (Hance) Maxim., Bull. Acad. Imp. Sci. Saint-Petersbourg 29: 165. 1883; FKH 128. 1912.

Annual diffuse herbs, to 6 cm or longer. Stems decumbent at base, rooting at nodes, together with petioles, abaxial surface of leaves and stipules covered with pellucid, curling long hairs. Stipules 3–6 mm, strigose, united with petioles at the base. Leaves opposite; petioles 1–5 mm; leaf blade ovate or ovate lanceolate, 1.2–4 × 0.6–2 cm, base broadly cuneate or obtuse, ± decurrent, apex acute or shortly acuminate, adaxial surface sparsely pubescent; lateral veins 4–5(–6) on each side of the midvein. Flowers white, in terminal or axillary cymes. Peduncles 2–20 mm sparsely pubescent or glabrescent. Pedicels 1–2 mm or almost obsolete. Calyx-tube obovate oblate; calyx-teeth ovate. Corolla-tube ca. 1.5 mm, glabrous; lobes ovate oblong. Stamens slightly exserted. Ovary inferior; stigma bifid. Capsules in pairs or solitary, oblate, 2–3 mm in diam., pubescent or glabrescent.

Locality: Tai Mo Shan, Yuen Long. *Y. W. Lam 1268; HK sheet 38588.*

Distribution: Guangdong, Jiangxi, Fujian.

Ecology: Grassy hillslopes. Flowering & fruiting: Autumn to winter.

9. Pentas Benth. 五星花屬

Herbs or subshrubs, erect or prostrate, usually hispid or tomentose. Leaves opposite; stipules interpetiolar, multi-fid or bristly, united at the base. Flowers usually in corymbs. Calyx-lobes 4–6, unequal. Corolla tubular, pilose abaxially; tube dilated and villous in the throat, apex 4–6-lobed; lobes valvate in bud. Stamens as many as corolla-lobes, inserted in the upper part of the corolla-tube. Disk often produced into a cone after anthesis. Ovary 2-locular, with numerous ovules in each locule; style exserted. Fruit a membranous or leathery capsule, opening loculicidally; seeds small, numerous.

About 34 species in Africa to Arabia and Madagascar; one species cultivated in China and in Hong Kong.

1. Pentas lanceolata (Forssk.) Deflers 五星花 **(Photo 386)**

Voy. Yemen 142. 1889; FGD 6: 145, fig. 65. 2005.

Pentas lanceolata (Forssk.) K. Schum., Nat. Pflanzenfam. 4(4): 29. 1891; FRPS 71(1): 175. 1999; Check List HK Plants 270. 2002; 92. 2004.

Subshrubs, to 70 cm tall. Stems and branches quadrangular, covered with white multicellular hairs when young. Leaves opposite; petioles 1.5–3 cm, pilose; stipules short and broad, apex bristly; leaf blade oblong-lanceolate, 5–14 × 2–5.5 cm, base cuneate, apex acute or shortly acuminate, adaxially pubescent or scabrous, abaxially densely pubescent on the veins. Corymbs terminal; peduncles 3–12 mm, together with bracts and calyx covered with white multicellular hairs. Calyx-tube subglobose, apex with 5–6 unequal lobes. Corolla carmine-rose, rosy or white, salverform; tube to 2 cm, sparsely pubescent abaxially, densely covered with white long hairs in throat; limb usually 5-lobed, ca. 1.2 cm in diam.; lobes elliptic or oblong-lanceolate. Anthers slightly exserted or included. Style 2-lobed, purplish black.

Locality: Cultivated in gardens. *Y. S. Lau 1595; S. P. Lau 89; L. T. Lo 614.*

Distribution: Native to tropical Africa and Arabia; widely cultivated in tropical areas.

Ecology: Flowering: Mar.–Aug.

Uses: Ornamental.

10. Ophiorrhiza L. 蛇根草屬

Perennial herbs, rarely shrubby. Leaves opposite, entire; stipules interpetiolar, persistent or caducous, entire or deeply 2-lobed, often with colleters in the axils. Flowers usually heterostylic, or sometimes homostylic, sessile or short-pedicellate along the branches of terminal or rarely axillary pedunculate cymes. Calyx usually small, turbinate or obconical, with 5 or 10 longitudinal ribs; limb 5(–6)-lobed. Corolla-tube slender; lobes 5(–6), valvate in bud. Stamens 5(–6); anthers included or slightly exserted. Ovary 2-locular, with several ovules in each locule, attached to a placenta ascending from near the base. Capsule much flattened and very broad, almost 2-lobed at the top, opening loculicidally in 2 valves. Seeds several, angular.

About 150 species widely distributed in tropical Asia and Pacific islands; about 70 species in China; three species in Hong Kong.

1a. Flowers homostylic; corolla-tube ca. 4 mm ..... 1. *O. pumila*

1b. Flowers heterostylic; corolla-tube 1–1.3 cm.

2a. Leaves generally ovate, rarely over 8 cm long; long-style and anthers of short-styled flower included ..... 2. *O. japonica*

2b. Leaves generally oblong-elliptic, 12–16 cm long; long-style and anthers of short-styled flower exserted.... 3. *O. cantoniensis*

1. Ophiorrhiza pumila Champ. ex Benth. 短小蛇根草 **(Photo 387)**

Hooker's J. Bot. Kew Gard. Misc. 4: 169. 1852; FHK 147. 1861; FKH 129. 1912; FTW ed. 2, 4: 311. 1998; FRPS 71(1): 171. 1999; FGD 6: 144. 2005.

Small herbs, 10–25 cm tall. Stems erect or decumbent, rooting at the base, ± pubescent. Leaves papery; petioles 0.5–1.5 cm, pubescent; stipules small, caducous; leaf blade ovate, lanceolate, elliptic or oblong, 2–5.5(–9) × 1–2.5 cm, base cuneate, ± decurrent, apex obtuse or subrounded, glabrescent or sparsely strigillose adaxially, puberulent abaxially. Flowers homostylic, crowded in small terminal cymes; peduncles ca. 1 cm, puberulous. Calyx small, shortly and densely pubescent; tube turbinate or subglobular, ca. 1.2 mm, with 5 ribs; calyx-teeth small, triangular. Corolla white, ca. 5 mm, puberulent abaxially; tube slightly dilated at the base, with a ring of white long hairs inside throat; lobes 5, triangular, 1.2–1.5 mm. Capsule 2–2.5 mm high and 6–7 mm broad, shortly strigose.

Locality: Hong Kong Island, Shing Mum, Tai Mo Shan, Ng Tung Chai, Lantau Island. *Y. S. Lau 608; P. S. Choi 493; Y. W. Lam 1546.*

Distribution: Guangdong, Guangxi, Jiangxi, Fujian, Taiwan; N Vietnam.

Ecology: Wet and shaded places in forests and by streams. Flowering: Feb.–Oct.; fruiting: May–Oct.

Notes: The type specimen was collected by J. G. Champion from Victoria Peak between 1847 and 1850.

2. Ophiorrhiza japonica Blume

日本蛇根草 **(Fig.195; Photo 388)**

Bijdr. Fl. Ned. Ind. 978. 1826; FKH 129. 1912; Ferguson, Not. Roy. Bot. Gard. Edinb. 32(1): 112. 1972; FTW ed. 2, 4: 308, pl. 140. 1998; FRPS 71(1): 163. 1999; FGD 6: 142. 2005.

Ophiorrhiza eryei Champ., Hooker's J. Bot. Kew Gard. Misc. 4: 170. 1852; FHK 147. 1861.

Perennial herbs, 20–50 cm tall. Stems ascending, rooting at the base, with 2 lines of hairs. Leaves papery; petioles 1–2(–3) cm, glabrous or pubescent; stipules small, caducous; leaf blade ovate, elliptic-ovate or lanceolate, 4–8(–10) × 1–3 cm, base cuneate or obtuse, apex acuminate or shortly acuminate, glabrous, or sometimes sparsely strigillose adaxially and pubescent on veins abaxially, with a red tint in drying. Flowers heterostylic, 5–10, or rarely more, in loose terminal cymes; peduncles usually 1–2 cm, ± puberulous. Calyx-tube turbinate, ca. 1.3 mm; calyx-teeth small, triangular. Corolla white or pink, glabrous abaxially; tube 1–1.3 cm, dilated in the upper half, pubescent inside; lobes 5, triangular, 2.5–3 mm. Capsule 3–4 mm high and 7–9 mm broad subglabrous.

Locality: Hong Kong Island, Tai Mo Shan, Lantau Island. *L. T. Lo 4; HK sheet 38519, 39999.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, S Shaanxi, Hubei, Hunan, Jiangxi, Anhui, Zhejiang, Fujian, Taiwan; Japan, N Vietnam.

Ecology: Forests of valleys. Flowering: Feb.–May.

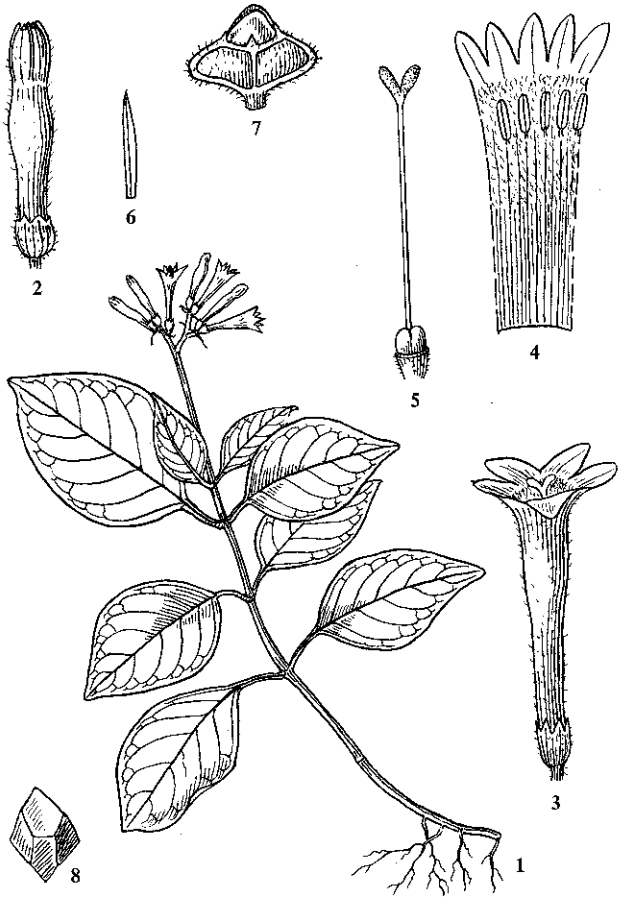


Figure 195. *Ophiorrhiza japonica* Blume

1. flowering plant; *2.* flower bud; *3.* flower; *4.* corolla opened up showing stamens; *5.* pistil; *6.* bracteole; *7.* fruit; *8.* seed. (drawn by H. P. Yu)

3. Ophiorrhiza cantoniensis Hance 廣州蛇根草 **(Photo 389)**

Ann. Sci. Nat., Bot., ser. 4, 18: 222. 1862; FKH 129. 1912; Ferguson, Not. Roy. Bot. Gard. Edinb. 32(1): 111. 1972; FRPS 71(1): 165. 1999; FGD 6: 143. 2005.

Perennial herbs or subshrubs, 30–50 cm tall. Stems prostrate at base, rooting at nodes, upper part erect; young branches and inflorescence puberulent. Leaves papery; petioles 1.5–4 cm; stipules small, caducous; leaf blade usually oblong-elliptic, or sometimes ovate-oblong or oblong-lanceolate, 5–13 × 2–5.5 cm, base cuneate, rarely subrounded, apex acuminate or abruptly acuminate, glabrous, or sometimes sparsely strigillose adaxially or on both surfaces. Flowers heterostylic, in loose, many-flowered, terminal cymes or panicles; peduncles 2–7 cm, covered with rusty or reddish hairs. Calyx-tube turbinate, 1.3–1.5 mm, with 5 ribs; calyx-teeth small, triangular. Corolla white or slightly pink, glabrescent or sometimes puberulent abaxially; tube 1–1.2(–1.5) cm, with a ring of white long hairs inside the slightly dilated throat; lobes 5, triangular, 3–5 mm. Capsule 3–4 mm high and 7–9 mm broad subglabrous.

Locality: Hong Kong Island, Tai Mo Shan, Lantau Island. *H. C. Tang 2438; Y. S. Lau 609, 1373.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan.

Ecology: Forests of valleys and by streams. Flowering: Winter to spring; fruiting: Apr.–May.

11. Morinda L. 巴戟天屬

Erect or climbing shrubs or small trees. Leaves opposite, rarely in whorls of 3. Stipules usually membranous and united at the base in a sheath within the petioles. Flowers in axillary or terminal single, umbellate or paniculate heads. Calyx-tube urceolate or hemispherical, ± united by cohesion; limb short, scarcely toothed. Corolla-tube cylindric or slightly dilated at the top, usually short; lobes (4–)5(–7), valvate in the bud. Stamens as many as corolla-lobes, attached to throat of corolla-tube; anthers included in the tube or rarely exserted. Ovary 2- to imperfect 4-locular with 1 erect or ascending ovule in each locule. Style exserted, with 2 stigmatic lobes. Fruits of each flower-head usually united in one compound berry, with many 1-seeded pyrenes.

About 100 species widely distributed in tropical regions, but chiefly in tropical Asia and Africa; 27 species in China; three species in Hong Kong.

1a. Branchlets, petioles and peduncles densely yellowish pubescent; compound berry 1–1.5 cm in diam. ..... 1. *M. cochinchinensis*
1b. Branchlets, petioles and peduncles glabrous, puberulent or hirsute; compound berry 6–12 mm in diam.
2a. Leaves 5–11 cm long; lateral veins 5–6 on each side of midvein ..... 2. *M. umbellata*
2b. Leaves 2–6 cm long; lateral veins 3–4 on each side of midvein ..... 3. *M. parvifolia*

1. Morinda cochinchinensis DC. 大果巴戟 **(Fig. 196)**

Prodr. 4: 449. 1830; Pit. in Lecomte, Fl. Gen. Indo-chine 3: 420. 1924; FHN 3: 331. 1974; FRPS 71(2): 188. 1999; FGD 6: 236. 2005.

Morinda villosa auct. non Hook. f.: FKH 133. 1912.

Climbing shrubs. Branchlets, petioles and peduncles densely covered with rusty long hairs. Leaves opposite, papery; petioles 5–11 mm; stipules tubular, scarious, 6–10 mm, apex truncate, with 2 mucros on each side; leaf blade elliptic, oblong or obovate-oblong, 8–14 × 3–6 cm, base obtuse or slightly cordate, apex caudate-acuminate or shortly acuminate, adaxially sparsely strigose, abaxially densely rusty pubescent; lateral veins slender, 7–10 on each side of midvein. Flower-heads 5–15-flowered, arranged in terminal umbels; peduncles 1–3 cm. Calyx-tube hemispherical, sparsely pubescent abaxially; limb 4–5-lobed; lobes unequal, subulate, 1–2 m. Corolla white; tube ca. 2 mm, glabrous; lobes 4–5, oblong-lanceolate, 4–5.5 mm, apex incurved, abaxially puberulent, densely bearded on the lower part of adaxial surface. Compound berry subglobose, 1–2 cm in diam., pubescent, orange when mature.

Locality: Ma On Shan, Hoi Ha, Lai Chi Wo. *HK sheet 14148, 35586, 35712.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; N Vietnam.

Ecology: Forests. Flowering & fruiting: Jun.–Aug.

Uses: Medicinal (folklore).

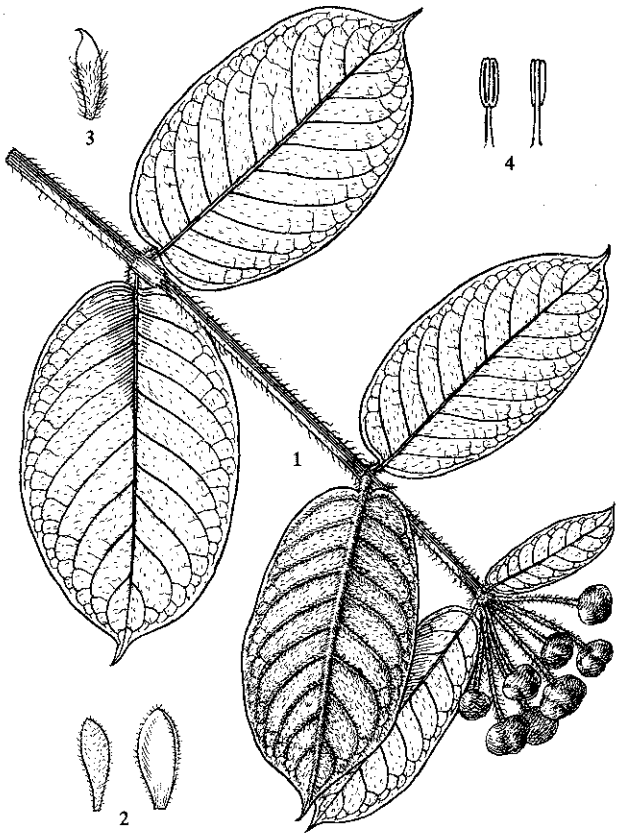


Figure 196. *Morinda cochinchinensis* DC.
1. fruiting branch; *2.* calyx-lobes; *3.* corolla-lobe; *4.* stamens. (drawn by H. P. Yu)

2. Morinda umbellata L. 羊角藤 **(Photo 390)**

Sp. Pl. 176. 1753; FHK 159. 1861; FKH 133. 1912; FHN 3: 332. 1974; FTW ed. 2, 4: 301. 1998.

Morinda umbellata L. subsp. *obovata* Y. Z. Ruan, FRPS 71(2): 324. 1999.

Trailing, diffuse or somewhat climbing shrubs. Branchlets, petioles and peduncles glabrous or slightly puberulent. Leaves opposite, thinly leathery or papery; petioles 6–10 mm; stipules scarious, 2–5 mm; leaf blade lanceolate-ovate, obovate-oblong, or oblong-lanceolate to ovate-oblong, 5–12 × 1.5–3.5 cm, base cuneate, apex acute or shortly acuminate, adaxially glabrous, abaxially sometimes puberulent or with cluster of hairs in axils of veins; lateral veins slender, 5–7 on each side of midvein. Flower-heads 6–8 mm in diam., 6–12-flowered, arranged in terminal umbels; peduncles 5–12 mm. Calyx-tube hemispherical, 0.8–1 mm, apex truncate or obscurely toothed. Corolla white; tube short, glabrous abaxially, bearded in throat; lobes 4, narrowly oblong, 3–3.2 mm, apex obtuse and recurved. Compound berry depressed globose, 8–12 mm in diam., red when mature.

Locality: Ma On Shan, Tai Po Kau, Sai Wan Shan, Lantau Island. *Y. S. Lau 1264; Y. W. Lam 842, 2150.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; Japan, Indochina, India, Sri Lanka, Malesia, Australia.

Ecology: Thickets. Flowering: May–Aug.; fruiting: May–Jan. of the following year.

Uses: Medicinal (folklore).

3. Morinda parvifolia Bartl. ex DC. 雞眼藤 **(Photos 391–392)**

Prodr. 4: 499. 1830; FHN 3: 333. 1974; FTW ed. 2, 4: 299. 1998; FRPS 71(2): 194. 1999; FGD 6: 238. 2005.

Climbing shrubs. Branchlets hirsute on the distal nodes. Leaves opposite, papery; petioles 3–6 mm, glabrescent or ± puberulent; stipules 1.5–3 mm, apex truncate, glabrescent; leaf blade obovate or obovate-elliptic, rarely elliptic-oblong, 2–6 × 1–3 cm, base cuneate to broadly cuneate, apex acute or obtuse and mucronate, adaxially glabrous, abaxially with cluster of hairs in axils of veins, or sometimes with short hairs on the veins; lateral veins 3–4 on each side of midvein. Flower-heads 4–8-flowered, 2–6 arranged in terminal umbels; peduncles 5–10 mm, covered with short hairs. Calyx-tube hemispherical, apex truncate. Corolla white or greenish white; tube ca. 1 mm, with curling hairs on the lower part of abaxial surface, bearded adaxially; limb deeply 4-lobed, oblong. Compound berry depressed globose, 8–10 mm in diam., red when mature.

Locality: Common in Hong Kong. *L. T. Lo 41; S. P. Lau 174; P. S. Choi 533.*

Distribution: Hainan, Guangdong, Fujian, Taiwan; Vietnam, Philippines.

Ecology: Forests and thickets. Flowering: Apr.–Jul.; fruiting: Jun.–Oct.

Uses: Medicinal (folklore).

12. Serissa Comm. ex Juss. 白馬骨屬

Small shrubs, many-branched, fetid when rubbed. Leaves rather small, opposite or crowded on short branchlets, short-petiolate or subsessile; stipules united into a short sheath, apex with 3–8 bristles. Flowers small, terminal or axillary, solitary or in small clusters, sessile. Calyx-tube obconical, very short; limb 4–6 lobed; lobes triangular or triangular-lanceolate, acute, persistent. Corolla funnel-shaped; tube slender, dilated near apex, hairy inside; limb 4–6-lobed; lobes equal to the tube, valvate in the bud. Stamens 4–6, attached to the tube. Ovary 2-locular, with a solitary ovule in each locule; style filiform; stigma bifid. Fruit a drupe, with 2 pyrenes.

Two species in China, Japan and Vietnam; two species cultivated in Hong Kong.

1a. Leaves leathery, 6–22 × 3–8 mm; calyx-lobes shorter than corolla tube ..... 1. *S. japonica*

1b. thinly papery, 10–40 × 3–15 mm, and by its calyx-lobes, which is equal to the corolla-tube ..... 2. *S. serissoides*

1. Serissa japonica (Thunb.) Thunb. 六月雪

Nov. Gen. Pl. 9: 132. 1798; FRPS 71(2): 160, pl. 43. 1999; FGD 6: 228, fig. 124. 2005.

Lycium japonicum Thunb., Nova Acta Regiae Soc. Sci. Upsal. 3: 207. 1780.

Lycium foetidum L. f., Sp. Pl. Suppl. 150. 1781.

Serissa foedida (L. f.) Poir. ex Lam., Tab. Encycl. 2: 211. 1819; FKH 134. 1912.

Evergreen shrubs, 60–90 cm tall. Branches grey, glabrous. Leaves leathery, opposite and crowded on short branchlets, subsessile; stipules very short, apex with 3 bristles; leaf blade elliptic, oblong or oblanceolate, 6–22 × 3–8 mm, base narrowed into a very short petiole, apex acute, glabrous on both surfaces. Flowers usually solitary in axils of leaves near apex or branchlets. Calyx-tube ca. 1.5 mm, apex 6-lobed; lobes triangular, ca. 1 mm. Corolla white or with pink tint; tube 4–5 mm, hairy inside; limb 1–1.2 cm in diam., 5–6-lobed, lobes oblong, apex 3-toothed, hairy adaxially. Ovary inferior; style ca. 5 mm; stigma 2-lobed.

Locality: Cultivated in gardens. *Y. S. Lau 161; S. P. Lau 93, 94.*

Distribution: Guangdong, Guangxi, Yunnan, Sichuan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian; Japan, Vietnam, Nepal.

Ecology: Flowering: Apr.–Oct.

Uses: Ornamental.

2. Serissa serissoides (DC.) Druce 白馬骨 **(Fig. 197)**

Rep. Bot. Exch. Club 1916: 646. 1917.

Democritea serissoides DC., Prodr. 4: 540. 1830.

It differs from *Serissa japonica* by its thinly papery and larger leaves (1–4 × 0.3–1.5 cm), and by its calyx-lobes, which is equal to the corolla-tube.

Locality: Cultivated. *HK sheet 2502, 38031.*

Distribution: SW, S, C & SE China. Japan (Ryukyu).

Ecology: Flowering: Summer to autumn.

Uses: Medicinal (folklore), ornamental, hedges.

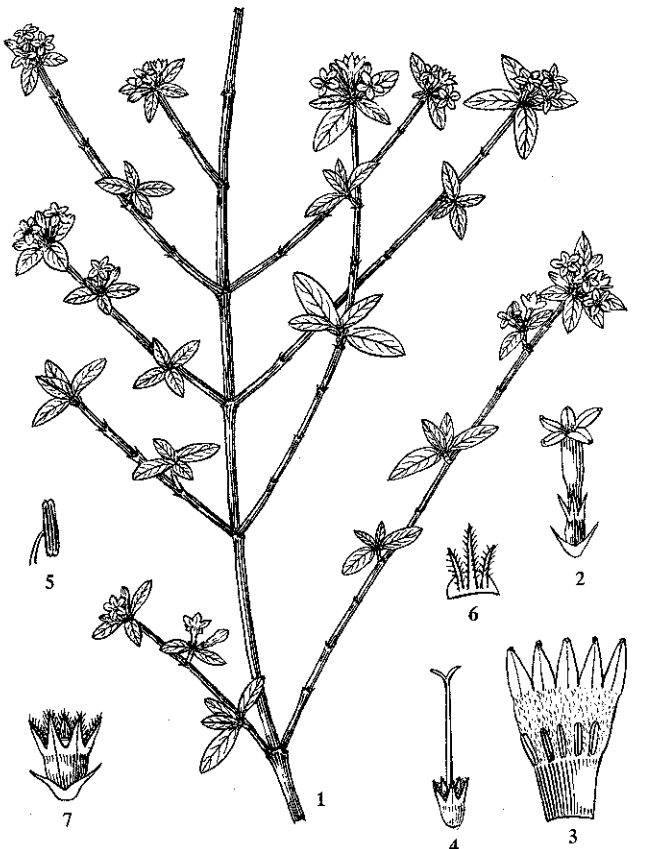


Figure 197. *Serissa serissoides* (DC.) Druce

1. flowering branch; *2.* flower; *3.* corolla opened; *4.* calyx and pistil; *5.* stamen; *6.* stipule; *7.* fruit. (drawn by H. P. Yu)

13. Spermacoce L. 豐花草屬

Annual or perennial herbs, rarely subshrubs. Branches usually quadrangular. Leaves opposite, sessile or short-petiolate; stipules shortly sheathing, bordered with bristle-like teeth. Flowers small, clustered in the axils of leaves or sometimes in terminal heads or cymes. Calyx-tube obovate or obconical; limb 2–4(–5)-lobed, often with small teeth between the lobes. Corolla funnel-shaped or salverform; limb 4-lobed; lobes spreading, valvate in the bud. Stamens 4, attached to the throat; anthers basifixed. Ovary 2-locular, with 1 ovule in each locule; style slender; stigma capitate or 2-lobed. Fruit a capsule, leathery or crustaceous, separating in 2 valves or only splitting near apex.

About 150 species widely distributed in tropical and subtropical regions of the world; five species in China; four species in Hong Kong.

1a. Flowers and fruit ca. 2.5 mm long, in very dense whorl-like cluster or head.
  2a. Leaves linear or lanceolate; veins obscure ..... 1. *S. stricta*
  2b Leaves ovate, yellowish, with distinct, raised lateral veins ..... 2. *S. mauritiana*
1b. Flowers and fruit ca. 4.5 mm long, axillary but not in dense whorl or head.
  3a. Branches hispid on ribs; petioles 1–4 mm ..... 3. *S. articularis*
  3b. Branches with winged ribs; petioles 4–10 mm ..... 4. *S. latifolia*

1. Spermacoce stricta L. f. 豐花草 (Photo 393)

Suppl. Pl. 120. 1781; FHK 162. 1861; FKH 135. 1912.

Borreria stricta (L. f.) G. Mey, Prim. Fl. Esseq. 83. 1818; FHN 3: 361, fig. 773. 1974; FRPS 71(2): 208, pl. 49: 1–5. 1999; FGD 6: 243, fig. 132. 2005; Check List HK Plants 261. 2002; 90. 2004.

Annual herbs, 15–60 cm tall. Stems slender, erect or spreading, quadrangular, hispid on the ribs. Leaves leathery, subsessile; stipules united, short and broad, subglabrous or hispid, with a few pink, long bristles at apex; leaf blade linear or linear-oblong, 2.5–5 × 0.25–0.6 cm, gradually narrowed to the base, apex acuminate, roughly pubescent on both surfaces, margin revolute; lateral veins inconspicuous. Flowers sessile, in dense, axillary whorl-like clusters. Calyx-tube 1.5–2.5 mm, glabrous; lobes 4, linear-lanceolate, equal to the tube. Corolla white, funnel-shaped; tube 1.5–2.5 mm, glabrous; lobes 4, linear-oblong, ca. 1 mm, sparsely hispid adaxially. Capsule obovate-globular, slightly compressed, 1–1.5 mm in diam., ± pubescent, separating into 2 valves.

Locality: Stanley, Tai Mo Shan, Tsuen Wan, Sai Kung, Yuen Long, Po Toi Islands, Ping Chau. *Y. W. Lam 1155, 1143; HK sheet 38739.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Anhui, Zhejiang, Fujian; Indochina, Indian subcontinent, Malesia.

Ecology: Open fields and grassy hillslopes. Flowering & fruiting: Apr.–Oct.

2. Spermacoce mauritiana O. Gideon 二粵豐花草 (Photo 394)

Kew Bull. 37(4): 547. 1983; FTW ed. 2, 4: 329. 1998.

Borreria repens DC., Prodr. 4: 542. 1803; FHN 3: 362. 1974; FRPS 71(2): 208. 1999; Check List HK Plants 261. 2002; 90. 2004.

Annual herbs, 30–60 cm tall. Stems diffuse or decumbent, quadrangular, roughly pubescent or hispid on ribs. Leaves papery or leathery; petioles 1–4 mm, hairy; stipules membranous, pilose; bristles pinkish, longer than the sheath; leaf blade oblong, obovate or spathulate, 1–3.5 × 0.5–2 cm, base cuneate, apex acute or obtuse, initially hairy on both surfaces, later glabrescent, margin scabrous or shortly ciliate; lateral veins 3–4 on each side of midvein, inconspicuous. Flowers 3–6 clustered in axils of stipules, sessile. Calyx-tube cylindric, 2–3 mm, hispid; lobes 4, linear-lanceolate, 1–1.5 mm. Corolla pink or white, funnel-shaped; tube 4–4.5 mm, glabrous; lobes 4, oblong, ca. 1.5 mm, with a few hairs near apex of abaxial surface. Capsule ovoid, ca. 1 mm in diam.

Locality: Shing Mun, Tai Po Kau, Sha Lo Tung. *T. S. Lau 3003; Y. W. Lam 896.*

Distribution: Hainan; Java, Mauritius.

Ecology: Open fields and wastelands. Flowering & fruiting: Apr.–Sep.

3. Spermacoce articularis L. f. 糙葉豐花草 (Photo 395)

Suppl. Pl. 119. 1781; FTW ed. 2, 4: 327, pl. 147. 1998.

Borreria articularis (L. f.) F. N. Williams, Bull. Herb. Boissier 2, 5: 956. 1905; FHN 3: 362. 1974; FRPS 71(2): 206. 1999; FYN 15: 296. 2003; Check List HK Plants 261. 2002; 90. 2004.

Spermacoce hispida L., Sp. Pl. 1: 102. 1753; FHK 163. 1861; FKH 135. 1912.

Borreria hispida K. Schum., Nat. Pflanzenfam. IV(4): 144. 1891, *nom. illeg.*, non *B. hispida* Spruce ex K. Schum. (1888).

Annual diffuse herbs, 30–60 cm or longer. Stems quadrangular, roughly pubescent or hispid on ribs. Leaves papery or leathery; petioles 1–4 mm, hairy; stipules membranous, pilose; bristles pinkish, longer than the sheath; leaf blade oblong, obovate or spathulate, 1–3.5 × 0.5–2 cm, base cuneate, apex acute or obtuse, initially hairy on both surfaces, later glabrescent, margin scabrous or shortly ciliate; lateral veins 3–4 on each side of midvein, inconspicuous. Flowers sessile or nearly so, 3–6 clustered in axils of stipules. Calyx-tube cylindric, 2–3 mm, hispid; lobes 4, linear-lanceolate, 1–1.5 mm. Corolla pink or white, funnel-shaped; tube 4–4.5 mm, glabrous; lobes 4, oblong, ca. 1.5 mm, with a few hairs near apex of abaxial surface. Capsule ovoid, 3–5 mm long, 2–2.5 mm in diam.,

hispid, crowned by the 4 calyx-teeth, separating into 2 valves.

Locality: Common in Hong Kong. *Y. S. Lau 2525; Y. W. Lam 1264, 1504.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; Japan, Indian subcontinent, Indochina, Malesia.

Ecology: Open fields and grassy slopes. Flowering & fruiting: Apr.–Oct.

4. Spermacoce latifolia Aubl.
闊葉豐花草 **(Fig. 198; Photos 396–397)**

Hist. Pl. Guiane 1: 55, t. 19, fig. 1. 1775; FTW ed. 2, 4: 329. 1998.

Borreria latifolia (Aubl.) K. Schum., Fl. Bras. 6(6): 61. 1888; FRPS 71(2): 207, pl. 49: 6–9. 1999; FGD 6: 244. 2005; Check List HK Plants 261. 2002; 90. 2004.

Annual diffuse herbs, to 70 cm or longer. Stems quadrangular, with winged ribs, roughly pubescent. Leaves papery; petioles 3–10 mm, roughly hairy; stipules membranous, roughly hairy; bristles yellowish brown, longer than the sheath; leaf blade elliptic or ovate-oblong, 2–7.5 × 1–4 cm, base broadly cuneate, decurrent, apex acute or obtuse, sparsely hispid on both surfaces; lateral veins 5–6 on each side of midvein, conspicuous. Flowers sessile, several clustered in axils of stipules. Calyx-tube cylindric, ca. 1 mm, hispid; lobes 4, ovate-lanceolate ca. 2 mm. Corolla pale purple, or rarely white, funnel-shaped; tube 2–2.5 mm, sparsely pubescent and with a ring of hairs at base inside; lobes 4, triangular ovate, ca. 1.5 mm, often with a few long hairs near apex. Capsule subglobose, 3–3.5 mm in diam., hairy, separating into 2 valves.

Locality: Naturalized. *L. T. Lo 468; Y. W. Lam 1156.*

Distribution: Guangdong, Guangxi, Yunnan, Fujian, Taiwan; native to tropical America, widely spread else where in tropical and subtropical areas.

Ecology: Open fields and grassy slopes. Flowering & fruiting: May–Oct.

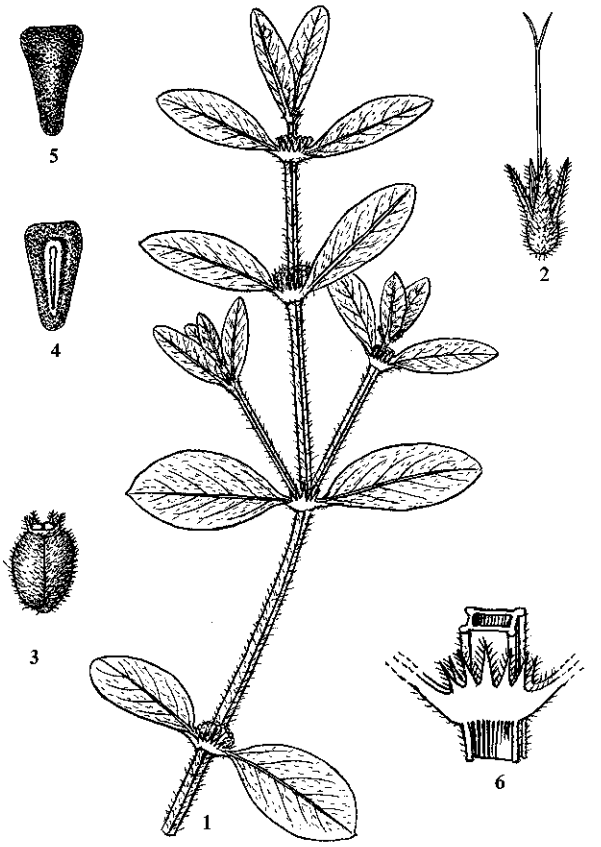


Figure 198. *Spermacoce latifolia* Aubl.
1. flowering and fruiting branch; *2.* calyx and pistil; *3.* fruit; *4–5.* ventral and dorsal views of seed; *6.* portion of stem and stipules. (drawn by H. P. Yu)

14. Knoxia L. 紅芽大戟屬

Herbs or subshrubs. Leaves opposite. Stipules united into a short sheath, entire or fringed with bristle-like teeth. Flowers in terminal cymes or corymbs; the branches often lengthened into one-sided spikes. Calyx-tube ovoid; limb with 4 minute persistent teeth. Corolla salverform; tube slender, hairy in throat; lobes 4, valvate in the bud. Stamens 4, attached to the throat of corolla; anthers dorsifixed. Ovary 2-locular, with 1 pendulous ovule in each locule; style filiform; stigma 2-lobed. Fruit small and dry; separating into 2 valves from the base upward or falling off together, leaving a persistent filiform axis.

About seven to nine species distributed in tropical Asia and Africa; three species in China; one species in Hong Kong.

1. Knoxia corymbosa Willd. 紅芽大戟 **(Fig. 199; Photo 398)**

Sp. Pl. ed. 4, 1(2): 582. 1789; FHK 164. 1861; FKH 132. 1912; FHN 3: 360, fig. 772. 1974; FTW ed. 2, 4: 274, pl. 120, photo 175. 1998; FRPS 71(2): 5, pl. 2. 1999; FYN 15: 197. 2003.

Perennial erect herbs, to 1 m tall. Stems and branches obtusely 4-angled, pubescent. Leaves membranous; petioles 1–6 mm, or almost obsolete; stipules 3–6 mm, fringed with 3–5 bristle-like teeth; leaf blade lanceolate or oblong, 3–10 × 0.8–2.5 cm, base cuneate, apex acuminate, covered with appressed hairs on both surfaces; lateral veins 6–9 on each side of midvein, conspicuous on both surfaces. Flowers numerous, subsessile, loose, terminal

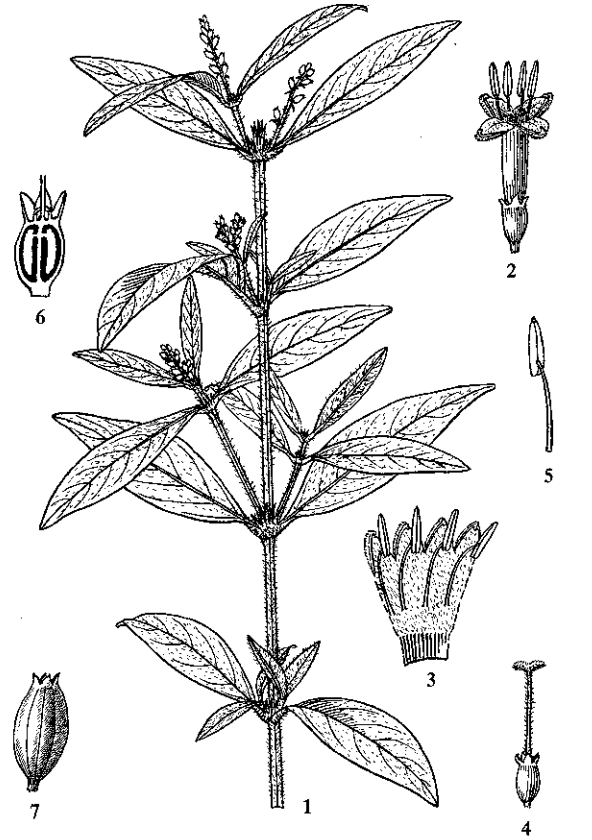


Figure 199. *Knoxia corymbosa* Willd.
1. flowering branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* pistil; *5.* stamen; *6.* vertical section of ovary; *7.* fruit. (drawn by H. P. Yu)

dichotomous cymes of 2–6 cm long. Calyx-tube ca. 1 mm, glabrous, with minute, triangular teeth. Corolla white or purple; tube ca. 2 mm, hairy inside; lobes less than 1 mm. Capsule ovoid, ca. 2–3 mm, with 4–8 weak ribs, usually falling off entirely from the filiform persistent axis.

Locality: Mount Kellet, Lan Nai Wan, Shing Mun, Tai Po, Po Toi Islands, Peng Chau. *Y. S. Lau 1481; Y. W. Lam 277, 1053.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Fujian, Taiwan; Indochina, Malesia, Indian subcontinent.

Ecology: Open fields, thin forests and thickets on hillslopes. Flowering: Summer to autumn; fruiting: Oct.–Nov.

15. Galium L. 拉拉藤屬

Annual or perennial herbs. Stems ± quadrangular, sometimes slightly woody at base. Leaves sessile, in whorls of 4, 6, or 8, of which some are stipules. Flowers small, in axillary or terminal trichotomous cymes or panicles. Calyx-tube ovoid or globular, completely fused with ovary; limb inconspicuous. Corolla rotate; tube scarcely perceptible, (3–)4-lobed; lobes valvate in the bud. Stamens as many as corolla-lobes; filaments short; anthers exserted. Ovary 2-locular, with 1 ovule in each locule; style short, deeply 2-cleft; stigma capitate. Fruit small, didymous, dry, indehiscent.

About 400 species spread over all temperate regions of the world; 58 species in China; one species in Hong Kong.

1. Galium aparine L. var. **echinospermum** (Wallr.) Farw. 拉拉藤 **(Fig. 200; Photo 399)**

Rep. Michigan Acad. Sci. 19: 260. 1917.

Galium aparine L. var. *echinospermum* (Wallr.) Cuf., Oesterr. Bot. Zeitschr. 89: 246. 1940; FRPS 71(2): 235, pl. 54: 5–8. 1999; FYN 15: 307, pl. 64: 8–11. 2003; FGD 6: 245, fig. 134. 2005; Check List HK Plants 262. 2002; 90. 2004.

Galium aparine auct. non L.: FHK 164. 1861; FKH 135. 1912.

Galium agreste Wallr. var. *echinospermum* Wallr., Sched. Crit. 59. 1822.

Annual herbs. Stems trailing or climbing, 30–90 cm or longer, with small, recurved prickles on the angles. Leaves sessile, (4–)6–8 in a whorl; leaf blade linear or linear-lanceolate, 1–3(–5) × 0.2–0.7 cm, base gradually narrowed, apex mucronate, with small prickles on the margins and midveins of abaxial surface. Flowers small, greenish white, 3–8(–10) in loose cymes; peduncles axillary, usually longer than the subtending leaves; pedicels slender, to 10 mm in fruiting time. Calyx-tube ovoid, covered with small prickles; limb truncate. Corolla rotate, 4-lobed; lobes oblong, less than 1 mm. Fruit consisting of 1–2 subglobular segments, covered with hooked bristles.

Locality: Hong Kong Island, Fanling (Loi Tung). *H. F. Hance s.n.* (fide FHK 164. 1861); *F. W. Xing 6790* (HKU).

Distribution: Widely spread almost all over China; Japan, Russia, Europe, Africa, N America, Indian subcontinent.

Ecology: Wastelands and grassy hillslopes. Flowering: Mar.

Uses: Medicinal (folklore).

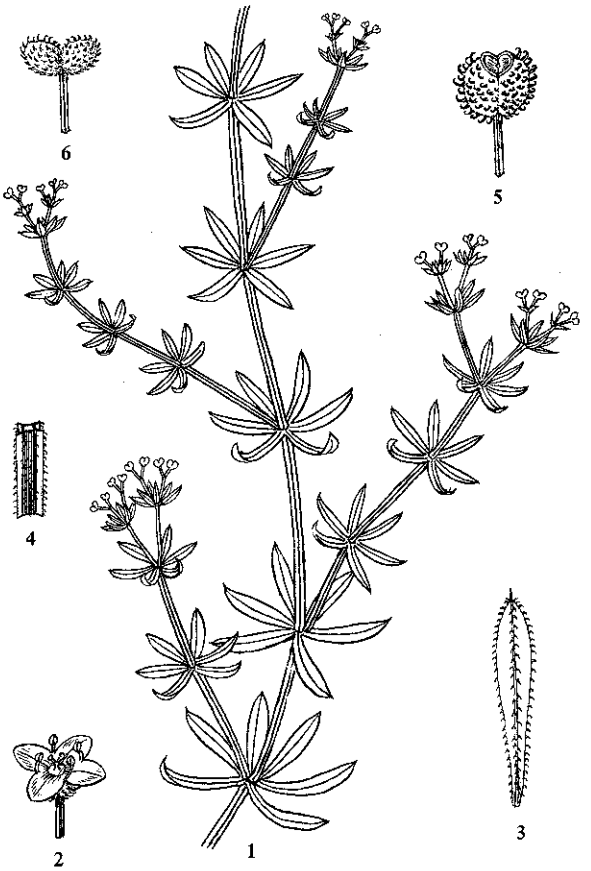


Figure 200. *Galium aparine* var. *echinospermum* (Wallr.) Farw.
1. portion of plant; *2.* flower; *3.* leaf; *4.* portion of stem; *5–6.* fruit. (drawn by H. P. Yu)

16. Rubia L. 茜草屬

Perennial, or rarely annual herbs, with quadrangular stems and branches, scabrous, hispid or with prickles. Leaves in whorls of 4 or 6, of which 2 are real leaves and the remainder are stipules. Flowers small, in axillary or terminal cymes. Pedicels articulate at apex. Calyx-tube ovoid or subglobular; limb truncate or with minute teeth. Corolla rotate, shortly bell-shaped or funnel-shaped, usually 5-lobed; lobes valvate in bud. Stamens as many as corolla-lobes, attached to the tube; filaments very short. Ovary 2-locular, with 1 but deeply 2-lobed style or 2 separate styles; ovule 1 in each locule. Fruit fleshy, globular didymous or through abortion, only 1 carpel developed.

About 70 species distributed in Europe, Asia, S Africa and America; 36 species in China; one species in Hong Kong.

1. Rubia wallichiana Decne.
多花茜草 **(Fig. 201; Photo 400)**

Recherch. Anat. & Physiol. Garance 61: 1837; FRPS 71(2): 315. 1999; FGD 6: 248. 2005.

Rubia cordifolia auct. non L.: FHN 3: 363, fig. 774. 1974.

Trailing herbs, 1–3 m or longer. Stems and branches quadrangular, ± with recurved, short prickles on the angles, glabrous or pubescent on nodes. Leaves in whorls of 4 or 6, thinly papery or membranous; petioles 1–6 cm, with recurved prickles; leaf blade lanceolate or ovate-lanceolate, 2–7 × 0.5–2.5 cm, base cordate or subrounded, apex acuminate, adaxial surface glabrous or scabrous, abaxial surface glabrous, glaucous when dry; 5-veined, with minute prickles on the margins and midvein. Flowers in axillary thyrses, 1–5 cm; peduncles quadrangular, subglabrous; pedicels slender, 3–4 mm. Calyx-tube ovoid, shallowly 2-lobed. Corolla purplish red, greenish yellow or white; tube very short; lobes lanceolate, 1.3–1.5 mm, apex acuminate. Fruit black, globular or didymous, each segment 3.5–4 mm in diam.

Locality: Tai Mo Shan, Sunset Peak. *L. T. Lo 319; Y. W. Lam 436, 2182.*

Distribution: Hainan, Gungdong, Guangxi, Yunnan, Xizang, Sichuan, Hunan, Jiangxi; India, Indonesia.

Ecology: Thickets. Flowering & fruiting: Apr.–Dec.

Uses: Medicinal (folklore).

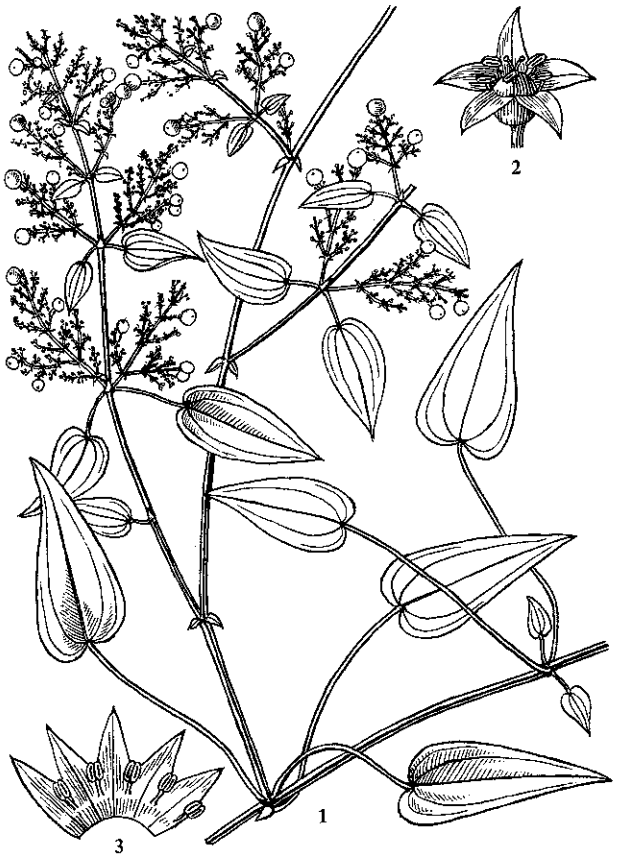


Figure 201 *Rubia wallichiana* Decne.
1. flowering and fruiting branch; *2.* flower; *3.* corolla opened. (drawn by H. P. Yu)

17. Richardia L. 墨苜蓿屬

Erect or creeping herbs. Leaves opposite, sessile or petiolate. Stipules united at the base into a sheath, fringed with filiform or subulate lobes. Flowers small, bisexual or sometimes polygamo-dioecious, in terminal head-like clusters. Calyx-tube turbinate or globular; limb 4–8-lobed; lobes lanceolate or subulate, persistent. Corolla funnel-shaped; throat glabrous; limb 3–6-lobed; lobes ovate or lanceolate, valvate in the bud. Stamens 3–6, attached to the throat; filaments slender; anthers dorsifixed, linear or oblong, exserted. Ovary 3–4-locular, with 1 ovule in each locule; style with 3–4 linear or spathulate lobes. Fruit a capsule.

About 15 species in C & S America; one species naturalized in S China and in Hong Kong.

1. Richardia scabra L. 墨苜蓿 **(Photo 401)**

Sp. Pl. 1: 330. 1753; FTW ed. 2, 4: 321. 1998; FRPS 71(2): 203, pl. 48: 1–7. 1999; FGD 6: 242, fig. 131. 2005.

Richardia brasiliensis auct. non Gomes: Z. X. Li & F. W. Xing, Guihaia 9(1): 35. 1989.

Annual herbs. Stems creeping or ascending, to 80 cm or longer, sparsely hirsute. Leaves thickly papery; petioles 5–10 mm; stipules united with petioles into a sheath, apex truncate, fringed with 2–5 bristle-like lobes; leaf blade ovate, elliptic or lanceolate, 1–5 × 0.5–3.5 cm, base attenuate, apex acute, tip blunt, margin ciliate, scabrous on both surfaces. Flowers in terminal sessile heads, subtended by 1 or 2 pairs of broadly ovate bracts. Calyx 2.5–3.5 mm; tube constricted at apex; lobes usually 6, lanceolate, about the length of the tube, ciliate. Corolla white, funnel-shaped; tube 2–8 mm, with a ring of white long hairs near the base inside; lobes pubescent abaxially. Ovary usually 3-locular; style 3-branched, the branches bilobed again; stigma capitate. Capsule oblong to obovoid, 3-furrowed, 2–3.5 mm high, densely and minutely strigose.

Locality: Naturalized. *L. T. Lo 67; Y. S. Lau 1825; Y. W. Lam 1157.*

Distribution: Naturalized in Hainan, S Guangdong, Taiwan, Xisha Islands; native to tropical America.

Ecology: Wastelands. Flowering: Feb.–Oct.; fruiting: Jun.–Oct.

18. Geophila D. Don, *nom. cons.* 愛地草屬

Perennial creeping herbs. Leaves opposite, reniform, orbicular or ovate-cordate, usually long-petiolate. Stipules interpetiolar, ovate, entire. Flowers small, solitary or in umbels on axillary or terminal peduncles. Calyx-tube obovate; limb short, with 4–7 persistent lobes. Corolla tubular-funnel-shaped, throat hairy, 4–5-lobed; lobes valvate in the bud. Stamens as many as corolla-lobes, attached to the upper part of corolla-tube; anthers dorsifixed, included or slightly exserted. Ovary 2-celled, with 1 ovule in each cell; style filiform; stigma 2-lobed. Fruit a fleshy drupe, with two 1-seeded pyrenes.

About 30 species chiefly in tropical and subtropical Asia and Africa; one species in Hong Kong.

1. Geophila herbacea (Jacq.) K. Schum.
愛地草 **(Fig. 202; Photos 402–403)**

Nat. Pflanzenfam. 4(4): 119. 1891; FHN 3: 359, fig. 771. 1974; FTW ed. 2, 4: 261, pl. 113, photo 173. 1998; FRPS 71(2): 63, pl. 15: 5–9. 1999; FYN 15: 231, pl. 47: 5–7. 2003; FGD 6: 210, fig. 113. 2005.

Psychotria herbacea Jacq., Enum. Syst. Pl. 16. 1760.

Perennial creeping herbs, to 30 cm or longer. Stems and branches pubescent, rooting at nodes. Leaves membranous; petioles 1–5 cm, densely pubescent; stipules broadly ovate, 1–2 mm, apex obtuse or rounded, entire; leaf blade reniform or broadly ovate-cordate, ca. 1–2(–3) cm in diam., base cordate, apex rounded or obtuse, subglabrous, palmately 5–8-veined. Flowers solitary, or 2–3 in umbels; peduncles 1–4 cm, pubescent or glabrescent. Calyx-tube 2–3 mm; lobes 4, linear-lanceolate, 2–2.5 mm, ciliate. Corolla-tube ca. 8 mm, hairy on both sides; lobes 4, ovate or ovate-lanceolate. Drupe subglobose, 4–6 mm in diam., smooth, red when mature.

Locality: Tate's Cairn, Tai Om, Tai Po, Chuen Lung, Sai Kung. *Y. W. Lam 453, 2053; K. Y. Tam 139.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Fujian, Taiwan; widely spread over tropical and subtropical areas.

Ecology: Ravines, margins of forests and other wet places. Flowering: May–Jun.; fruiting: May–Nov.

Notes: The species was reported as *Geophila repens* (L.) I. M. Johnst. var. *asiatica* (Cham. & Schld.) Fosberg previously (Check List HK Plants 90. 2004).

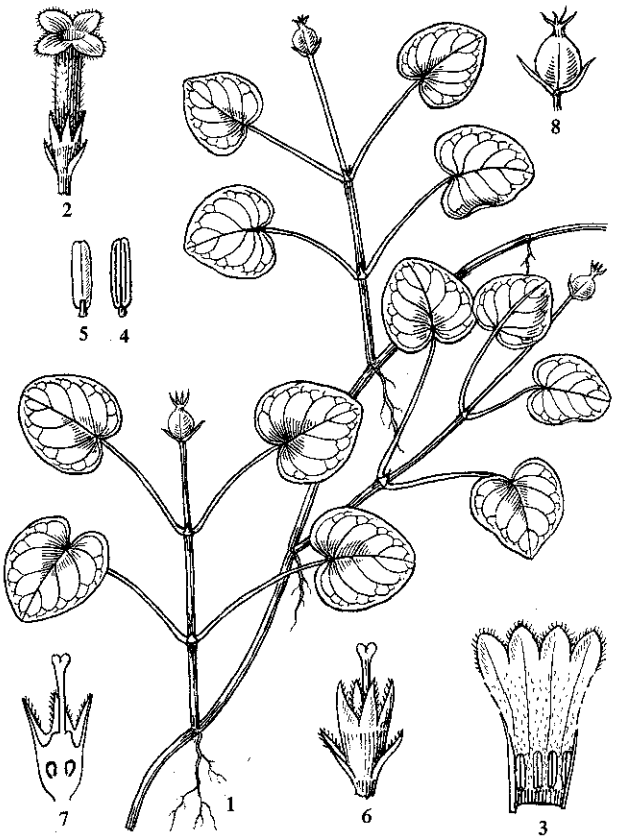


Figure 202. *Geophila herbacea* (Jacq.) K. Schum.
1. portion of plant; *2.* flower; *3.* corolla opened; *4.* ventral view of stamen; *5.* dorsal view of stamen; *6.* calyx and style; *7.* vertical section of ovary; *8.* fruit. (drawn by H. P. Yu)

19. Mitracarpus Zucc. ex Schult. & Schult. f.
蓋裂果屬

Erect or creeping herbs. Stems quadrangular, woody at the base. Leaves opposite. Stipules interpetiolar, persistent. Flowers in axillary or terminal heads. Calyx-tube turbinate, obovoid or subglobular; limb 4–5-lobed; lobes unequal, persistent. Corolla salverform or funnel-shaped; tube usually with a ring of long hairs inside, glabrous or pubescent on the throat; lobes 4, valvate in the bud. Stamens 4, attached to the throat of corolla; anthers included or exserted. Ovary 2(3)-locular, with 1 ovule in each locule; style with 2 linear lobes at apex. Fruit a capsule, opening transversely at or a little below middle.

About 30 species mainly in tropical America, also in Africa and Australia; one species (introduced) in S China and Hong Kong.

1. Mitracarpus hirtus (L.) DC. 蓋裂果 **(Fig. 203)**

Prodr. 4: 572. 1830.

Mitracarpus villosus (Sw.) Cham. & Schltdl., Linnaea 3(4): 363. 1828, *nom. inval.*

Mitracarpus villosus (Sw.) DC., 4: 572. 1830; Verdc., Fl. Trop. East Africa 375, fig. 55. 1976; FRPS 71(2): 210, pl. 50. 1999; Check List HK Plants 267. 2002; 92. 2004.

Spermacoce hirta L. Sp. Pl. ed. 2, 1: 148. 1762.

Spermacoce villosa Sw., Prodr. 29. 1788.

Perennial herbs, 40–80 cm tall. Stems erect, slightly angled on the upper part, sparsely hirsute. Leaves sessile; stipules united at base, apex with unequal bristle-like lobes; leaf blade oblong or lanceolate, 3–4.5 × 0.7–1.5 cm, apex acute, tapering to the base, adaxially scabrous or with sparse short hairs, abaxially pubescent,

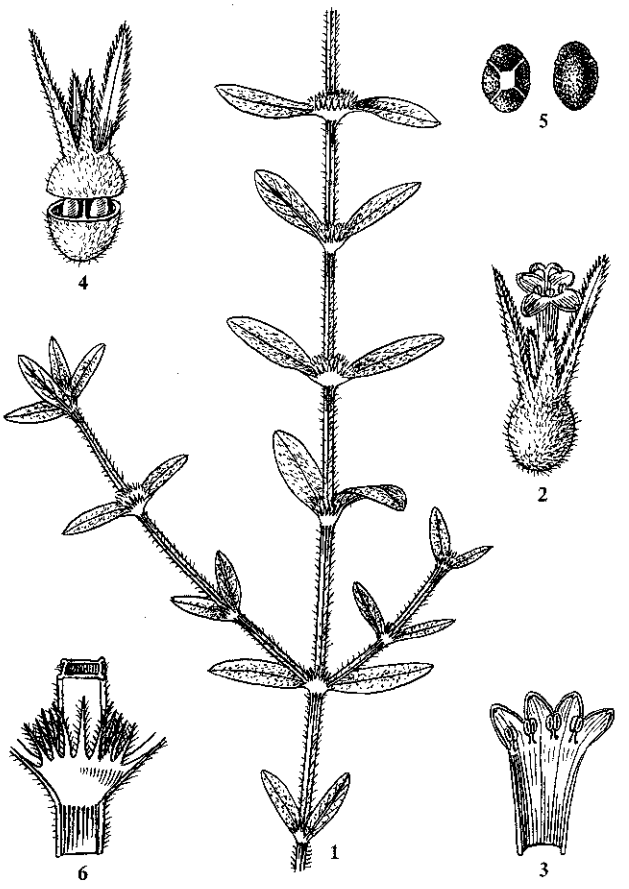


Figure 203. *Mitracarpus hirtus* (L.) DC.
1. flowering branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* fruit; *5.* seeds; *6.* stipule. (drawn by H. P. Yu)

margin scabrous; lateral veins slender, inconspicuous. Flowers small, in head-like axillary clusters. Bracteoles linear, about the length of the calyx. Calyx pubescent; tube subglobular; lobes unequal, 2 larger ones 1.8–2 mm, smaller ones 0.8–1.2 mm, ciliate. Corolla funnel-shaped, 2–2.2 mm, glabrous inside; lobes triangular, about 1/3 of the tube, apex obtuse. Capsule subglobose, ca. 1 mm in diam., scabrous or sparsely puberulent.

Locality: Deep Water Bay, Kwai Chung, Sha Tin, Sha Kok Mei. *P. S. Choi 55, 159; Y. W. Lam 1017.*

Distribution: Hainan; India, tropical America & Africa.

Ecology: Wastelands. Flowering & fruiting: Jul.–Dec.

20. Paederia L. 雞矢藤屬

Twining herbs or shrubs. Branches terete, twisted. Leaves opposite, rarely in whorls of 3 or 4, petiolate. Stipules interpetiolar, usually triangular, deciduous. Flowers in axillary or terminal cymes, often paniculate. Calyx-tube turbinate or ovoid; limb 4–5-lobed, persistent. Corolla tubular or funnel-shaped, pubescent outside, glabrous or hairy at throat; limb 4–5-lobed, lobes valvate and folded in the bud. Stamens as many as corolla-lobes, attached to the top of corolla-tube; anthers dorsifixed or basifixed, included. Ovary 2-locular, with 1 ovule in each locule; style deeply 2-parted, twisted. Fruit dry, the exocarp fragile, consisting of 2 compressed nutlets.

About 20 species mainly in tropical and subtropical Asia and America; 11 species in China; two species and one variety in Hong Kong.

1a. Flowers arranged in scorpioid at ultimate branches of inflorescence; leaf blade glabrous or hairy.
  2a. Stems and leaves glabrous; corolla usually pale purple ..... 1. *P. scandens*
  2b. Stems and leaves hairy; corolla white ..... 1a. *P. scandens* var. *tomentosa*
1b. Flowers arranged in compact cymes or glomerulate at ultimate branches of inflorescence ..... 2. *P. pertomentosa*

1. Paederia scandens (Lour.) Merr. 雞矢藤 **(Photos 404–405)**

Contr. Arnold Arbor. 8: 163. 1934; FHN 3: 358. 1974; FRPS 71(2): 118. 1999; FYN 15: 257, pl. 55: 8–11. 2003; FGD 6: 226, fig. 122. 2005.

Gentiana scandens Lour., Fl. Cochinch. 1: 171. 1790.

Perennial herbs; stems glabrous, 3–5 m or longer, woody at the base, with disagreeable odour when bruised. Leaves papery or subleathery; petioles 1.5–7 cm; stipules triangular, 3–5 mm, glabrous; leaf blade ovate, ovate-oblong or lanceolate, 5–15 × 1–6 cm, base cuneate, rounded, truncate, or sometimes shallowly cordate, apex acute or acuminate, glabrous or nearly so; lateral veins 4–6 on each side of midvein, sometimes with turf of hairs in the axils of veins. Flowers sessile along the branches of the loose dichotomous or trichotomous cymes, forming long loose panicles. Calyx-tube turbinate, 1–1.2 mm; lobes 5, triangular, 0.8–1 mm. Corolla pale purple; tube 7–10 mm, pulverulent outside, tomentose inside; lobes 5, suborbicular, 1–2 mm. Anthers dorsifixed; filaments unequal. Fruit globular or ovoid, 5–7 mm in diam.

Locality: Common in Hong Kong. *H. C. Tang 2260; Y. S. Lau 1988, 2010.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Gansu, Shanxi, Shaanxi, Henan, Hubei, Hunan, Jiangxi, Anhui, Shandong, Jiangsu, Zhejiang, Fujian, Taiwan; Korea, Japan, Indochina, Malesia, Indian subcontinent.

Ecology: Thickets, wastelands near villages. Flowering: Aug.–Sep.; fruiting: Sep.–Dec.

Uses: Medicinal (folklore).

1a. Paederia scandens (Lour.) Merr. var. **tomentosa** (Blume) Hand.-Mazz. 毛雞矢藤 **(Fig. 204; Photo 406)**

Symb. Sin. 7(4): 1023. 1936; FHN 3: 358. 1974; FRPS 71(2): 119. 1999; FYN 15: 258. 2003; FGD 6: 226. 2005.

Paederia tomentosa Blume, Bijdr. Fl. Ned. Ind. 968. 1826; FKH 134. 1912.

Differs from var. *scandens* by its hairy branches, petioles, inflorescence and abaxial surface of leaves, and by its white (not pale purple) flowers.

Locality: Mount Davis, Tai Po Kau, Tai Mo Shan, Lantau Island. *Y. S. Lau 1575; P. S. Choi 100, 372.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Shaanxi, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang,

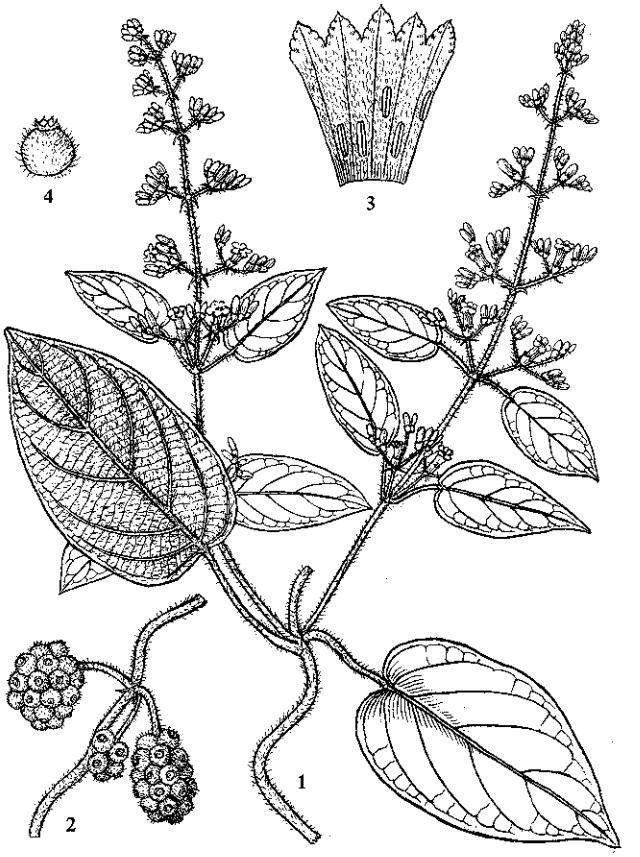


Figure 204. *Paederia scandens* var. *tomemtosa* Hand.-Mazz.
1. flowering branch; *2*. infructescence; *3*. corolla opened up showing stamens; *4*. fruit. (drawn by H. P. Yu)

Fujian; Japan, India, Malesia.

Ecology: Thickets, wastelands near villages. Flowering: Jul.–Oct.; fruiting: Sep.–Oct.

Uses: Medicinal (folklore).

2. Paederia pertomentosa Merr. ex Li 白毛雞矢藤 **(Photos 407–408)**

Journ. Arnold Arb. 24: 458. 1943; FRPS 71(2): 115. 1999; FGD 6: 226. 2005.

Shurbby or herbaceous vines, to 3 m or longer; branches, petioles and inflorescence densely tomentellous. Petioles (0.5–)1–3(–5) cm; leaf blade papery, ovate to ovate-elliptic or oblong-elliptic, 4–12 × 2.2–5.5 cm, base rounded, sometimes slightly decurrent, apex acuminate, adaxial surface ±olive-green, inicially puberulous, glabrescent, abaxial surface densely whitish tomentose; lateral veins ca. 4 on each side of midvein. Inflorescences axillary or terminal, 6–20 cm, paniculate, with opposite or subverticillate branches of 1–3 cm apart; flowers 5-merous, arranged in compact cymes or glomerulate at the branches. Pedicels very short. Calyx densely tomentose; lobes triangular, apex acute, glabrous adaxially. Corolla purpleish; tube 5 mm, densely puberulous abaxially; lobes ovate, 1–1.2 mm, acute. Fruits globose at maturity, 4–5 mm in diam., straw-yellow, shiny; pyrenes semi-globose 3–4 mm in diam., without wings.

Locality: Ma On Shan, Sai Kung (Wong Chuk Yeung). *Y. S. Lau 3167; HK sheet 40893, 41515; R. K. Huang 3201* (IBSC).

Distribution: Guangdong, Guangxi, Hunan, Jiangxi, Fujian.

Ecology: Thickets or exposed grassy hillslopes. Flowering: Jun.–Aug.; fruiting: Sep.

21. Lasianthus Jack 粗葉木屬

Shrubs or small trees, often with disagreeable odour when bruised. Branches terete but compressed at the nodes. Leaves opposite, distichous, often with distinct transverse veins. Stipules interpetiolar, pointed, with a broad base. Flowers small, in axillary clusters, cymes or heads. Calyx-tube short; limb short or long, 3–6-toothed. Corolla funnel-shaped or salverform; tube usually dilated at the top, the throat villose; lobes 4–6, valvate in the bud. Stamens 4–6, attached to the corolla-throat; filaments short; anthers often apiculate, dorsifixed, included in the tube or shortly exserted. Ovary 4–9-locular, with 1 erect ovule in each locule; style divided at the top into 4–9 stigmatic linear lobes. Fruit a drupe, with four to nine 1-seeded pyrenes.

About 180 species in tropical Asia, Australia and W Africa; 33 species in China; six species in Hong Kong.

1a. Leaf-base cordate, asymmetrical ..... 1. *L. attenuatus*

1b. Leaf-base not cordate, symmetrical.

2a. Bracts leaf-like, much longer than flowers ..... 2. *L. hirsutus*

2b. Bracts not leaf-like, at most equaling flowers.

3a. Calyx-lobes longer than or equal to the tube ..... 3. *L. curtisii*

3b. Calyx-lobes obviously shorter than the tube.

4a. Leaves with distinct reticulate veinlets; lateral veins 7–14 on each side of midvein ..... 4. *L. chinensis*

4b. Leaves with parallel or subparallel veinlets; lateral veins 4–7 on each side of midvein.

5a. Leaves acuminate to caudate-acuminate at apex, glabrous or sparsely hirsute on veins of abaxial surface ..... 5. *L. fordii*

5b. Leaves acute or shortly acuminate, appressed-pubescent on veins of abaxial surface ..... 6. *L. verticillatus*

1. Lasianthus attenuatus Jack 斜基粗葉木(小葉雞屎樹) **(Photo 409)**

Trans. Linn. Soc. London 14(1): 126. 1823; FYN 15: 237, pl. 49: 1–8. 2003; FGD 6: 215. 2005.

Lasianthus wallichii (Wight & Arn.) Wight, Calcutta J. Nat. Hist. 6: 503. 1846; FTW ed. 2, 4: 295, pl. 133, photo 180. 1998; FRPS 71(2): 72, pl. 18: 1–7. 1999; Check List HK Plants 267. 2002; 92. 2004.

Mephitidia wallichii Wight & Arn., Prodr. Fl. Ind. Orient. 1: 390. 1834.

Shrubs, 1–2(–3) m tall. Branchlets, petioles and abaxial surface of leaves densely yellowish hirsute. Leaves papery or subleathery; petioles 2–5 mm; stipules linear-lanceolate; leaf blade elliptic-ovate or oblong-ovate, rarely lanceolate or oblong-lanceolate, 4–10(–13) × 2–4.5 cm, base cordate and oblique, apex abruptly acuminate, adaxial surface glabrous and ± shining; lateral veins 6–8 on each side of midvein, conspicuous on both surfaces; tertiary veins slender, loosely reticulate. Flowers 5–6 in axillary sessile clusters. Bracts and bracteoles many, subulate-lanceolate or linear, 10–15 mm. Calyx-tube cupular, ca. 1.5 mm; lobes 5, triangular-lanceolate, about the length of the tube or slightly longer. Corolla white, ± funnel-shaped; tube 7–8 mm, villose inside; lobes 5, subovate, 3.5–4 mm, densely hairy on the adaxial surface. Drupes subglobose, 4–5(–10) mm in diam., hirsute, blue when mature.

Locality: Victoria Peak, Sai Kung, Wong Chuk Yeung, Shing Mun, Yuen Tun Ha, Ng Tung Chai. *Y. S. Lau 1629; P. S. Choi 261; Y. W. Lam 508.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; India, Malay Peninsula.

Ecology: Forests or thickets. Flowering: Apr.–Dec.; fruiting: Aug.–Dec.

2. Lasianthus hirsutus (Roxb.) Merr.
雞屎樹 **(Fig. 205; Photo 410)**

J. Arnold Arbor. 33(3): 229. 1952; FRPS 71(2): 79, pl. 27: 5–10. 1999; H. Zhu, Act. Phytotax. Sin. 39(2): 129. 2001; FGD 6: 217. 2005.

Lasianthus cyanocarpus auct. non Jack: FHK 160. 1861; FKH 134. 1912; FTW ed. 2, 4: 280, pl. 125. 1998.

Triosteum hirsutum Roxb., Fl. Ind., ed. 1820, 2: 180. 1824.

Shrubs, 1–2(–3) m tall. Branchlets, bracts and abaxial surface of leaves densely rusty hirsute. Leaves papery; petioles 8–15 mm or slightly longer, densely covered with appressed coarse hairs; stipules ovate-triangular, 8–12 mm, densely hirsute; leaf blade oblong-elliptic, oblong-obovate, oblong, or sometimes oblanceolate, 15–25 × 4–6 cm, base cuneate, apex acuminate or caudate, broadly cuneate or obtuse, adaxial surface hirsute or glabrescent, abaxial surface thickly hirsute; lateral veins 8–12 on each side of midvein; veinlets parallel. Bracts many, outer ones larger, ovate or lanceolate, 2.5–3 × 1–1.5 cm, apex caudate, inner ones smaller, linear-lanceolate. Flowers 5–6 in axillary sessile clusters. Calyx-tube sub-bell-shaped, 1.5–2 mm, densely appressed setose on the upper part; lobes 4 or 5, subulate, ca. 1.5 mm. Corolla white, funnel-shaped; tube 12–13 mm, sparsely glandular pubescent outside, densely villose on the upper part inside; lobes 4 or 5, oblong or lanceolate, ca. 3.5 mm, glandular-ciliate. Drupes subglobose, 7–8 mm in diam., blue or purplish when mature, sparsely hairy or glabrescent.

Locality: Mount Nicholson, Happy Valley, Wong Chuk Yeung. *Y. W. Lam 750, 507, 1642.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; India, Malay Peninsula.

Ecology: Forests or thickets. Flowering: Apr.–Dec.; fruiting: May–Dec.

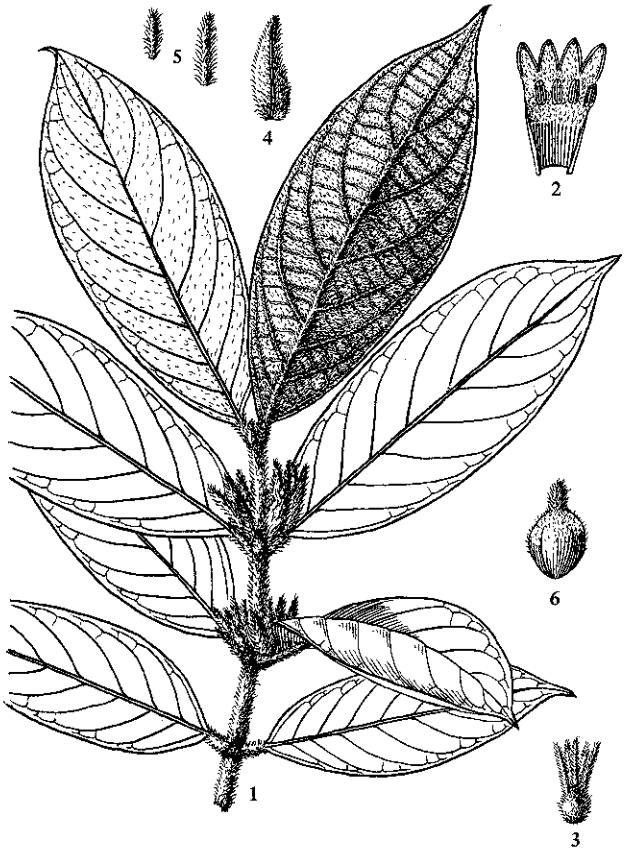


Figure 205. *Lasianthus hirsutus* (Roxb.) Merr.
1. flowering branch; *2*. corolla opened up showing stamens; *3*. calyx; *4–5*. bracts; *6*. fruit. (drawn by H. P. Yu)

3. Lasianthus curtisii King & Gamble 廣東粗葉木

J. Asiat. Soc. Bengal. 73(3): 128. 1904; FTW ed. 2, 4: 280, pl. 124. 1998; FRPS 71(2): 92, pl. 24: 7–12. 1999; H. Zhu, Act. Phytotax. Sin. 39(2): 126. 2001; FGD 6: 219. 2005.

Lasianthus kwangtungensis Merr., Lingnan. Sci. J. 7: 323. 1929.

Shrubs, 1–3 m tall. Branchlets, petioles and stipules densely hirsute. Leaves papery; petioles rather thick, usually less than 10 mm; stipules small, narrowly triangular, 1.5–2 mm; leaf blade oblong-lanceolate or oblong, sometimes subovate, 5–10 × 1.5–4 cm, base broadly cuneate or obtuse, apex acuminate or caudate, olive green or glaucescent when dry, adaxial surface glabrous, abaxial surface villose or hirsute; lateral veins 5–6 on each side of midvein; veinlets slender subparallel. Flowers more than 10 in axillary sessile clusters. Bracts none or very small. Calyx-tube subobconical, ca. 1.5 mm, densely hirsute; lobes usually 5, linear-lanceolate or narrowly lanceolate, 3–4(–5) mm, much longer than the tube. Corolla white, 7–8 mm, hirsute outside, villose inside; lobes 5, oblong-lanceolate, about the length of the tube, very hairy on the abaxial surface. Drupes subglobose or ovoid, 4–5(–7) mm in diam., hirsute, blue to dark blue when mature.

Locality: Wu Kau Tang, Tai Mo Shan, Tai Po Kau, Tai Po. *W. J. Tutcher 10919; Y. W. Lam 180, 497.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; India, Malay Peninsula.

Ecology: Forests or thickets. Flowering: Apr.–Dec.; fruiting: May–Dec.

4. Lasianthus chinensis (Champ. ex Benth.) Benth. 粗葉木 **(Photo 411)**

FHK 160. 1861; FKH 134. 1912; FHN 3: 337. 1974; FTW ed. 2, 4: 280, pl. 123, photo 177. 1998; FRPS 71(2): 84, pl. 22: 1–5. 1999; H. Zhu, Act. Phytotax. Sin. 39(2): 123. 2001; FGD 6: 221. 2005.

Mephitidia chinensis Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 4: 196. 1852.

Shrubs, 2–4 m tall. Branches flattened and shortly tomentose when young, terete and nearly glabrous in age. Leaves thin-leathery or thickly papery; petioles 6–8 mm, shortly tomentose; stipules triangular-subulate, the upper ones rather long; leaf blade oblong, elliptic or oblong-lanceolate, 11–21 × 3.5–7.5 cm, base broadly cuneate or obtuse, apex acuminate, adaxial surface glabrous, tawny tomentose on abaxial surface; lateral veins 9–14 on each side of midvein, conspicuous on both surfaces; veinlets reticulate. Flowers 5–6 in axillary sessile clusters. Bracts absent. Calyx-tube bell-shaped, shortly tomentose outside; lobes triangular-ovate. Corolla salverform; tube ca. 10 mm, white tomentellous on the upper part; lobes oblong-lanceolate, about the length of the tube, very hairy on the abaxial surface. Drupes globular, 5–6 mm in diam., pubescent, blue or purplish when mature.

Locality: Hong Kong Island, Tai Mo Shan, Ma On Shan, Sai Kung, Lantau Island. *L. T. Lo 605; S. C. Ng 3789; K. L. Yip 4380.*
Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; India, Malay Peninsula.
Ecology: Forests or thickets. Flowering: Apr.–Dec.; fruiting: May–Dec.
Notes: The type specimens were collected by J. G. Champion from Wong Nai Chung and Victoria Peak between 1847 and 1850.

5. Lasianthus fordii Hance 羅浮粗葉木 **(Photo 412)**

J. Bot. 23(275): 324. 1885; FKH 134. 1912; FTW ed. 2, 4: 284, pl. 126, photo 178. 1998; FRPS 71(2): 97, pl. 25: 5–9. 1999; H. Zhu, Act. Phytotax. Sin. 39(2): 127. 2001; FGD 6: 221, fig. 119. 2005.

Shrubs, 1–2 m tall. Branchlets slender, slightly angled, glabrous. Leaves papery; petioles 5–10 mm, hirsute; stipules small, subtriangular, 1–1.5 mm; leaf blade oblong-lanceolate or oblong-ovate, sometimes oblong, 5–12 × 2–4 cm, base cuneate, apex acuminate or caudate-acuminate, glabrous or sparsely hirsute on midvein and lateral veins; lateral veins 4–5(–6) on each side of midvein; veinlets slender, subparallel. Flowers subsessile, in axillary clusters. Bracts very small or absent. Calyx-tube obconical, 1.2–1.5 mm, usually glabrous; lobes 4 or 5, very small, 0.3–0.5 mm, sparsely hirsute. Corolla white, tubular or ± funnel-shaped; tube 4–5 mm, glabrous outside, white-villose on the upper part of inside; lobes 4–5, narrowly triangular-lanceolate, ca. 1.5 mm, apex incurved and beak-shaped, sparsely hirsute near apex abaxially, white pubescent adaxially. Drupes subglobose, ca. 6 mm in diam., glabrous, blue or purplish when mature.

Locality: Shing Mun, Yin Ngam, Wong Chuk Yeung, Wu Kau Tang. *P. S. Choi 438; Y. W. Lam 495, 504.*
Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; India, Malay Peninsula.
Ecology: Forests or thickets. Flowering: Apr.–Dec.; fruiting: May–Dec.

6. Lasianthus verticillatus (Lour.) Merr. 斜脈粗葉木 **(Photo 413)**

Trans. Amer. Philos. Soc. n.s., 24(2): 372. 1935; H. Zhu, Act. Phytotax. Sin. 39(2):144. 2001; FYN 15: 245. 2003; FGD 6: 224. 2005.

Lasianthus obliquinervis Merr., Philipp. J. Sci. 1 (suppl. 1): 136. 1907; FRPS 71(2): 100, pl. 26: 1–6. 1999; Check List HK Plants 267. 2002; 92. 2004.

Lasianthus trichophlebus auct. non Hemsl.: FHN 3: 336. 1974.

Dasus verticillatus Lour., Fl. Cochinch. 142. 1790.

Shrubs, 1–3 m tall. Branches subterete, becoming black or dark grey when dry, sparsely puberulent (visible under hand lens). Leaves thickly papery or subleathery; petioles rather thick, usually less than 10 mm, densely appressed-pubescent; stipules subtriangular, 3.5–5 mm, appressed-pubescent; leaf blade oblong to narrowly oblong, occasionally elliptic or ovate-elliptic, rarely obovate, 10–20 × 2.5–5.5 cm, base acute or obtuse, apex acute or acuminate, often slightly oblique, grey or greyish brown when dry, adaxial surface glabrous and shining, abaxial surface appressed-pubescent on veins and veinlets; lateral veins 5–7(–9) on each side of midvein; veinlets subparallel. Flowers sessile, in axillary clusters. Bracts none. Calyx-tube ± bell-shaped, 4–5 mm, pubescent; limb almost truncate. Corolla white; tube ca. 6 mm, hirsute abaxially, white-villose on the upper part adaxially; lobes 5, oblong or ovate, ca. 4 mm, villose on the adaxial surface. Drupes ovoid, 7–9 mm in diam., pubescent.

Locality: Tai Tam, Fei Ngo Shan, Shing Mun, Wu Kau Tang, Kai Kung Leng. *S. C. Ng 3151; K. L. Yip 4458.*
Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; India, Malay Peninsula.
Ecology: Forests or thickets. Flowering: Apr.–Dec.; fruiting: May–Dec.

22. Canthium Lam. 魚骨木屬

Shrubs or small trees, unarmed or with axillary thorns. Leaves opposite, short-petiolate, stipules intrapetiolar, triangular, united at the base. Flowers in axillary clusters or cymes. Calyx-tube short, obconical or hemispherical; limb very short, truncate or 4–5-toothed. Corolla-tube short, urn-shaped, subglobular or funnel-shaped, usually with a ring of recurved hairs in inner side; lobes 4–5, ovate-triangular, spreading, valvate in the bud. Stamens as many as corolla-lobes, attached to the corolla throat; filaments short or none; anthers fixed dorsally but near the base. Ovary 2-locular, with 1 pendulous or descending ovule in each locule; style thick; stigma exserted, entire or 2-lobed. Fruit a drupe, globular or didymous.

About 50 species in tropical and subtropical Asia, Australia and Africa; three species in China; two species in Hong Kong.

1a. Plants spiny; leaves 2–5 cm long, ± pubescent abaxially ..... 1. *C. horridum*
1b. Plants spineless; leaves 4–10 cm long, glabrous ..... 2. *C. dicoccum*

1. Canthium horridum Blume 豬肚木(小葉鐵矢米) **(Photo 414)**

Catalogus 45. 1823; Bijdr. Fl. Ned. Ind. 16: 966. 1926; FHK 159. 1861; FYN 15: 199, pl. 40: 13–15. 2003; FGD 6: 195. 2005.

Canthium parvifolium auct. non Roxb.: FKH 132. 1912.

Shrubs, 2–3 m tall, armed with straight axillary thorns. Young shoots ± pubescent. Leaves opposite, papery; petioles 2–3 mm, ± pubescent; stipules 2–3 mm, pubescent; leaf blade ovate or elliptic, 2–5 × 1–2 cm, base rounded or obtuse, apex acute or shortly acuminate, ± pubescent abaxially, at least when young; lateral veins slender, 2–3 on each side of midvein. Flowers small, sessile or short-pedicellate, solitary or clustered in axils of leaves. Calyx-tube obconical, 1–1.5 mm, apex with minute, undulate teeth. Corolla white; tube short, ca. 2 mm, glabrous outside, with retrorse beard on the throat; lobes 5, oblong, ca. 3 mm, apex acute. Drupes globular or didymous, 1–2 cm in diam.

Locality: Tai Mo Shan. *Y. W. Lam 1152.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan; Indochina, Malesia and Indian subcontinent.

Ecology: Thin forests and thickets. Flowering: Apr.–Jun.; fruiting: Jul.–Nov.

2. Canthium dicoccum (Gaertn.) Merr. 魚骨木(鐵矢米) **(Photo 415)**

Philipp. J. Sci. 35(1): 8. 1928.

Canthium dicoccum (Gaertn.) Teysm. & Binn., Cat. Hort. Bog. 1866, *nom. invalid.*

Canthium didymum C. F. Gaertn., Suppl. Carp. 94, t. 196. 1806; FHK 159. 1861; FKH 132. 1912.

Psydrax dicoccos Gaertn., Fruct. Sem. Pl. 1: 125, t. 26, fig. 2. 1788

Shrubs or small trees, to 15 m tall, spineless. Branchlets dark brown, glabrous. Leaves opposite, leathery; petioles 8–15 mm; stipules 3–5 mm, with a broad base, apex acute or acuminate; leaf blade ovate or elliptic or ovate-lanceolate, 4–10 × 1.5–4 cm, base cuneate, apex acuminate, obtuse or acute, glabrous, shining on both surfaces when dry; lateral veins slender, 3–5 on each side of midvein. Cymes axillary, loose and often many-flowered, short-pedunculate, shorter than the subtending leaves. Calyx-tube obconical, 1–1.2 mm, apex truncate or inconspicuously 5-toothed. Corolla greenish white or yellowish; tube ca. 3 mm, tomentose on the throat; lobes 4 or 5, oblong, slightly shorter than the tube. Drupes obovate or obovate-ellipsoidal, 6–8 mm in diam.

Locality: Common in Hong Kong. *Y. S. Lau 319, 1415; HK sheet 39115.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Xizang; Indochina, Malesia, Indian subcontinent, Australia.

Ecology: Ravines, forests and thickets. Flowering & fruiting: Mar.–Aug.

23. Psychotria L. 九節屬

Evergreen shrubs or small trees, generally erect, rarely climbing. Leaves opposite, rarely in whorls of 3 or 4. Stipules intrapetiolar, usually united into a sheath, entire or 2-lobed, deciduous or persistent. Flowers small, bisexual, rarely polygamo-dioecious, in corymbiform or paniculate cymes, terminal or very rarely axillary. Calyx-tube very short; limb with (4–)5(–6) lobes or teeth, deciduous or persistent. Corolla funnel-shaped, tubular or ± bell-shaped; tube straight, short or elongate, glabrous or hairy on throat; lobes usually (4–)5(–6), spreading, valvate in the bud. Stamens as many as corolla-lobes, attached to the apex of corolla-tube; anthers linear to oblong, dorsifixed, included or shortly exserted. Ovary 2-locular, with 1 erect ovule in each locule; style with 2 short stigmatic lobes. Fruit a drupe, with 2 kernels, flat on the inner face and usually furrowed on the back.

About 1400 species spreading over the tropical and subtropical regions; 18 species in China; three species in Hong Kong.

1a. Stems erect; leaves more than 7 cm long; fruit red when mature.
  2a. Apex of stipules rounded or with a minute mucro; corolla bell-shaped, lobes triangular ..... 1. *P. asiatica*
  2b. Apex of stipules acuminate, 2-lobed; corolla tubular, lobes oblong-lanceolate..... 2. *P. tutcheri*
1b. Stems creeping on trunks or rocks by aerial roots; leaves less than 4 cm long; fruit white when mature.....3. *P. serpens*

1. Psychotria asiatica L. 九節 (山大刀) **(Photos 416–417)**

Syst. Nat. (ed. 10), 929, 1364. 1759; A. P. Davis et al., Bot. J. Linn. Soc. 135: 35–42. 2001; FGD 6: 207, fig. 111. 2005.

Psychotria rubra auct. non (Lour.) Poir.: Urban Serv. Dept., Hong Kong Shrubs: 79. 1976; FRPS 71(2): 58, pl. 14: 1–4. 1999.

Psychotria elliptica auct. non Ker Gawl.: FHK 161. 1861; FKH 133. 1912.

Evergreen shrubs or small trees, 0.5–5 m tall. Leaves papery or subleathery; petioles 1.5–3 cm, glabrous or nearly so; stipules membranous, 3–6 × 4–8 mm, connected into a sheath within the petioles, apex obtuse, deciduous; leaf blade oblong, elliptic-oblong or oblong-oblanceolate, 8–15(–20) × 3–6(–9) cm, base attenuate, apex shortly acuminate, or sometimes acute with a blunt tip, margin entire, glabrous, but often with tuft of minute hairs in axils of lateral veins on abaxial surface; lateral veins 5–15 on each side of midvein. Cymes corymbiform or paniculate, terminal; usually trichotomous; primary branches 2.5–3 cm, secondary branches 1–1.5 cm; pedicels ca. 1 mm. Calyx-tube cup-shaped, ca. 1.5 mm; limb subtruncate or inconspicuously 5-toothed. Corolla greenish white; tube 2–3 mm, with white long hairs on the throat; lobes narrowly triangular, 2.5–3 × 1.5–2 mm, erect or ± spreading, tip incurved. Drupe globose or broadly ellipsoidal, 4–7 mm in diam., with longitudinal ribs, red when mature.

Locality: Common in Hong Kong. *H. C. Tang 2250; Y. W. Lam 527, 830.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Hunan, Zhejiang, Fujian, Taiwan; Japan, Indochina, Malesia, India.

Ecology: Thickets and forests on hillsides and by streams. Flowering: Mar.–Sep.; fruiting: Jun.–Feb. of the following year.

Uses: Medicinal (folklore).

2. Psychotria tutcheri Dunn 假九節 (小葉九節) **(Fig. 206; Photo 418)**

J. Bot. 48: 324. 1910; FKH 133. 1912; FHN 3: 352. 1974; FRPS 71(2): 53. 1999; FGD 6: 207. 2005.

Evergreen shrubs, 0.5–4 m tall. Leaves papery or thinly leathery; petioles 0.5–2 cm, glabrous; stipules ovate-triangular or lanceolate, 3–5 × 2–4 mm, connected into a sheath within the petioles, apex acuminate, with 2 bristle-like lobes, deciduous; leaf blade oblong-lanceolate, ovate-lanceolate, lanceolate or oblong, 5.5–22 × 2–6 cm, base cuneate, apex acuminate to caudate-acuminate, margin entire, glabrous; lateral veins slender, 4–13 on each side of midvein. Cymes corymbiform, terminal or axillary. Peduncle 0.5–3 cm;

pedicels ca. 1 mm. Calyx-tube obconical, 1.5–2.5 mm; limb enlarged, lobes 4, broadly triangular, ca. 0.5 mm. Corolla white or greenish white; tube 2–3 mm, with white long hairs on the throat; lobes 5, oblong-lanceolate, ca. 2 × 1 mm, recurved. Drupe globose, 4–6 mm in diam., with longitudinal ribs, red when mature.

Locality: Mount Nicholson, Mount Kellet, Wu Kau Tang, Ma On Shan. *P. S. Choi 387; K. L. Yip 4253; HK sheet 40907.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian.

Ecology: Thickets and forests. Flowering: Apr.–Jul.; fruiting: Jun.–Dec.

Notes: The type specimen was collected by W. J. Tutcher from Happy Valley in 1906.

3. Psychotria serpens L. 蔓九節(穿根藤) **(Photo 419)**

Novit. Fl. Suec. Mant. 2: 204. 1771; FHK 161. 1861; FKH 133. 1912; FHN 3: 353. 1974; FTW ed. 2, 4: 316, photo 191–192. 1998; FRPS 71(2): 60, pl. 14: 10–14. 1999; FGD 6: 208. 2005.

Evergreen small shrubs. Stems prostrate, many-branched, 0.5–5 m or longer, climbing on trunks or rocks by aerial roots. Leaves papery or leathery; petioles 1–10 mm, glabrous or scurfy puberulent; stipules membranous, shortly sheathing, 2–3 × 2–5 mm, apex obtuse, deciduous; leaf blade ovate, elliptic or obovate-oblong, 0.7–9 × 0.5–3.8 cm, base cuneate, apex acute or obtuse, margin entire, glabrous; lateral veins slender, 4–10 on each side of midvein. Cymes terminal, usually trichotomous; peduncles to 3 cm; pedicels 0.5–1.5 mm. Calyx-tube obconical, ca. 2.5 mm; limb enlarged, obtusely and minutely 5-toothed. Corolla white; tube 1.5–3 mm, with white long hairs on the throat; lobes 5, oblong, slightly longer than the tube. Fruit a berry-like drupe, globose or ellipsoidal, 2.5–6 mm in diam., white when mature.

Locality: Common in Hong Kong. *H. C. Tang 2061; K. L. Yip 4142; HK sheet 39949.*

Distribution: Hainan, Guangdong, Guangxi, Fujian, Zhejiang, Taiwan; Korea, Japan, Indochina, Thailand.

Ecology: Forests or thickets, climbing on trunks or rocks. Flowering: Apr.–Jul.; fruiting: Aug.–Dec.

Uses: Medicinal (folklore).

24. Coptosapelta Korth. 流蘇子屬

Trailing or scandent shrubs. Leaves opposite. Stipules small, interpetiolar, deciduous. Flowers axillary, solitary. Calyx-tube globular or turbinate; limb 4–5-lobed, lobes short, persistent. Corolla salverform; tube slender; lobes (4–)5, spreading, imbricate in the bud. Stamens 4–5, attached to the throat; filaments short; anthers linear, basifixed, included in the tube. Ovary 2-locular, with several ovules in each locule; style entire, club-shaped at the top, exserted. Fruit a capsule, opening loculicidally in 2 valves. Seeds bordered by a fringed membranous wing.

About 13 species in S and SE Asia; one species in China and Hong Kong.

1. Coptosapelta diffusa (Champ. ex Benth.) Steenis 流蘇子 **(Fig. 207)**

Amer. J. Bot. 56: 806. 1969; FTW ed. 2, 4: 248, pl. 109, photo 167. 1998; FYN 15: 112, pl. 21: 1–5. 2003; FGD 6: 154, fig. 73. 2005.

Thysanospermum diffusum Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 4: 168. 1852; FHK 146. 1861; FKH 125. 1912.

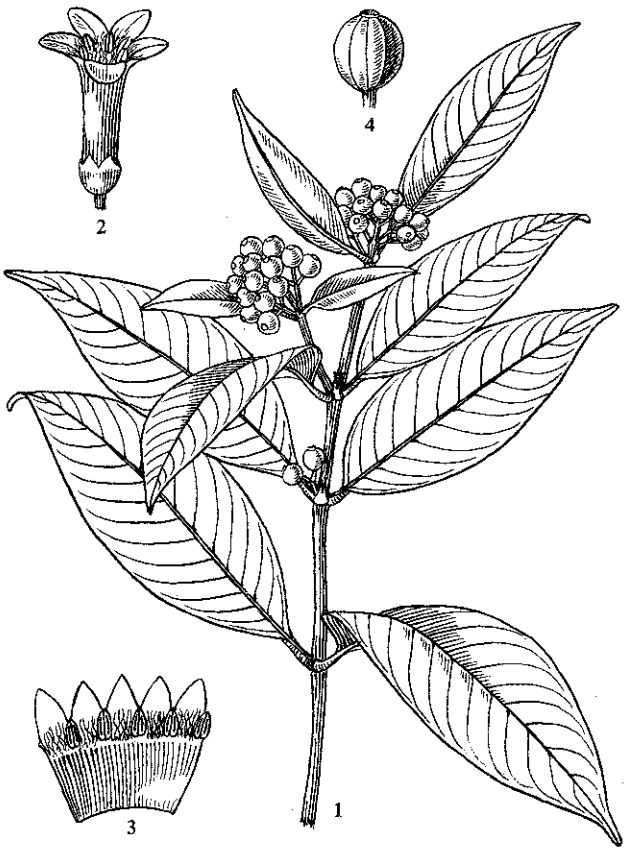


Figure 206. *Psychotria tutcheri* Dunn

1. fruiting branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* fruit. (drawn by H. P. Yu)

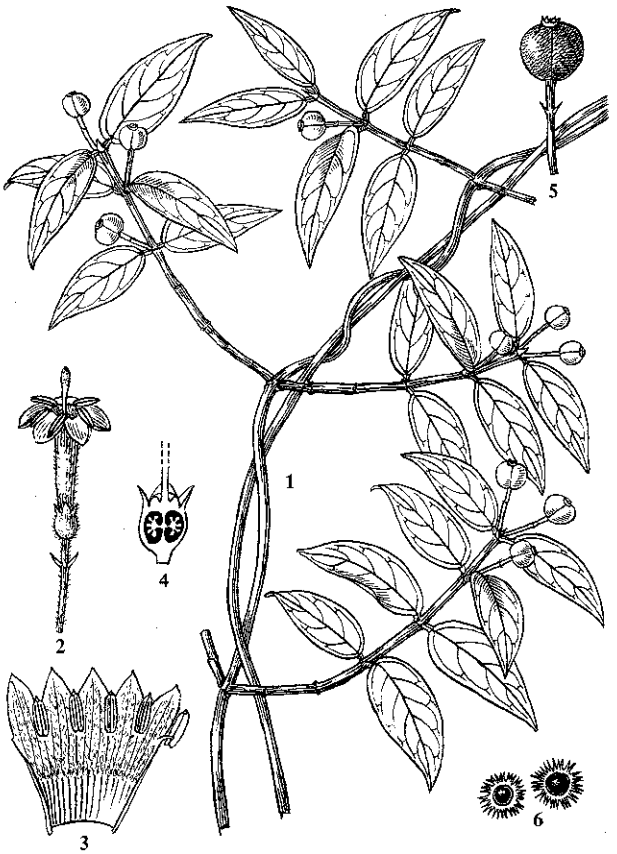


Figure 207. *Coptosapelta diffusa* (Champ. ex Benth.) Steenis

1. fruiting branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* vertical section of ovary; *5.* fruit; *6.* seeds. (drawn by H. P. Yu)

Evergreen trailing shrubs, to 5 m or longer, many-branched. Branches slender, covered with appressed tawny hairs when young, glabrescent in age. Leaves firmly papery to leathery; petioles 2–5 mm, sparsely hairy; stipules lanceolate, 3–7 mm, deciduous; leaf blade ovate to ovate-lanceolate, 2–7 × 1–2.5 cm, base rounded or broadly cuneate, apex shortly acuminate, adaxially glabrous, abaxially with appressed hairs on the midvein and edges. Flowers solitary in axils of leaves. Pedicels 3–18 mm, usually bearing 2 bracteoles above the middle. Calyx-tube globose; lobes ovate, ca. 1 mm. Corolla white or yellowish; tube 1.2–2 cm, pubescent outside and on the upper part inside; lobes 5, oblong, 4–6 × 1.4–1.6 mm, pubescent on adaxial surface. Capsule globose but slightly compressed, 5–7 mm in diam., with 2 furrows. Seeds suborbicular, very thin, fringed with fimbriate wing.

Locality: Mount Kellet, Ma On Shan, Sham Tseng, Tai O, Lantau Island. *Y. W. Lam 1284; HK sheet 40021, 40754.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hubei, Hunan, Jiangxi, Anhui, Zhejiang, Fujian, Taiwan; Japan.

Ecology: Ravines, hillsides, trailing upon trees or rocks. Flowering: May–Jul.; fruiting: Jun.–Dec.

Notes: The type specimen was collected by J. G. Champion from Victoria Peak between 1847 and 1850.

25. Hamelia Jacq. 長隔木屬

Shrubs or herbs. Leaves opposite or in whorls of 3 or 4, petiolate. Stipules interpetiolar, multifid or bristle-like, usually caducous. Cymes terminal, dichotomous or trichotomous, with flowers often arranged on one side of the branches. Calyx-tube ovoid or turbinate; lobes 4–6, usually short and erect, persistent. Corolla tubular or bell-shaped; tube 4–6-ribbed, constricted at the base, villose on the throat; lobes 4–6, imbricate in the bud. Stamens 4–6, attached to the base of corolla-tube; anthers with appendages on the apex of connectives, basifixed, included or slightly exserted. Ovary 5-locular, with many ovules in each locule; style filiform, with club-shaped stigma. Fruit a berry, many-seeded.

About 14 species in C & S America; one species cultivated in Hong Kong.

1. Hamelia patens Jacq. 長隔木（希美利） **(Photo 420)**

Enum. Syst. Pl. 16. 1760; FRPS 71(1): 390, pl. 103: 1–5. 1999; FYN 15: 194, pl. 39: 10–13. 2003; FGD 6: 191, fig. 101. 2005.

Shrubs, 1.5–4 m tall, many-branched, all young parts cinereous-pubescent. Branchlets, petioles and peduncles reddish. Leaves usually in whorls of 3 or 4; petioles 1.5–4.5 cm; stipules subulate, ca. 6 mm; leaf blade elliptic to oblanceolate, 7–15(–20) × 4–6 cm, base cuneate, apex acute, lateral veins 7–9 on each side of midvein, impressed adaxially, raised abaxially. Cymes terminal, with 3–5 radiate branches; primary branches 2.5–4 cm, secondary branches 1.5–2 cm. Flowers arranged along one side of the ultimate branches. Pedicels 1–2 mm. Calyx-tube cup-shaped, ca. 3 mm; lobes 5, triangular, ca. 1 mm. Corolla scarlet-orange, tubular, ca. 2.5 cm, glabrous; tube 5-ribbed, slightly enlarged at the base; lobes 5, ovate-triangular, ca. 2 mm erect. Stamens 5, equal to the corolla-tube; filaments 5–6 mm; anthers linear, 9–10 mm, with projected connective. Style 11–12; stigma clavate. Fruit unknown.

Locality: Cultivated in gardens. *Y. S. Lau 991, 1945; L. T. Lo 152.*

Distribution: Native to C America.

Ecology: Flowering: May–Sep. It is a typical ornithophilous plant. The flowers are pollinated by humming birds in the New World. It does not set fruit in S China.

Uses: Ornamental.

26. Antirhea Comm. ex Juss. 毛茶屬

Trees or shrubs. Leaves opposite, leathery. Stipules interpetiolar, deciduous. Cymes few-flowered on axillary peduncles. Flowers small, bisexual or polygamous. Calyx-tube ovoid or obovoid, limb truncate or 4–5-lobed; lobes often unequal, persistent. Corolla funnel-shaped; tube slender, the throat glabrous or hairy; lobes 4–5, apex obtuse, imbricate in the bud. Stamens as many as corolla-lobes, attached to the throat; filaments short; anthers basifixed. Ovary 2–8-locular, with 1 ovule in each locule; style filiform; stigma capitate or 2–3-lobed. Fruit a drupe, with fleshy exocarp and woody or bony endocarp.

About 40 species in Australia, tropical Asia and Madagascar; one species in S China and in Hong Kong.

1. Antirhea chinensis (Champ. ex Benth.) F. B. Forbes & Hemsl. 毛茶 **(Fig. 208; Photo 421)**

J. Linn. Soc. Bot. 23(156): 384. 1888; FHN 3: 339, fig. 756. 1974; FRPS 71(2): 16, pl. 6. 1999; FGD 6: 196, fig. 106. 2005. *a*

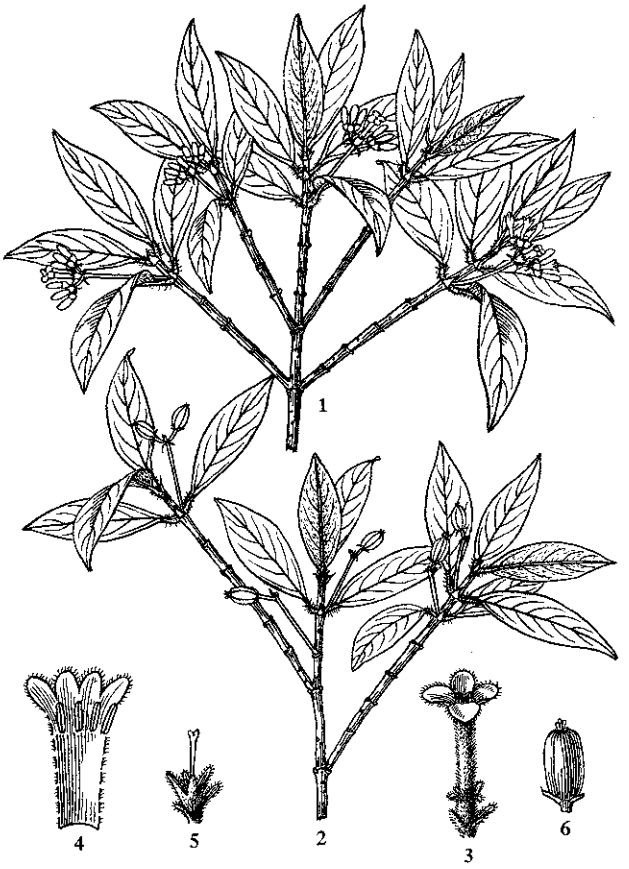


Figure 208. *Antirhea chinensis* (Champ. ex Benth.) F. B. Forbes & Hemsl. *1.* flowering branch; *2.* fruiting branch; *3.* flower; *4.* corolla opened; *5.* pistil and calyx; *6.* fruits. (drawn by H. P. Yu)

Guettardella chinensis Champ. & Benth., Hooker's J. Bot. Kew Gard. Misc. 4: 197. 1852; FHK 158. 1861.

Evergreen shrubs, 1–2 m tall. Branchlets covered when young with appressed hairs. Leaves papery; petioles 4–10 mm, densely sericeous; stipules triangular, ca. 4 mm, apex acuminate, sericeous; leaf blade oblong or oblong-lanceolate, 3–7(–9) × 1–2.5(–3) cm, base cuneate, apex acuminate, margin entire, slightly incurved, sprinkled with a few hairs or glabrous on adaxial surface, densely sericeous on abaxial surface. Cymes axillary, sericeous. Peduncles 1–3 cm. Calyx scarcely 2 mm, covered with appressed hairs; tube very short; limb enlarged, 4–5-lobed; lobes linear or lanceolate, 0.5–1.5 mm, unequal. Corolla yellow, densely covered with greyish silky hair abaxially; lobes 4(–5), ovate, ca. 2 mm, apex obtuse. Drupe ellipsoidal, 5–7 mm, obtusely angled, pubescent.

Locality: Common in Hong Kong. *K. Y. Tam 145; S. Y. Hu & P. P. H. But 24062; HK sheet 39142.*

Distribution: Hainan, Guangdong, Fujian.

Ecology: Thickets and forests. Flowering: May–Jun.; fruiting: Jul.–Oct.

Notes: The type specimen was collected by J. G. Champion from Mount Gough and Victoria Peak between 1847 and 1850.

27. Tarenna Gaertn. 烏口樹屬

Shrubs or small trees. Leaves opposite, petiolate. Stipules interpetiolar, entire, pointed with a broad base, deciduous. Flowers usually numerous, in terminal broad or corymbiform cymes. Calyx-tube various; limb short, 5-toothed. Corolla funnel-shaped or salverform; tube cylindric; lobes (4–)5, spreading or recurved, contorted in the bud. Stamens as many as corolla-lobes, attached to the throat; filaments very short or absent; anthers dorsifixed. Ovary 2-locular, usually with numerous, or seldom (1–)2 ovules in each locule; style long, slightly thickened at the top, undivided. Fruit a globular berry, leathery or fleshy, 1–many-seeded.

About 370 species in tropical and subtropical Asia, Australia and tropical Africa; 17 species in China; two species in Hong Kong.

Tarenna brevicymigera W. C. Chen (Acta Bot. Austro Sinica, 3: 26. 1986; type locality: Vietnam) was once reported from Lamma Island (*F. W. Xing 8623*).

1a. Leaves, stems and inflorescences glabrous ..... 1. *T. attenuata*

1b. Leaves, stems and inflorescence pubescent ..... 2. *T. mollissima*

1. Tarenna attenuata (Voigt) Hutch. 假桂烏口樹(達侖木) **(Photo 422)**

Pl. Wilson. 3(2): 411. 1916; FHN 3: 317. 1974; FRPS 71(1): 382, pl. 100: 12–15. 1999; FYN 15: 188, pl. 38: 5–7. 2003; FGD 6: 190, fig. 100. 2005.

Stylocoryna attenuata Voigt, Hort. Suburb. Calcutt. 377. 1845.

Stylocoryna webera auct. non A. Rich.: FHK 156. 1861.

Webera attenuata Hook. f., Fl. Brit. Ind. 3(7): 104. 1880; FKH 130. 1912.

Evergreen shrubs or trees, 1–8 m tall, quite glabrous. Leaves papery or thinly leathery; petioles 0.5–1.5 cm; stipules 5–8 mm, united at the base, apex acuminate; leaf blade oblong-lanceolate, oblong-oblanceolate, oblanceolate or obovate, 4.5–1.5 × 1.5–6 cm, base cuneate, apex acuminate or abruptly and shortly acuminate, margin entire, ± shining adaxially, turning black when dry, glabrous, or sometimes with short hairs in axils of veins on abaxial surface; lateral veins slender, 5–10 on each side of midvein. Cymes corymbiform, trichotomous, 4–6 cm in diam., shorter than the leaves. Pedicels 2–5 mm. Calyx-tube turbinate, ca. 2 mm; lobes triangular, ca. 0.5 mm. Corolla white or yellowish; tube 2–2.5 mm, hairy on the throat; lobes 5, oblong, ca. 5 mm. Style ca. 8 mm; stigma exserted. Berry globular, 5–7 mm in diam., purplish black when mature.

Locality: Hong Kong Island, Sha Tin, Tai Wai, Lantau Island, Lamma Island. *Y. S. Lau 2727; P. S. Choi 513, 532.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; Indochina, India.

Ecology: Thickets and forests. Flowering: Dec.–Jun. of the following year; fruiting: Jul.–Dec.

Uses: Medicinal (folklore).

2. Tarenna mollissima (Hook. & Arn.) B. L. Rob.
白花苦燈籠(烏口樹) **(Fig. 209; Photo 423)**

Proc. Amer. Acad. Arts, 45(17): 405. 1910; FHN 3: 318, fig. 745. 1974; FRPS 71(1): 376, pl. 99: 6–10. 1999; FYN 15: 190, pl. 38: 8–10. 2003; FGD 6: 189. 2005.

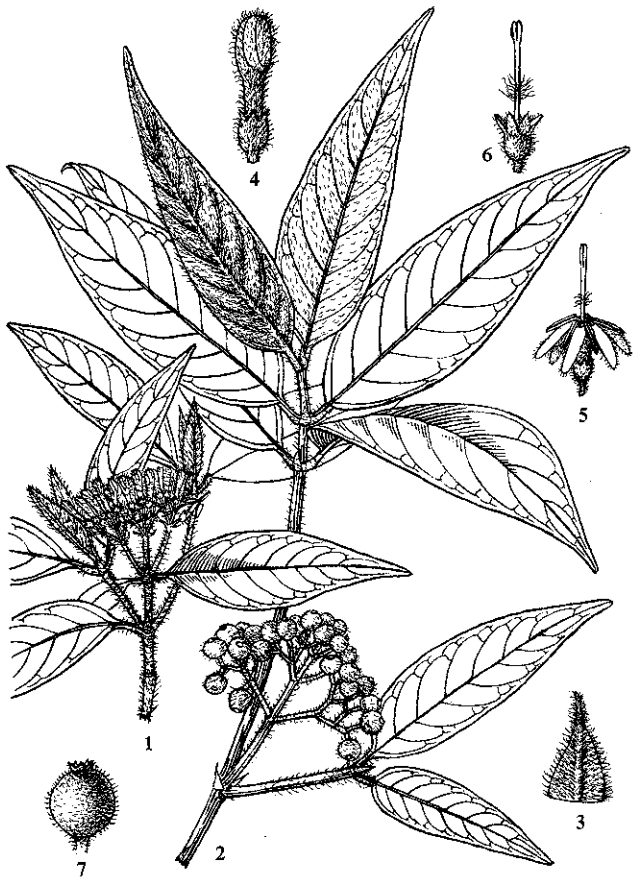


Figure 209. *Tarenna mollissima* (Hook. & Arn.) B. L. Rob.
1. flowering branch; *2.* fruiting branch; *3.* stipule; *4.* flower bud; *5.* flower; *6.* style, showing trichome; *7.* fruit. (drawn by H. P. Yu)

Stylocoryna mollissima Walp., Repert. Bot. Syst. 2: 517. 1843; FHK 156. 1861.
Webera mollissima Benth. ex Hance, J. Linn. Soc. Bot. 13: 105. 1873; FKH 130. 1912.

Evergreen shrubs or small trees, 1–6 m tall, softly and densely pubescent in every part. Leaves papery; petioles 0.4–2.5 cm; stipules 5–8 mm, ovate-triangular, united at the base, apex pointed; leaf blade lanceolate, oblong-lanceolate, or ovate-elliptic, 5–16(–25) × 2–6(–10) cm, base cuneate, acute or obtuse, apex acuminate or long-acuminate, margin entire, turning black in drying; lateral veins 8–12 on each side of midvein. Cymes corymbiform, trichotomous. Pedicels 3–6 mm. Calyx-tube ± bell-shaped, ca. 2 mm; lobes triangular, ca. 0.5 mm. Corolla white; tube 4–5 mm, densely pubescent on the throat; lobes 4 or 5, oblong, about the length of the tube or slightly longer, recurved in anthesis. Style ca. 8 mm; stigma exserted. Berry globular, 5–7 mm in diam., pubescent, black when mature.

Locality: Hong Kong Island, Ma On Shan, Pik Uk, Luk Wu. *L. T. Lo 111; P. S. Choi 213; Y. W. Lam 1754.*
Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Jiangxi, Hunan, Zhejiang, Fujian; Vietnam.
Ecology: Thickets and forests. Flowering: May–Jul.; fruiting: Jul.–Feb. of the following year.
Uses: Medicinal (folklore).

28. Ixora L. 龍船花屬

Evergreen shrubs or small trees. Leaves opposite, rarely in whorls of 3, petiolate or sessile. Stipules interpetiolar, usually united at the base into a sheath, apex pointed. Flowers in terminal, dense trichotomous or corymbiform cymes. Calyx-tube usually ovoid; limb with 4(–5) persistent teeth. Corolla salverform; tube slender; lobes 4(–5), imbricate or contorted in the bud. Stamens as many as corolla-lobes, attached to the throat; filaments short or wanting; anthers dorsifixed. Ovary 2-locular, with 1 ovule in each locule; style filiform, with 2 stigmatic lobes. Fruit a drupe, globular or slightly depressed, with leathery or fleshy exocarp.

About 400 species in the tropics, but mainly in the Old World; 19 species in China; one species in Hong Kong.

Ornamental species such as *Ixora coccinea* L. (紅仙丹花、橙紅龍船花) and *Ixora coccinea* f. *lutea* (Hutch.) F. R. Fosberg & H. H. Sachet (黃龍船花、黃花龍船花) are also cultivated locally.

1. Ixora chinensis Lam. 龍船花 **(Photo 424)**

Encycl. 3: 344. 1789; FKH 132. 1912; FRPS 71(2): 37, pl. 11: 1–5. 1999; D. M. Bridson, Kew Bull. 55: 1012. 2000; FYN 15: 212, pl. 43: 8–12. 2003; FGD 6: 203. 2005.

Ixora stricta Roxb., Hort. Bengal. 10. 1814, *nom nud.*; Fl. Ind. ed. 1820, 1: 388. 1820; FHK 158. 1861.
Tsiangia hongkongensis (Seem.) But, Hsue & P. T. Li, Blumea 31: 311. 1986; FPRS 71(2): 110. 1999.
Gaertnera hongkongensis Seem., Bot. Voy. Herald 384. 1857.

Evergreen shrubs, 0.5–2 m tall, glabrous throughout. Leaves subleathery; petioles thick, 2–5 mm; stipules broadly ovate, 3–5 mm including the aristate apex; leaf blade lanceolate, oblong-lanceolate or oblong-oblanceolate, 6–13 × 2–5 cm, base cuneate or obtuse; apex acute, tip blunt, lateral veins slender, 7–8 on each side of midvein. Cymes terminal, trichotomous, subsessile, the branches and pedicels scarlet-orange; primary branches 6–15 mm; pedicels 1–2 mm. Calyx-tube 1–1.5 mm; lobes 4, triangular, ca. 0.8 mm. Corolla scarlet-orange; tube slender, 3–4 cm; lobes 4, elliptic, (5–)7–9 × 3.5–7 mm, apex rounded, spreading. Style and anthers exserted. Drupe globular, 6–8 mm in diam., reddish black when mature.

Locality: To Fung Shan, Man Kam To, Sai Kung, Ha Pak Nai, also widely cultivated. *L. T. Lo 558; Y. W. Lam 1012; HK sheet 40210.*
Distribution: Guangdong, Guangxi, Fujian, Taiwan.
Ecology: Thickets and thin forests. Flowering: Jul.–Nov.
Uses: Ornamental.
Notes: The type specimen of *Gaertnera hongkongensis* was collected by J. G. Champion from Hong Kong Island between 1847 and 1850.

29. Pavetta L. 大沙葉屬

Shrubs or small trees. Leaves opposite, rarely in whorls. Stipules intrapetiolar, usually united into a sheath. Flowers in corymbiform cymes. Calyx-tube turbinate or bell-shaped; limb 4(–5)-lobed, lobes deciduous or persistent. Corolla salverform; tube slender; lobes 4, contorted in the bud. Stamens 4(–5), attached to the throat; anthers dorsifixed. Ovary 2-locular, with 1 ovule in each locule; style slender, usually exserted; stigma fusiform or clavate, entire or 2-lobed, the lobes not spreading. Fruit a globular berry, 2-celled.

About 400 species in S Africa, tropical Asia and N Australia; six species in China; one species in Hong Kong.

1. Pavetta hongkongensis Bremek. 香港大沙葉(茜木) **(Fig. 210; Photos 425–426)**

Repert. Spec. Nov. Regni Veg. 37 (961–973): 104. 1934; FHN 3: 346, fig. 763. 1974; FRPS 71(2): 27, pl. 9: 4–8. 1999; FYN 15: 205, pl. 41: 4–7. 2003; FGD 6: 200. 2005.

Pavetta indica auct. non L.: FHK 157. 1861; FKH 132. 1912.

Shrubs or small trees. Branchlets glabrous. Leaves thin-papery; petioles 1–2 cm; stipules broadly ovate-triangular, ca. 3 mm, glabrous abaxially, white villose adaxially; leaf blade oblong to elliptic-obovate, 8–15 × 3–6.5 cm, base cuneate, apex acuminate, adaxially glabrous, abaxially glabrescent or pubescent on midvein and in axils of veins; lateral veins 6–8 on each side of midven. Cymes

trichotomous, 7–15 cm in diam., sessile above the last leaves. Pedicels 3–6 mm. Calyx-tube bell-shaped, ca. 1 mm; limb inconspicuously 4-toothed. Corolla white, tube to 15 mm or longer, glabrous outside, sparsely pubescent near the base inside; lobes oblong, ca. 6 mm, apex acute. Style ca. 35 mm, long exserted. Berry globular, ca. 6 mm in diam.

Locality: Common in Hong Kong. *L. T. Lo 99, 278; K. Y. Tam 146.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan; Vietnam.

Ecology: Thickets and forests. Flowering: Mar.–Oct.; fruiting: Jun.–Dec.

Uses: Medicinal (folklore).

Notes: The type specimen was collected by J. G. Champion from Happy Valley between 1847 and 1850.

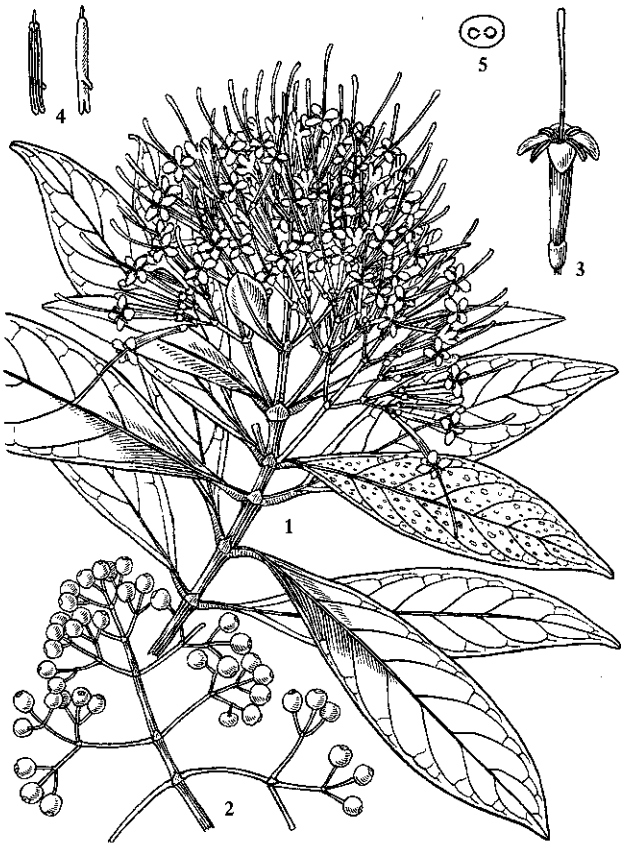


Figure 210. *Pavetta hongkongensis* Bremek.
1. flowering branch; *2.* infructescence; *3.* flower; *4.* dorsal and ventral views of stamen; *5.* cross section of ovary. (drawn by H. P. Yu)

30. Gardenia J. Ellis, *nom. cons.* 栀子属

Shrubs, or rarely small trees. Leaves opposite, rarely in whorls of 3. Stipules intrapetiolar, often connate into a sheath, entire. Flowers usually rather large, terminal or axillary, solitary, or rarely clustered or in cymes. Calyx-tube obconical, ribbed; limb 5–8-lobed; lobes persistent. Corolla salverform; tube cylindric; lobes 5–12, contorted in the bud. Stamens as many as corolla-lobes and alternate with them, attached to the throat of corolla-tube; anthers nearly sessile. Ovary 1-locular; style stout; stigma clavate or fusiform; ovules numerous on 2–6 projecting parietal placentas. Fruit leathery or succulent, indehiscent, usually crowned by the calyx. Seeds numerous, compressed, with thin testa.

About 200 species in tropical and subtropical Asia & Africa; five species in China; one species and one variety in Hong Kong.

1a. Corolla simple ..... 1. *G. jasminoides*
1b. Corolla double ..... 1a. *G. jasminoides* var. *fortuniana*

1. Gardenia jasminoides J. Ellis 栀子（水横枝） **(Photos 427–428)**

Philos. Trans. 51(2): 935, pl. 23. 1761; FHN 3: 325. 1974; FTW ed. 2, 4: 259, pl. 112, photo 172. 1998; FRPS 71(1): 332, pl. 87: 1–5. 1999; FGD 6: 175, fig. 89. 2005.

Gardenia florida L., Sp. Pl. ed. 2, 305. 1762; FHK 153. 1861; FKH 131. 1912.

Evergreen, unarmed shrubs, 1–3 m tall, glabrous throughout, or young shoots pulverulent. Leaves opposite, or rarely in whorls of 3, subleathery; petioles 2–4 mm; stipules ca. 1 cm, united into a sheath, membranous, apex oblique; leaf blade elliptic, oblong-elliptic or oblong-lanceolate, 3–10 × 1–4.5 cm, base cuneate to broadly cuneate, apex acute or acuminate, lateral veins 7–12 on each side of midvein. Flowers terminal, solitary, sessile or nearly so. Calyx-tube obconical, 8–20 mm, with 5–6 sharp ribs; limb usually 6-lobed; lobes lanceolate, usually slightly longer than the tube. Corolla salverform; tube cylindric, 2.5–4 cm, green; limb 5–6 cm in diam., usually 6-lobed; lobes white, obovate-elliptic to oblong-elliptic, 1.5–2.5(–4) × 0.6–2.8 cm. Anthers linear, 1.2–1.6 cm, exserted. Fruit ellipsoidal, 2.5–3 cm, crowned by the long linear-lanceolate persistent calyx-lobes, and marked outside by as many raised ribs or angles.

Locality: Common in Hong Kong. *Y. S. Lau 1833; S. P. Lau 135; HK sheet 40130.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Anhui, Shandong, Jiangsu, Zhejiang, Fujian, Taiwan; Japan, Indochina, cultivated elsewhere.

Ecology: Ravines and thickets on hills. Flowering: Apr.–Aug.; fruiting: May–Dec.

Uses: Ornamental, medicinal (folklore), material (dye).

1a. Gardenia jasminoides var. **fortuniana** (Lindl.) H. Hara 白蟾 **(Photo 429)**

This variety differs in the double corolla.

Locality: Cultivated.

Distribution: Widely cultivated in S China; native to China and Japan.

Ecology: Shrub. Flowering: Spring to summer.

Uses: Ornamental.

31. Catunaregam Wolf 山石榴屬

Shrubs or small trees, usually armed with opposite axillary thorns. Leaves opposite or crowded on very short lateral branches. Stipules interpetiolar, entire, pointed from the broad base. Flowers solitary or 2–3 clustered at apex of short branches or tufts of leaves, usually subsessile. Calyx-tube bell-shaped or ovoid; limb usually 5-toothed or 5-lobed. Corolla bell-shaped, usually with silky hairs on abaxial surface; tube cylindric, short or long; lobes usually 5, spreading or recurved, contorted in the bud. Stamens usually 5, attached to the throat, alternate with corolla-lobes; filaments very short; anthers dorsifixed, slightly exserted. Ovary 2-locular, with many ovules in each locule; style with 2 thick stigmatic lobes, or nearly entire. Fruit a berry, often crowned by the persistent calyx-lobes.

About ten species in S, SE Asia and Africa; one species in China and in Hong Kong.

1. Catunaregam spinosa (Thunb.) Tirveng.
山石榴(山蒲桃) **(Fig. 211; Photo 430)**

Bull. Mus. Hist. Nat. (Paris) 35: 13. 1978; Taxon 27(5–6): 515. 1979; Verdc., Kew Bull. 36(3): 505. 1981; FRPS 71(1): 338, pl. 89. 1999; FYN 15: 170, pl. 34: 3–5. 2003; FGD 6: 177, fig. 91. 2005.

Randia dumetorum (Retz.) Lam., Tabl. Encycl. 2: 227. 1794; FHK 154. 1861; FKH 131. 1912.

Randia spinosa (Thunb.) Blume, Bijdr. Fl. Ned. Ind. 981. 1826; FHN 3: 321. 1974.

Gardenia spinosa Thunb., Diss. Gard. 7: 16. 1780.

Shrubs or small trees, 1–10 m tall, many-branched, armed with axillary stout thorns. Leaves papary or subleathery; petioles 2–8 mm, sparsely pubescent or glabrous; stipules membranous, ovate, 3–4.5 mm, apex acute, deciduous, leaf blade obovate or oblong-obovate, 2–8(–11) × 2–4.5(–5.7) cm, base cuneate, apex acute, or obtuse, sparsely and minutely strigose on adaxial surface and along midvein and lateral veins when young, soon glabrescent; lateral veins slender, 4–7 on each side of midvein. Flowers solitary or 2–3 clustered at apex of lateral short branches or tufts of leaves. Pedicels 2–5 mm, together with calyx covered with tawny long hairs. Calyx-tube bell-shaped or ovoid, 4–6 mm; lobes 5, broadly elliptic, 5–6 × 4–4.5 mm, apex broadly acute, green, 3–5-veined. Corolla bell-shaped, initially white, later turning pale yellow; tube 5–6 mm, densely sericeous near apex outside, with a ring of long hairs on upper part inside; lobes 5, broadly elliptic to subrounded, 8–11 × 8–9 mm, apex rounded, spreading. Anthers linear-oblong, ca. 3 mm, exserted. Style 4–6 mm; stigma globular, with 2 coherent lobes. Berry globose, 2–4 cm in diam., crowned by persistent calyx-lobes.

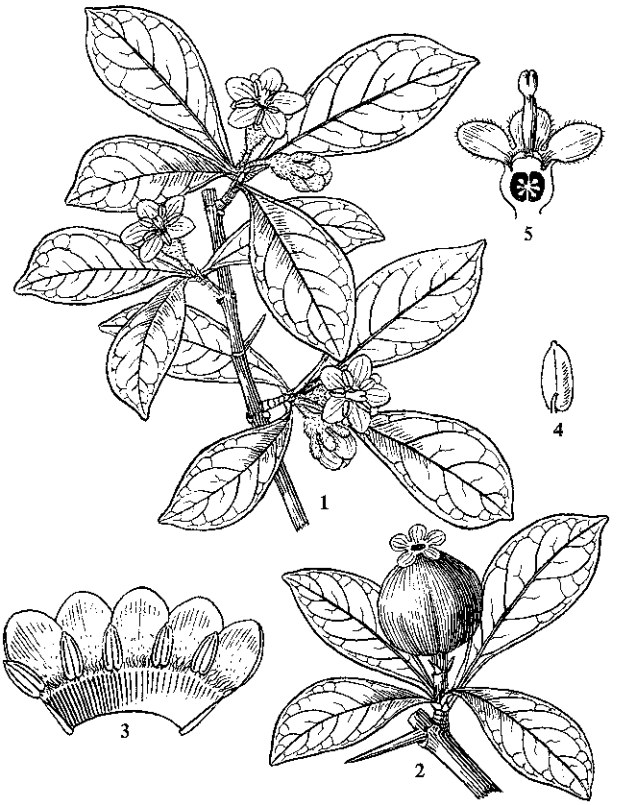


Figure 211. *Catunaregam spinosa* (Thunb.) Tirveng.
1. flowering branch; *2.* fruiting branch; *3.* corolla opened up showing stamens; *4.* dorsal view of stamen; *5.* calyx and vertical section of pistil. (drawn by H. P. Yu)

Locality: Wan Chai Gap, Mount Nicholson, Tai Po, Lai Chi Wo, Sha Tau Kok, Lantau Island. *Y. S. Lau 696; Y. S. Lau 1895; HK sheet 40206.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; Indochina, Malesia, Indian subcontinent.

Ecology: Forests and thickets. Flowering: Mar.–Jun.; fruiting: May–Jan. of the following year.

Uses: Material (wood), environmental (hedges), medicinal (folklore).

32. Oxyceros Lour. 雞爪簕屬

Shrubs or small trees, sometimes straggling. Branches stout, armed with opposite axillary thorns. Leaves opposite or crowded on very short lateral branches. Stipules interpetiolar, free or united at the base. Flowers pedicellate, in few- to many-flowered clusters or cymes, axillary or at apex of short branches or tufts of leaves. Calyx-tube cup-shaped or bell-shaped; limb usually 5-toothed. Corolla salverform, usually glabrous abaxially; tube cylindric, usually pubescent at throat or on the upper parts of the tube; lobes usually 5, recurved in anthesis, contorted in the bud. Stamens 5, attached to the throat, alternate with corolla-lobes; filaments very short; anthers dorsifixed, exserted. Ovary 2-locular, with several to many ovules in each locule; style slender, with 2 divaricate or coherent stigmatic lobes. Fruit a berry, few- to many-seeded.

About 20 species in S & SE Asia; four species in China; one species in Hong Kong.

1. Oxyceros sinensis Lour. 雞爪簕 **(Fig. 212; Photo 431)**
Fl. Cochinch. 151. 1790; Yamazaki, J. Jap. Bot. 45: 340. 1970; FRPS 71(1): 345, pl. 91; 1–7. 1999; FYN 15: 173, pl. 35: 1–4. 2003; FGD 6: 179, fig. 93. 2005.

Oxyceros sinensis Lour. ex Roem. & Schult., Syst. Veg. 5: 248. 1819.

Randia sinensis (Lour.) Schult. in Roem. & Schult., Syst. Veg. 5: 248. 1819; FHK 155. 1861; FKH 131. 1912; FTW ed. 2, 4: 319. 1998.

Fagerlindia sinensis (Lour.) Tirveng., Nordic J. Bot. 3(4): 458. 1983.

Shrubs or small trees, sometimes straggling, 1–7 m tall. Branches stout, greyish white; branchlets, petioles and inflorescence covered with tawny hairs. Thorns axillary, in pairs or solitary, 4–15 mm. Leaves papery; petioles 5–15 mm; stipules triangular, 3–5 mm, pubescent, apex long-acuminate, deciduous; leaf blade ovate-elliptic, oblong or ovate, 2–21 × 1.5–9.5 cm, base cuneate or slightly rounded, apex acute or shortly acuminate, adaxial surface glabrous, abaxial surface pubescent or only with hairs on midvein, lateral veins and in axils of veins; lateral veins 6–8 on each side of midvein. Flowers in rather dense terminal cymes, on very short common peduncles, 3–4.5 cm in diam. Pedicels 1–1.5 mm. Calyx-tube cup-shaped, 4–6 mm; lobes 5, narrowly triangular or ovate-triangular, 1–4 mm, apex acute. Corolla white or yellow, salverform; tube slender, 12–24 mm, pubescent on the throat; lobes 5, oblong, 5–9 × 4–4.5 mm, spreading. Anthers linear-oblong, 4–5.5 mm, exserted. Style 12–18 mm; stigma fusiform, 2-lobed. Berry globose, 8–12 cm in diam., often congested into a globular cluster.

Locality: Hong Kong Island, Lantau Island, Lamma Island, Po Toi Islands, Ping Chau. *L. Gibbs 7551; P. S. Choi 474; HK sheet 36023.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; Japan, Vietnam.

Ecology: Forests and thickets. Flowering: Mar.–Dec.; fruiting: May–Dec.

Uses: Environmental (barrier).

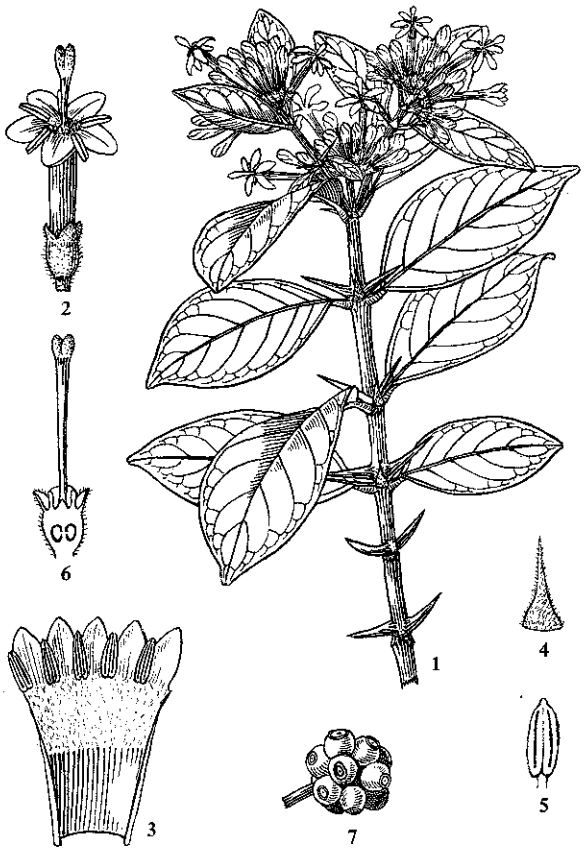


Figure 212. *Oxyceros sinensis* Lour.
1. flowering branch; *2.* flower; *3.* corolla opened up showing stamens; *4.* stipule; *5.* stamen; *6.* vertical section of ovary; *7.* infructescence. (drawn by H. P. Yu)

33. Diplospora DC. 狗骨柴屬

Shrubs or small trees, unarmed. Leaves decussately opposite, petiolate. Stipules interpetiolar, united at the base, apex acuminate. Flowers bisexual or polygamo-dioecious, in axillary short cymes or clusters. Calyx-tube short; limb truncate or with 4–5 teeth. Corolla white, light green or yellowish, bell-shaped; tube short; lobes 4–5, contorted in the bud. Stamens 4–5, attached to the throat, alternate with corolla-lobes; filaments short; anthers dorsifixed, exserted. Ovary 2-locular, with 2–3 ovules in each locule; style short or long, 2-lobed. Fruit an ovoid or globose berry, seeds solitary or few in each cell.

About 20 species in tropical and subtropical Asia; three species in China; one species in Hong Kong.

1. Diplospora dubia (Lindl.) Masam.
狗骨柴(三萼木) **(Fig. 213; Photos 432–433)**
Trans. Nat. Hist. Soc. Taiwan 29: 269. 1939; Ali & Robbrecht, Blumea 35(2): 297. 1991; FRPS 71(1): 364, pl. 96: 1–8. 1999; FYN 15: 185, pl. 37: 6–10. 2003; FGD 6: 186, fig. 98. 2005.

Diplospora viridiflora DC., Prodr. 4: 477. 1830; FHK 157. 1861; FKH 132. 1912.

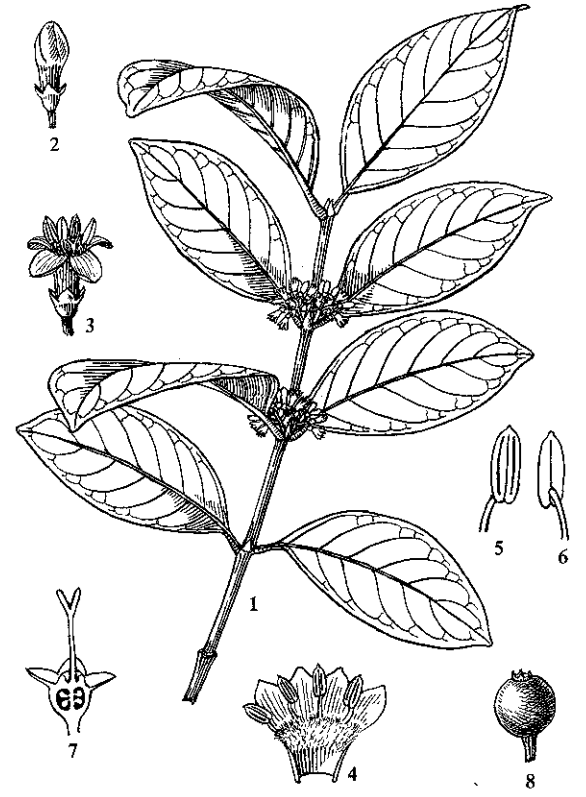


Figure 213. *Diplospora dubia* (Lindl.) Masam.
1. flowering branch; *2.* flower bud; *3.* flower; *4.* corolla opened up showing stamens; *5.* ventral view of stamen; *6.* dorsal view of stamen; *7.* calyx and vertical section of pistil; *8.* fruit. (drawn by H. P. Yu)

Tricalysia dubia (Lindl.) Ohwi, Acta Phytotax. Geobot. 102(2): 137. 1941; FHN 3: 328, fig. 750. 1974; FTW ed. 2, 4: 334, pl. 150, photo 196. 1998.

Canthium dubium Lindl., Bot. Reg. 12: pl. 1026. 1826.

Shrubs or trees, 1–12 m tall, unarmed, branches and leaves glabrous. Leaves leathery, or rarely thickly papery; petioles 4–10(–15) mm; stipules 5–8 mm, with a broad base, apex subulate, white pubescent at base adaxially; leaf blade ovate-oblong, oblong, elliptic or lanceolate, 5–13(–19) × 1.5–5.5(–8) cm, base cuneate or acute, sometimes slightly oblique, apex shortly acuminate, abruptly acuminate or acute, tip often blunt, margin entire, often slightly revolute, yellowish green and ± shining in drying; lateral veins slender 5–11 on each side of midvein. Flowers clustered in short dense axillary cymes, 7.5–11 mm in diam. Peduncles 2–6 mm. Pedicels 1–4 mm, together with peduncle and calyx puberulent. Calyx-tube ca. 1 mm; limb slightly dilated, 4-toothed. Corolla white or yellow; tube ca. 3 mm; lobes 4, oblong, about the length of the tube, recurved. Berry subglobose, 4–6 mm in diam., sparsely pubescent or glabrous, orange-red, turning black when dry, 4–8-seeded.

Locality: Common in Hong Kong. *HK sheet 35352, 35598, 39958.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Sichuan, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; Japan, Vietnam.

Ecology: Thickets and forests. Flowering: Jan.–May; fruiting: May–Feb. of the following year.

34. Aidia Lour. 茜樹屬

Shrubs or trees, unarmed. Leaves opposite, petiolate. Stipules interpetiolar, free or united at the base. Flowers in cymes, few- or many-flowered, axillary, leaves opposite, or lateral on aphyllous nodes. Calyx-tube cup-shaped or bell-shaped; limb (4–)5-lobed. Corolla salverform, usually glabrous outside, hairy on the throat; tube cylindric; lobes usually 5, often recurved, contorted in the bud. Stamens usually 5, attached to the throat, alternate with corolla-lobes; filaments very short; anthers dorsifixed, exserted. Ovary 2-locular, with many ovules in each locule, immersed in a fleshy axile placenta; style slender; stigma clavate or fusiform, 2-lobed. Fruit a berry, many-seeded.

About 50 species in tropical Africa, S & SE Asia to Australia; seven species in China; three species in Hong Kong.

1a. Young branches, leaf blade abaxially and inflorescences glabrous.
  2a. Peduncles 0–2(–4) mm, together with pedicels glabrous; corolla-tube ca. 8–10 mm; berries red when mature ..... 1. *A. canthioides*
  2b. Peduncles 5–10 mm, together with pedicels ± pubescent; corolla-tube ca. 2 mm; berries purplish black when mature ..... 2. *A. cochinchinensis*
1b. Young branches, leaf blade abaxially and inflorescences ferruginous soft hairy ..... 3. *A. pycnantha*

1. Aidia canthioides (Champ. ex Benth.) Masam.
香楠(山黃皮) **(Fig. 214; Photo 434)**

Trans. Nat. Hist. Soc. Taiwan 28: 118 1938; FRPS 71(1): 351, pl. 92: 1–7. 1999; FYN 15: 177. 2003; FGD 6: 181. 2005.

Randia canthioides Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 4: 194. 1852; FHK 155. 1861; FKH 131. 1912; FTW ed. 2, 4: 318. 1998.

Shrubs or trees, unarmed, 1–12 m tall. Branches glabrous. Leaves papery or thinly leathery; petioles 5–18 mm; stipules broadly triangular, 3–8 mm, apex acute or acuminate, deciduous, leaf blade oblong-elliptic, oblong-lanceolate to lanceolate, 4–18 × 2–8 cm, base broadly cuneate or sometimes subrounded, apex acuminate to caudate-acuminate, sometimes acute, glabrous; lateral veins slender, 3–7 on each side of midvein. Cymes umbel-like, axillary, 3–5 cm in diam. Peduncle very short or none. Pedicels slender, 5–16 mm, glabrous. Calyx covered with appressed rusty hairs abaxially; tube turbinate, 4–6 mm; lobes 5, triangular, 1–2 mm, apex acute. Corolla salverform, white or yellow; tube 8–10 mm, glabrous abaxially, villose on the throat; lobes 5, oblong, 4–7 mm, apex acute, recurved. Anthers linear-oblong, ca. 3.5 mm, exserted. Style ca. 10 mm; stigma fusiform, 2-lobes. Berry globose, 5–8 mm in diam., rusty pubescent or glabrescent.

Locality: Hong Kong Island, Tai Po, Ma On Shan, Fa Shan, Wu Kau Tang, Lamma Island, Lantau Island. *P. S. Choi 421; Y. W. Lam 480; K. L. Yip 4536.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; Japan, Vietnam.



Figure 214. *Aidia canthioides* (Champ. ex Benth.) Masam.
1. flowering branch; *2.* infructescence; *3.* flower; *4.* corolla opened; *5.* pistil; *6.* stipule. (drawn by H. P. Yu)

Ecology: Thickets and forests. Flowering: Apr.–Sep.; fruiting: Jul.–Dec.

Notes: The type specimen was collected by J. G. Champion from Victoria Peak between 1847 and 1850.

2. Aidia cochinchinensis Lour. 茜樹(越南香楠) **(Photos 435–436)**

Fl. Cochinch. 143. 1790; Masam., Trans. Nat. Hist. Soc. Taiwan 28: 118. 1938; FRPS 71(1): 354, pl. 93: 1–6. 1999; FYN 15: 178. 2003; FGD 6: 181, fig. 94. 2005.

Randia cochinchinensis (Lour.) Merr., Trans. Amer. Philos. Soc. n.s., 24(2): 365. 1935; FTW ed. 2, 4: 319, pl. 144, photo 193. 1998.

Randia densiflora (Wall.) Benth., FHK 155. 1861; FKH 131. 1912, *p.p.*

Webera densiflora Wall., Fl. Ind. ed. 1820, 2: 536. 1824.

Randia henryi E. Pritz., Bot. Jahrb. Syst. 29(5): 581. 1901.

Shrubs or trees, unarmed, 2–15 m tall. Branchlets petioles and stipules glabrous. Leaves leathery or papery; petioles 4–10(–18) mm; stipules lanceolate, 4–8(–10) mm, glabrous, deciduous; leaf blade elliptic-oblong, oblong-lanceolate or narrowly elliptic, 6–21 × 1.5–8 cm, base cuneate, apex acuminate to caudate-acuminate, glabrous, but often with tufts of short hairs in axils of veins on abaxial surface; lateral veins slender, 5–7 on each side of midvein. Cymes leaf-opposed, or lateral on aphyllous nodes. Peduncles 5–10 mm. Pedicels 1–2 mm, together with peduncles pubescent. Calyx glabrous; tube cup-shaped, 3.5–4 mm; lobes 4(–5), triangular, 1–1.5 mm. Corolla yellow or white; tube 3–4 mm, glabrous abaxially, densely yellowish villose on the throat; lobes 4(–5), oblong, 6–10 mm, apex acute, spreading or reflexed, pubescent with minute appressed hairs on abaxial surface. Anthers linear-lanceolate, 4–8 mm, exserted. Style ca. 7 mm; stigma fusiform, 2-lobes. Berry globose, 5–6 mm in diam., purplish black when mature.

Locality: Happy Valley, Ma On Shan, Wu Kau Tang, Sha Tau Kok, Lantau Island. *Y. W. Lam 648; HK sheet 39493, 40772.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hubei, Hunan, Jiangxi, Zhejiang, Jiangsu, Fujian, Taiwan; spreading over tropical Asia & Australia.

Ecology: Ravines under forests or in thickets. Flowering: Mar.–Jun.; fruiting: May–Feb. of the following year.

Notes: This species was recorded previously as *Randia acutidens* Hemsl. & Wils. var. *laxiflora* Dunn. (FKH 131. 1912).

3. Aidia pycnantha (Drake) Tirveng. 多毛茜草樹 **(Photos 437–438)**

Nord. Journ. Bot. 3(4): 455. 1983; FRPS 71(1): 349. 1999; FYN 15: 177. 2003; FGD 6. 182. 2005.

Randia pycnantha Drake in Morot, Journ. de Bot. 9: 218. 1895.

Randia acuminatissima Merr., Philip. J. Sci. 15(3): 259–260. 1919[1920].

Aidia acuminatissima (Merr.) Masam., Trans. Nat. Hist. Soc. Taiwan 29: 238. 1939.

Shrubs or trees, unarmed, 2–10 m tall. Young branches ferruginous soft hairy. Petioles 5–15 mm long, softy hairy; leaf blade oblong, oblong-lanceolate or oblong-oblanceolate, 10–20 × 3–8 cm, leathery or papery, apex acuminate to caudate-acuminate, acuminate portion to 2.5 cm long, straight or curved, base cuneate, sometimes unaequilateral, when dry reddish brown, adaxially glabrous, slightly shiny, abaxially ferruginous soft hairy; lateral veins 10–14 pairs, together with reticulate veins prominent abaxially; stipules lanceolate, to 1 cm long, apex long pointed, pubescent. Inflorescence a cyme, leaf opposed, many-flowered, 4–6, × 5–12 cm, ferruginous soft hairy; bracts and bractlets linear-lanceolate, 2–4 mm long. Pedicels 1.5–4 mm long. Calyx and hypanthium 4–5 mm long, ferruginous soft hairy; tube cupulate, 3 mm long, limb slightly expanded, apically 5-lobed; lobes triangular, apex pointed, 1–2 mm long. Corolla white or pale yellow, salverform, glabrous abaxially; tube ca. 4 mm long, densely villose in throat; lobes 5, oblong-oblanceolate, 7–9 mm, reflexed at anthesis. Anthers linear-lanceolate, exserted, ca. 7 mm long; filaments ca. 2.5 mm long. Ovary 2-celled; style and stigma 7–8 mm long, glabrous; stigma fusiform, with shallow sulcate striate. Fruit a berry, globose, 6–8 mm in diam., sparsely ferruginous hairy or subglabrous, black when dry, apex with annular remnants of calyx limb.

Locality: Common in Hong Kong. *Y. S. Lau 2966; P. S. Choi 293; Y. W. Lam 1702.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian; Vietnam.

Ecology: Thicket or lowland forest. Flowering: Feb.–Nov.; fruiting: Apr.–Dec.

Notes: This species was recorded previously as *Randia densiflora* (Wall.) Benth. (FKH 131. 1912, *p.p.*).

35. Alleizettella Pit. 白香楠屬

Shrubs. Leaves opposite, petiolate. Stipules interpetiolar, united at the base. Flowers in cymes, terminal on lateral short branches or on nodes of old branches. Calyx-tube bell-shaped or ovoid; lobes 5, triangular or linear. Corolla salverform; tube cylindric, slightly dilated at apex; lobes usually 5, spreading or reflexed, contorted in the bud. Stamens 5, attached to the throat, alternate with corolla-lobes; filaments very short; anthers dorsifixed, exserted. Ovary 2-locular, with 2(–3) ovules in each locule on the septum; style slender; stigma 2-lobed. Fruit a berry, globose, 1–2(–3)-seeded.

About two species in S China and Vietnam; one species in China and in Hong Kong.

1. Alleizettella leucocarpa (Champ. ex Benth.) Tirveng. 白果香楠(白果山黃皮) **(Photo 439)**

Nordic J. Bot. 3(4): 455. 1983; FRPS 71(1): 358, pl. 92: 8–11. 1999; FGD 6: 183, fig. 96. 2005.

Randia leucocarpa Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 4: 194. 1852; FHK 154. 1861; FKH 132. 1912.

Shrubs, 1–3 m tall, unarmed. Branchlets and petioles rusty strigose, glabrescent in age. Leaves papery or thinly leathery; petioles 2.5–5(–10) mm; stipules broadly triangular, ca. 5 mm, apex acuminate, hairy; leaf blade oblong-obovate, oblong, narrowly elliptic or

lanceolate, 4.5–11(–17) × 1.5–6 cm, base cuneate, apex acuminate to caudate-acuminate, rusty strigose along midvein and lateral veins on abaxial surface; lateral veins slender, 4–7 on each side of midvein. Cymes few-flowered, terminal on lateral short branches and on nodes of old branches, strigose. Peduncles to 2 mm or almost none. Pedicels ca. 2 mm. Calyx strigose; tube bell-shaped, 2–2.5 mm, strigose; lobes 5, triangular, ca. 1 mm, apex acute. Corolla white, salverform; tube ca. 3 mm, strigose on the upper part of abaxial surface, villose on the throat; lobes 5, subovate, 2.5–3 mm, apex acute, spreading. Berry globose, 0.8–1.3 cm in diam., pale yellowish white when mature, sparsely pubescent or glabrous, 2–4-seeded.

Locality: Hong Kong Island, Ma On Shan, Tai Mo Shan, Shing Mun, Lamma Island, Lantau Island. *P. S. Choi 422, 507; Y. W. Lam 1389.*

Distribution: Hainan, Guangdong, Guangxi, Fujian.

Ecology: Thickets and margins of forests. Flowering: Apr.–Jun.; fruiting: Apr.–Feb. of the following year.

Notes: The type specimen was collected by J. G. Champion from Victoria Peak between 1847 and 1850.

318. CAPRIFOLIACEAE 忍冬科

WU De-lin 吳德鄰

Shrubs or small trees, less often lianas or herbs. Wood mostly rather soft and often with very broad pith. Stipules absent or small. Leaves opposite, very rarely alternate, simple or imparipinnately divided, rarely ternatisect, sometimes connate at base. Inflorescence a cyme, arranged in corymb or panicle. Flowers bisexual or rarely polygamous, actinomorphic. Calyx 3–5-lobed, small; lobes imbricate or open in bud, accrescent in fruit; tube adnate to ovary. Corolla gamopetalous, rotate, campanulate, tubiform or infundibular, 4–5-lobead; lobes imbricate or valvate, sometimes 2-lipped; tube sometimes saccate at base. Stamens (2 or 4–)5, attached to corolla-tube, alternate with lobes. Anthers 2-celled, opening by longitudinal slits. Ovary inferior, (1–)2–5(or 8)-locular, with axile placenta; ovules 1–many in each locule; styles terminal or stigma sessile. Berry, capsule, achene or drupe. Seeds often with bony testa, small straight embryo and oily, fleshy endosperm.

About 13 genera, 500 species mainly distributed in N temperate and tropical mountain area, especially NE Asia and N America; 12 genera and more than 200 species in China; four genera and 11 species in Hong Kong.

1a. Leaves imparipinnate ..... 1. *Sambucus*
1b. Leaves simple.
  2a. Climbers; fruit a berry ..... 2. *Lonicera*
  2b. Shrubs or small trees; fruit a drupe or an achene.
    3a. Stamens 4; ovary 3-locular; fruit an achene ..... 3. *Abelia*
    3b. Stamens 5; ovary 1–3-locular; fruit a drupe ..... 4. *Viburnum*

1. Sambucus L. 接骨木屬

Trees or shrubs, rarely perennial herbs. Branches full of pith. Stipules present or becoming a gland. Leaves opposite, imparipinnate, leaflets serrulate. Inflorescence an umbel-like corymb. Flowers small, bisexual, regular, bracteolate. Calyx (3–)5-lobed or toothed. Corolla rotate or rotate-campanulate, (3–)5-parted. Stamens 5, inserted at base of corolla. Anthers extrorse. Disk convex or absent. Ovary (3–)5-locular; styles 3-parted; ovules solitary in each locule. Drupe berry-like, containing 3–5 pyrenes.

More than 20 species distributed in N hemisphere and subtropical area; four to five species in China; one species in Hong Kong.

1. Sambucus chinensis Lindl.
接骨草 **(Fig. 215; Photos 440–441)**

Trans. Hort. Soc. Lond. 6: 297. 1826; FRPS 72: 6, pl. 1: 3–5. 1988; FGD 4: 291, fig. 173. 2000.

Sambucus javanica auct. non Reinw. ex Blume: FKH 121. 1912.

Perennial herbs, 1–2 m tall. Stems striate; pith white. Stipules becoming glands or leaf-like. Leaves imparipinnate; petioles 3–5 cm; leaflets opposite, 3–9, elliptic-lanceolate, 8–15 × 2–3 cm, base cuneate or suborbicular, apex acuminate, margin serrulate, slightly asymmetric, glabrous or lepidoid hairy only on

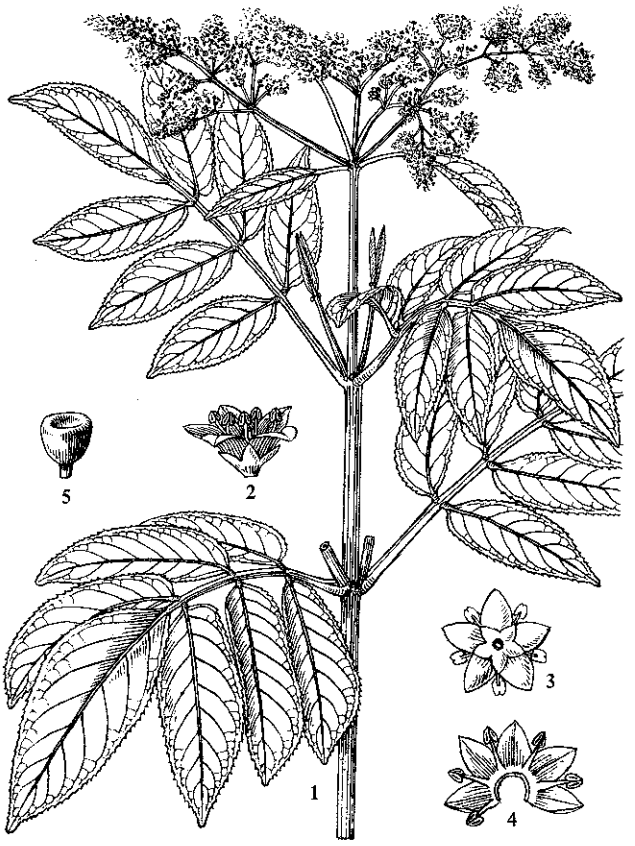


Figure 215. *Sambucus chinensis* Lindl.
1. flowering branch; *2.* flower; *3.* dorsal view of flower; *4.* corolla opened; *5.* gland. (drawn by H. P. Yu)

midvein, with glands on teeth near base. Compound umbel large, 10–30 cm in diam. Peduncles with leaf-like involucrate bract. Flowers many, white, sometimes with cup-like sterile flowers. Calyx-tube campanulate, 1.5 mm; lobes deltoid, shorter than the tube. Corolla-tube short; lobes ovate, ca. 2.5 mm. Stamens as long as corolla. Anthers yellow or purple. Ovary 3-locular, styles very short; stigma 3-fid. Drupes red, subglobose, 3–4 mm in diam., pyrenes ovate, ca. 2.5 mm.

Locality: Shouson Hill, Bowen Rd., Sai Kung (Tai Long), Wu Kau Tang, Sha Tau Kok, Lantau Island. *W. J. Tutcher 9611; Y. S. Lau 2003, 2293.*

Distribution: Areas of Qinling Range, westward to Gansu, S Qinghai and Xizang.

Ecology: Brick rubbish and ruins, streamsides, margins of forests. Flowering: May.–Oct.

Uses: Medicinal (folklore).

2. Lonicera L. 忍冬屬

Climbers (species in Hong Kong); winter-buds with scales. Stipules absent or rarely intrapetiolar. Leaves opposite, entire or rarely lobed. Flowers in axillary, pedunculate pairs, or in sessile whorls, each pair with 2 bracts and 2 bracteoles, the latter often connate, rarely absent. Calyx 5-toothed. Corolla with slender or short, often gibbous tube; limb obliquely 2-lipped, upper lip 4-lobed, lower lip entire, or nearly equally 5-lobed. Stamens 5; anthers versatile. Ovary 2–3(–5)-locular, with several ovules in each locule; styles filiform; stigma capitate. Berry with 1 or a few seeds.

About 200 species distributed in temperate to subtropical regions of N hemisphere; 98 species in China; five species in Hong Kong.

1a. Leaves densely softly tomentose abaxially ..... 1. *L. rhytidophylla*
1b. Leaves glabrous or otherwise hairy.
2a. Bracts large, leaf-like, 3 cm ..... 2. *L. japonica*
2b. Bracts smaller, not leaf-like, less than 3 cm.
3a. Leaves glabrous on both surfaces ..... 3. *L. longiflora*
3b. Leaves hairy on both surfaces or on abaxial surface only.
4a. Corolla 4.5–7(–10) cm ..... 4. *L. macrantha*
4b. Corolla 3.2–5 cm ..... 5. *L. confusa*

1. Lonicera rhytidophylla Hand.-Mazz. 皺葉忍冬(顯脈忍冬) **(Photo 442)**

Symb. Sin. 7(4): 1049, pl. 16, fig. 8. 1936; FRPS 72: 246, pl. 67: 3–6. 1988; FGD 4: 309, fig. 180. 2000.

Lonicera reticulata Champ., Hooker's J. Bot. Kew Gard. Misc. 4: 167. 1852. non Rafin. 1838; FHK 144. 1861; FKH 122. 1912.

Evergreen climbers; branchlets and inflorescence densely covered with a short soft velvety tomentum. Leaves leathery; petioles 8–15 mm; leaf blade broad-elliptic, ovate, ovate-oblong to oblong, 3–10 × 1–4 cm, base rounded or broad-cuneate, rarely truncate, apex obtuse and mucronate, margin entire, adaxially glabrous and shining, and winkled with a network of impressed veins, abaxially covered with a white or yellowish or white dense tomentum; lateral veins 4–5 on each side of midvein. Flower-pairs 6 or 8 together in heads or short cymes, axillary or terminal. Bracts linear-lanceolate, 2–3 mm, hairy. Calyx-tube ca. 2 mm, calyx teeth subulate, 1–2 mm. Corolla white, then becoming yellow, 2-labiate, 2.5–3.5 cm, densely hirsute and glandular hairy, lower lip reflexed, upper lip erect. Stamens and styles exserted. Fruit ellipsoidal, blue-black when mature, 7–8 × 4–5 mm.

Locality: Tai Tam, Magazine Gap, Victoria Peak, Ma On Shan. *H. C. Tang 998; L. T. Lo 469; HK sheet 36043.*

Distribution: Guangdong, Guangxi, Hunan, Jiangxi, Fujian.

Ecology: Thickets and forests. Flowering: Apr.–Jul.

Uses: Medicinal (folklore).

Notes: The type specimen was collected by J. G. Champion from Hong Kong Island between 1847 and 1850.

2. Lonicera japonica Thunb.
忍冬(金銀花) **(Fig. 216; Photo 443)**

Syst. Veg. 14: 216. 1784; FKH 122. 1912; FRPS 72: 236, pl. 62: 1–4. 1988; FGD 4: 306, fig. 178. 2000.

Semi-evergreen climbers; branchlets densely tawny hirsute, with spreading hairs and mixed with glandular hairs. Leaves papery; petioles 4–8 mm; leaf blade ovate to elliptic-ovate, rarely



Figure 216. *Lonicera japonica* Thunb.
1. flowering branch; *2.* corolla opened; *3.* fruiting branch. (drawn by H. P. Yu)

obovate or ovate-lanceolate, base rounded or broad-cuneate, rarely subcordate, apex acute or obtuse, margin ciliate, glabrous or pubescent on both surfaces; lateral veins 3–5 on each side of midvein. Flowers paired, axillary on upper part of branchlets, often in racemose-cymes. Peduncles 2–4 cm. Bracts leaf-like, 2–3 cm. Calyx tube ca. 2 mm, glabrous, teeth ovate-deltoid or long deltoid. Corolla white, becoming yellow, 2-labiate, 3–4.5 cm, hirsute and glandular hairy, labium linear, reflexed. Stamens and styles exserted. Berry blue-black, globular, 6–7 mm in diam., shining.

Locality: Tai Tam. *Y. S. Lau 971; HK sheet 2243, 13394.*

Distribution: Widely distributed in China except Heilongjiang, Nei Mongol, Qinghai, Xinjiang, Xizang and Hainan; Japan, Korea.

Ecology: Thickets, margins of forests. Flowering: Apr.–May.

Uses: Medicinal (folklore).

3. Lonicera longiflora (Lindl.) DC. 長花忍冬 **(Photo 444)**

Prodr. 4: 331. 1830; FHK 143. 1861; FKH 122. 1912; FRPS 72: 242, pl. 66: 1–2. 1988; FGD 4: 308. 2000.

Climbers; branchlets glabrous or sometimes slightly yellow-brown hirsute. Leaves leathery; petioles 5–8 mm; leaf blades oblong or oblong-lanceolate, rarely ovate, 5–8 × 2–4 cm, base rounded or broad-cuneate, apex acuminate, margin slightly revolute, glabrous on both surfaces; lateral veins 3–5 on each side of midvein, very obliquely ascending, net-veins prominent abaxially. Flower-pairs axillary or forming loose terminal heads or short racemes. Peduncles 5–8 mm. Bracts linear-lanceolate, 2–2.5 mm. Calyx-tube subobconic, ca. 2.5 mm, subglabrous, teeth deltoid-lanceolate, ca. 1.5 mm. Corolla white, gradually becoming yellow, 2-labiate, 5–10 cm; tube 2.5–4 cm, labium, rolled back at top, lower lip linear, upper lip 4-toothed. Stamens and pistil exserted. Berry white.

Locality: Hong Kong Island, Hung Mui Kuk, Lantau Island. *Y. S. Lau 1167, 1247, 3205.*

Distribution: Hainan, Guangdong, Yunnan.

Ecology: Thickets. Flowering: Apr.–Jun.; fruiting: Aug.–Oct.

4. Lonicera macrantha (D. Don) Spreng. 大花忍冬 **(Photo 445)**

Syst. Veg. 4(2): 82. 1827; FHK 143. 1861; FKH 122. 1912; FRPS 72: 240, pl. 63: 1–5. 1988; FGD 4: 308. 2000.

Semi-evergreen climbers; young branchlets thickly pubescent and hirsute with spreading hairs and sometimes mixed with glandular hairs. Leaves papery or leathery; petioles 3–10 mm; leaf blade ovate-elliptic or ovate-lanceolate, 5–12 × 2–7 cm, base rounded or slightly cordate, apex acuminate, margin ciliate, slightly revolute, hirsute and red glandular hairy on abaxial surface; lateral veins 4–5 on each side of midvein. Flower-pairs in axillary, corymbiform, clusters on upper parts of branchlets. Bracts lanceolate or linear, 2–5 mm. Calyx 3–4 mm. Corolla white or yellowish, fragrant, pubescent, 4.5–7(–10) cm; tube 3–5 cm; limb 2-labiate, lower labium reflexed, upper lip long ovate. Stamens and style slightly exserted. Berry black, globular or ellipsoidal, 8–12 mm in length.

Locality: Common in Hong Kong. *P. S. Choi 505; K. Y. Tam 138; K. L. Yip 4104.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Hunan, Jiangxi, Fujian, Taiwan; Nepal, Bhutan, India, Myanmar, Vietnam.

Ecology: Thin forests, thickets in ravines. Flowering: Mar.–Apr.; fruiting: May–Jul.

5. Lonicera confusa (Sweet) DC. 華南忍冬(山銀花) **(Photo 446)**

Prodr. 4: 333. 1830; FKH 122. 1912; FRPS 72: 238, pl. 62: 5–6, 1988; FGD 4: 309, fig. 179. 2000.

Nintooa confusa Sweet, Hort. Brit. ed. 2, 258. 1830.

Lonicera multiflora Champ. ex Benth., Hooker's J. Bot. Kew Gard. Misc. 4: 167. 1852; FHK 144. 1861.

Semi-evergreen climbers; young branchlets, petioles and peduncles densely grey-yellow pubescent, with crisped hairs. Leaves papery; petioles 5–8 mm; leaf blade ovate or ovate-oblong, 3–6 × 2–4 cm, base rounded, truncate or cordate, apex acute, margin ciliate, sometimes mucronate, densely pubescent abaxially; lateral veins 3–4 on each sides of midvein. Flower-pairs axillary on branchlet top, or in short racemes with distinct involucrate bracts. Bracts lanceolate, 1–2 mm. Calyx 2.5–3 mm. Corolla white, becoming yellow when dry, 3.2–5 cm; limb slightly shorter than tube. Stamens and styles exserted. Berry black, elliptic or subglobular, 6–10 mm in length.

Locality: New Territories, Lantau Island. *U. A. On 140; HK sheet 13346, 13348.*

Distribution: Hainan, Guangdong, Guangxi; Vietnam, Nepal.

Ecology: Thickets on hillslopes. Flowering: Jul.–Aug.

Uses: Medicinal (folklore).

3. Abelia R. Br. 六道木屬

Shrubs deciduous, rarely evergreen; winter-buds small, ovoid, with several pairs of outer scales. Leaves opposite, rarely-whorled, entire or dentate. Inflorescence a panicle or cluster, or flowers single or paired, axillary or terminal. Calyx-tube narrow, lobes 2–6, conspicuous and accrescent, persistent. Corolla tubular to campanulate, 4–5-lobed. Stamens 4, inserted at base of corolla-tube. Ovary 3-locular, only 1 locule fertile and 1-ovuled; style elongate. Achenes leathery, crowned by persistent calyx, 1-seeded.

About 30 species distributed in E & C Asia and Mexico; nine species in China; one species in Hong Kong.

1. Abelia chinensis R. Br.
糯米條(茶條樹) **(Fig. 217; Photo 447)**
Narr. Journey China 376. 1818; FKH 122. 1912; FRPS 72: 117. 1988; FGD 4: 292, fig. 174. 2000.

Deciduous shrubs, 0.6–1 m tall. Young branchlets red-brown, pubescent. Leaves opposite, rarely 3-whorled, ovate to elliptic-ovate, 2–5 × 1–3.5 cm, base rounded or cordate, apex acute or acuminate, margin sparsely crenate, veins densely white villose abaxially. Cymes on upper branchlets, axillary, paniculate. Flowers fragrant. Bracteoles 6, ca. 2 mm. Calyx-tube cylindric, ca. 6 mm, pubescent; lobes 5, orbicular-ovate. Stamens inserted at base of corolla-tube. Achenes cylindric, 3–4 mm, crowned by persistent calyx.

Locality: Stanley, Lantau Island. *HK sheet 13287, 24848, 40562.*

Distribution: Areas S of Changjiang.

Ecology: Thickets. Flowering: Jul.–Oct.

Uses: Ornamental.

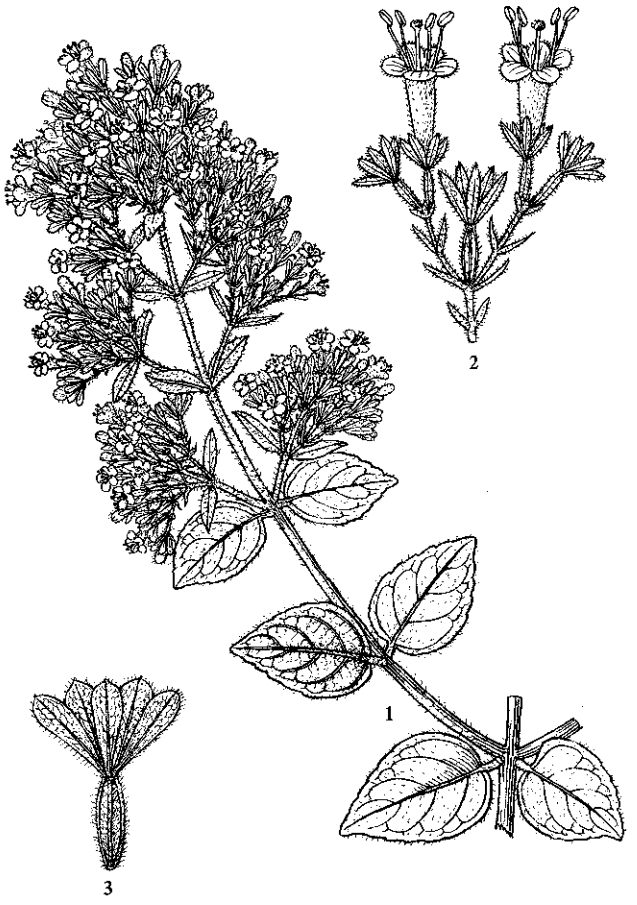


Figure 217. *Abelia chinensis* R. Br.
1. flowering branch; *2.* inflorescence; *3.* fruit with persistent calyx. (drawn by H. P. Yu)

4. Viburnum L. 荚蒾屬

Small shrubs or trees. Buds mostly nude. Stipules small, or obsolete, rarely large. Leaves simple, opposite, rarely in whorls of 3, margin entire to dentate, sometimes with stellate hairs. Corymbs or panicles axillary or terminal, bracteate. Flowers bisexual or the inflorescence with marginal sterile flowers. Calyx 5-toothed, persistent. Corolla white or rose, rotate, campanulate or tubular, 5-lobed; lobes imbricate. Stamens 5, inserted on corolla-tube. Anthers exserted. Disk absent. Ovary 1–3-locular; style 3-lobed; ovule solitary, pendulous. Drupes dry or fleshy, sometimes compressed, 1-seeded. Seeds oblong, compressed, grooved or with inflexed margins; endosperm rarely ruminate; embryo minute.

About 150 species distributed in temperate to subtropical regions, especially in Asia and N America; 74 species in China; four species in Hong Kong.

1a. Inflorescence with marginal large, white sterile flowers ..... 1. *V. hanceanum*
1b. Inflorescence without marginal large, white sterile flowers.
2a. Inflorescence paniculate ..... 2. *V. odoratissimum*
2b. Inflorescence umbel-like cymes.
3a. Leaf blade dotted with tiny brown glands on abaxial surface, triplinerved, with 3–5 lateral veins on each side of midvein ..... 3. *V. sempervirens*
3b. Leaf blade without glands on abaxial surface, usually with (5–)7–9 lateral veins on each side of midvein ..... 4. *V. luzonicum*

1. Viburnum hanceanum Maxim. 蝶花荚蒾 **(Photo 448)**
Bull. Acad. Imp. Sci. Saint-Petersbourg, Sér. 3, 26 (Mel. Biol. 10: 662): 487. 1880.; FKH 121. 1912; FRPS 72: 63. 1988; FGD 4: 295. 2000.

Deciduous shrubs, up to 2 m tall. Branchlets hairy or not. Leaves opposite; petioles 5–15 mm; leaf blade ovate or elliptic, 4–8 × 2.5–5.5 cm, base rounded or broad-cuneate, apex rounded and mucronate, margin dentate, stellate hairy on both surfaces; lateral veins 5–7 on each side of midvein, running direct into teeth, veinlets parallel. Inflorescence an umbel-like cymes, 5–7 cm in diam. Marginal sterile flowers 5–6; corolla white, 2–3 cm in diam. Corolla of fertile flowers 3 mm in diam.; lobes ovate, ca. 1.5 mm. Stamens as long as corolla. Drupes red, ovoid, ca. 5 mm, slightly compressed.

Locality: Fanling, Sha Lo Tung, Pat Sin Leng, Lantau Island. *K. Barretto 305; Y. W. Lam 202; F. W. Xing 8829.*

Distribution: Guangdong, Guangxi, Hunan, Jiangxi, Fujian.

Ecology: Thickets in ravines. Flowering: Mar.–Apr.

Uses: Ornamental.

Notes: This species was reported as *Viburnum fordiae* Hance previous (FKH 121. 1912; Check List HK Plants 36. 1993). Listed in *Rare and Precious Plants of Hong Kong.*

2. Viburnum odoratissimum Ker Gawl. 珊瑚樹 **(Photos 449–450)**

Bot. Reg. 6: t. 456. 1820; FHK 143. 1861; FKH 122. 1912; FRPS 72: 56, pl. 12: 1–5.1988; FTW ed. 2, 4: 756, photo 384–385. 1998; FGD 4: 296. 2000.

Evergreen shrubs or small trees, 2–10(–15) m tall. Branchlets glabrous or slightly pubescent, with small, verrucose lenticels. Leaves opposite; petioles 1–2 cm; leaf blade elliptic, elliptic-oblong or obovate, rarely suborbicular, 7–20 × 3.5–8 cm, base cuneate or broad-cuneate, apex acute or acuminate, margin sparsely and shallowly sinuate or subentire, glabrous on both surfaces, or abaxially pubescent in axils of veins, sometimes sparsely dotted with dark-red small glands; lateral veins 5–6 on each side of midvein; veins anastomosing near margin. Panicles terminal, ovoid or pyramidal, 6–14 cm. Flowers fragrant. Calyx-tube campanulate, 2–2.5 mm, teeth deltoid. Corolla white or yellowish, rotate; tube ca. 2 mm; lobes ovate-orbicular, 2–3 mm, reflexed. Stamens exserted; styles short, stigma capitate. Drupes red to black, ovoid, 8–5 mm.

Locality: Common in Hong Kong. *H. C. Tang 1237; L. T. Lo 8; HK sheet 39426.*

Distribution: Hainan, Guangdong, Guangxi, Hunan, Fujian, Taiwan; Philippines, Indochina, Myanmar, Thailand, India.

Ecology: Flowering: Mar.–Apr.; fruiting: May–Sep.

Uses: Ornamental.

3. Viburnum sempervirens K. Koch

常綠荚蒾(堅荚樹) **(Fig. 218; Photos 451–452)**

Hort. Dendr. 300. 1853; FKH 121. 1912; FRPS 72: 74. 1988; FGD 4: 298. 2000.

Viburnum venulosum Benth., FHK 142. 1861.

Evergreen shrubs, 2–4 m tall. Branchlets purple or grey-brown. Leaves opposite, leathery; petioles tinged with red-purple colour, 5–15 mm; leaf blade elliptic to elliptic-ovate, rarely oblong or oblanceolate, 4–12 × 2.5–5 cm, base narrowly cuneate to obtuse, apex acute or shortly acuminate, margin entire or slightly toothed towards end, shining adaxially, with small, brown glands on abaxial surface; lateral veins 3–4(–5) on each side of midvein, anastomosing at margin or running directly into teeth. Cymes arranged into compound umbel, terminal. Calyx-tube ca. 1 mm. Corolla white, rotate, ca. 4 mm in diam.; lobes suborbicular. Stamens slightly exserted. Drupes red, subglobular or ovoid, 8 × 3–5 mm.

Locality: Common in Hong Kong. *Y. S. Lau 2404; P. S. Choi 451; Y. W. Lam 1747.*

Distribution: Guangdong, Guangxi, Jiangxi.

Ecology: Forests in ravines. Flowering: Apr.–May; fruiting: Aug.–Nov.

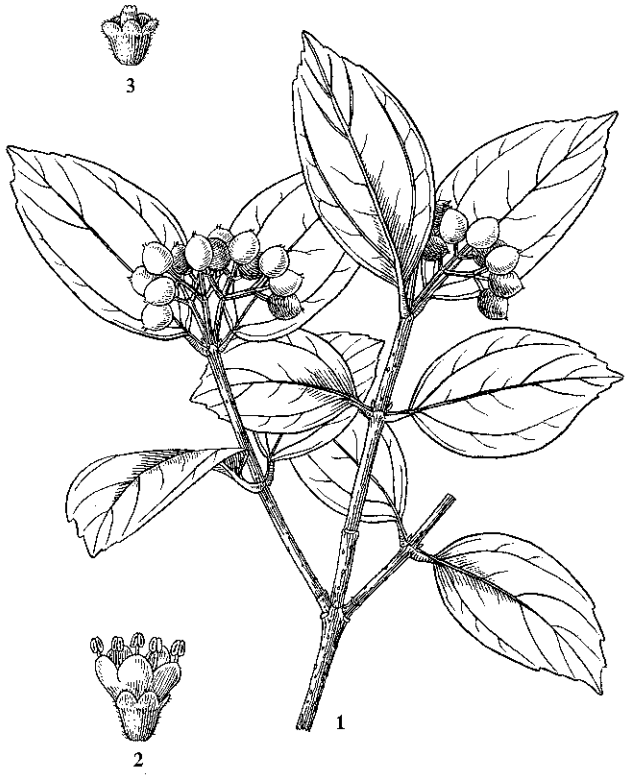


Figure 218. *Viburnum sempervirens* K. Koch
1. fruiting branch; *2.* flower; *3.* calyx and pistil. (drawn by H. P. Yu)

4. Viburnum luzonicum Rolfe 呂宋荚蒾

J. Linn. Soc. Bot. 21: 310. 1884; FRPS 72: 94, pl. 20: 1–4. 1988; FTW ed. 2, 4: 756, photo 383. 1998; FGD 4: 301. 2000.

Deciduous shrubs, 2–3 m tall. Young branchlets, winter buds, petioles and inflorescence yellow-brown stellate-pubescent; branchlets of previous year dark purple-brown, sparsely stellate-pubescent. Leaves papery; petioles 4–10 mm; leaf blade ovate, elliptic-ovate, or ovate-lanceolate to oblong, sometimes subrhombic, 5–9 × 1.5–5 cm, base broadly cuneate to subrounded, apex acute to acuminate, margin serrate, abaxially sparsely stellate-pubescent, adaxially with transparent glandular dots and fork-like pubescent on midvein; lateral veins (5–)7–9 on each side of midvein, impressed adaxially, together with midvein prominent abaxially, ending in marginal teeth. Inflorescences a compound umbel-like cyme, 3–5 cm in diam., usually terminal on branchlets or short lateral branchlets subtended by a pair of leaves; peduncle usually very short or nearly absent, very rarely to 1.5 cm, with 5 rays. Flowers small, on rays of 3rd and 4th orders. Calyx-tube ovate-orbicular, ca. 1 mm. Corolla white, rotate, 4–5 mm in diam., outside stellate-pubescent; lobes ovate, longer than the tube. Stamens shorter or slightly longer than corolla. Stigmas indistinctly 3-lobed. Fruit red when mature, ovoid, 5–6 mm.

Locality: Lantau Peak. *HK sheet 35751, 40326.*

Distribution: Guangdong, Guangxi, Yunnan, SE Jiangxi, S Zhejiang, Fujian, Taiwan; Indochina, Philippines to Malaysia.

Ecology: Thickets on hillslopes. Flowering: Apr.–May.

Notes: This species is distinguished from *Viburnum fordiae* Hance by its leaves with hyaline, sessile small glands adaxially and the very short or absent peduncles, whereas leaves of *V. fordiae* are eglandular adaxially and the peduncles are up to 4 cm long.

323. ASTERACEAE (COMPOSITAE) 菊科

HU Shiu-ying 胡秀英 • WONG Yan 王茵
Blumea by LAU Kai-man 劉啟文

Herbs, subshrubs, or shrubs, rarely tree, sometimes milky. Leaves alternate or opposite, sometimes rosulate, scattered, or seldom whorled, simple, toothed to pinnately lobed or divided, estipulate. Flowers aggregated into a capitulum, growing on a common receptacle. Receptacle with various shapes, naked, scariously toothed, hairy, or paleaceous, surrounded by an involucre consisting of 1–many series of phyllaries (involucral bracts). Capitula solitary or arranged into racemose, cymose, corymbose, or paniculate clusters. Flowers bisexual or unisexual, rarely neutral; hypanthium adnate to the ovary wall; calyx modified into a pappus of bristles, awns, scales, teeth, or absent; corolla zygomorphic and ligulate with 2–5 teeth at limb apex, or actinomorphic and tubular with 4–5 lobes at apex. Stamens (4–)5; filaments free and inserted on the corolla tube, seldom united; anthers 2-thecae, coherent and forming a tube surrounding the style, usually bearing apical appendages, base obtuse, acute, sagittate, caudate, or tasselled. Pistil 1; ovary inferior, unilocular, 1-ovuled; style 2-branched, the branches separate or connate, with or without appendages. Fruit a cypsela (an achene surrounded by hypanthium), containing a single erect anatropous seed, no endosperm.

A large, cosmopolitan family of flowering plants, with 1000 to 1500 genera and about 25000 to 30000 species in the world; 12 tribes, 76 genera, and about 137 species and one variety in Hong Kong.

1a. Plants with milky juice; capitula with all florets ligulate and bisexual ..... Key 1
1b. Plants without milky juice; capitula with all florets tubular, or with central florets tubular or bilabiate, bisexual; and outer florets ligulate, tubular, bilabiate or without corolla, female or neutral.
  2a. Receptacles paleaceous with the palea subtending or partly to totally enfolding the floret hypanthium; pappus aristate, shortly coronate, or lacking, never hairy; leaves opposite, or sometimes with the lower ones opposite and upper ones alternate ..... Key 2
  2b. Receptacles naked, scaly toothed, or hairy, seldom paleaceous; pappus variable from hairy to scarious, or absent; leaves opposite, alternate, scattered, rosulate or subverticillate.
    3a. Anther bases prominently sagittate to tailed with the basal appendages entire, scabrid, lacerate to fimbriate; cypselae straight or strongly incurved; leaves alternate, or sometimes rosulate or subverticillate ..... Key 3
    3b. Anther bases truncate, rounded, obtuse-rounded, auriculate, shortly acute, or sagittate, but never tailed; the basal appendages always entire; cypselae straight, not strongly incurved; leaves opposite, alternate, scattered, or rosulate.
      4a. Phyllaries 8–14 arranged in 1 row, equal in length, free or united at anthesis, usually glabrous or sometimes puberulous, but never glandular nor glandular-punctate; with or without calyculus subtending at base; pappus always capillary hairy or rarely absent; leaves without oil glands growing along margin ..... Key 4
      4b. Phyllaries arranged in 3–many series, usually shorter outside and longer inward, imbricate at anthesis, mostly hairy and / or glandular, occasionally glabrous; without calyculus at base; or sometimes involucres with 2 rows of phyllaries in subequal length; or with 3–10 phyllaries arranged in 1 row but should be glandular or glandular-dotted; pappus varied from hairy to scarious, or lacking; leaves with or without oil glands growing along margin.
        5a. Capitula homogamous-discoid with all florets tubular, bisexual and fertile; corolla of bisexual florets white, purple, pink, or violet-blue, never yellow; style divided, branches not truncate apically and without apical appendages; pappus hairy, scarious, or claviform ..... Key 5
        5b. Capitula heterogamous, disciform or radiate, with marginal florets female or neutral, corolla ligulate, narrowly tubular, filiform-tubular, conical-tubular, urceolate, or absent; and disk florets bisexual and tubular, colour usually yellow, sometimes white, red, orange, green, purple or dark purple. Or if capitula homogamous with all florets bisexual and tubular, then the stylar branches should be truncate with or without penicillate distal ends, or bearing hairy elongate apical appendages; or unbranched to slightly bifid when infertile; also the pappus scarious, hairy or lacking ..... Key 6

Key 1

1a. Plant acaulescent; capitula solitary to hollow scape; leaves runcinate-pinnatifid to pinnatisect; cypselae with ribs sharply to obtusely tuberculate ..... 1. *Taraxacum*
1b. Plant bearing stem; capitula corymbose, paniculate, corymbose-paniculate, racemose-paniculate or pseudo-umbellate, rarely solitary to bracteolate peduncle; leaves simple, toothed, pinnatilobed to pinnatisect, or palmately divided, but not appearing runcinate; cypselae with ribs smooth or transversely rugose, but not sharply tuberculate.
  2a. Upper stem branches, peduncles and sometimes together with phyllaries stipitate glandular hairy (applicable to species found in Hong Kong); florets 80 or more per capitulum; pappus entangled with each other ..... 2. *Sonchus*
  2b. Upper stem branches, peduncles and phyllaries glabrous or hairy, but not glandular; florets less than 30 per head; pappus not entangled with each other.
    3a. Cypselae beakless.
      4a. Cypselae 10–20-ribbed, apex constricted ..... 3. *Youngia*
      4b. Cypselae 3–6-ribbed, apex truncate, not constricted ..... 4. *Launaea*
    3b. Cypselae bearing beak.

5a. Cypselae thinly or thickly winged on lateral margin ..... 5. *Pterocypsela*
5b. Cypselae not winged on lateral margin.
6a. Apical beak of cypsela mostly longer than the cypsela body ..... 6. *Lactuca*
6b. Apical beak of cypsela mostly shorter than the cypsela body.
7a. Leaves 3 or 5-palmatilobed to palmatisect; cypselae brown, glabrous, obtusely 10-ribbed; apical beak 0.2–0.3 mm wide ..... 7. *Chorisis*
7b. Leaves undivided, pinnately divided, or lyrate-pinnately divided, but never palmately segmented; cypselae brown, reddish brown, blackish brown, or black, glabrous or hirtellous along ribs, obtusely or acutely 9–12-ribbed; apical beak 0.05–0.2 mm wide.
8a. Cypsela beak filiform, 0.7–3 mm long, 0.05–0.1 mm wide; cypselae brown or reddish brown.
9a. Cypselae sharply and acutely 10-ribbed as wings, glabrous along ribs ..... 8. *Ixeris*
9b. Cypselae obtusely 9–12-ribbed, mostly hirtellous along ribs ..... 9. *Ixeridium*
8b. Cypsela beak thick, 0.4–0.8 mm long, 0.2 mm wide; cypselae black or blackish brown, obtusely 10–11-ribbed, hirtellous along ribs ..... 10. *Paraixeris*

Key 2

1a. Capitula unisexual and plant monoecious; female florets without corolla, totally enclosed in a hooked hard 2-beaked bur derived from the involucral bracts; anthers separate ..... 11. *Xanthium*
1b. Capitula bisexual; all florets with corolla, not enclosed in a hard involucral bur-like structure; anthers united.
2a. Pappus of many (more than 10) plumose setae or fimbriate scales.
3a. Receptacle conspicuously conical; phyllaries almost membranous, white to pale brown; pappus scarious, oblong and margin fimbriate ..... 12. *Galinsoga*
3b. Receptacle flat or slightly convex; phyllaries of outer rows herbaceous green; pappus bristles plumose ..... 13. *Tridax*
2b. Pappus none, or of few (about 2–4) scarious awns / stiff spines, or appeared as coronate scales, or simply shortly toothed.
4a. Capitula generally large, 4–25 cm in diam. or more.
5a. Ray florets female and fertile, the ligulate corolla persistent and falling with the cypselae upon fruiting stage; phyllaries black-margined; receptacle conical or cylindric ..... 14. *Zinnia*
5b. Ray florets female or neutral, usually infertile, the ligulate corolla not persistent on cypselae; phyllaries not black-margined; receptacle flat or convex.
6a. Peduncle inflated apically; pappus of persistent coronate scales, sometimes together with 1–2 awns, persistent or not ..... 15. *Tithonia*
6b. Peduncle not inflated at distal end; pappus of 2 deciduous scales or absent.
7a. Leaves simple; pappus of two deciduous scales. ..... 16. *Helianthus*
7b. Leaves 1–3-pinnate, except some upper leaves simple; pappus absent ..... 17. *Dahlia*
4b. Capitula generally small, 0.4–3 cm across.
8a. Phyllaries stipitate-glandular, outer layer horizontally spreading ..... 18. *Siegesbeckia*
8b. Phyllaries not glandular, outer layer curved inward or slightly reflexed, but not in horizontal plate.
9a. Pappus of 2–4 stiff and retrorsely barbed spines.
10a. Leaves mainly cauline at anthesis, simple, toothed or 1–3 times ternate or pinnatisect, leaf segments ovate, ovate-lanceolate to rhomboid-lanceolate (for species in Hong Kong); pappus of 2–4 retrorsely barbed spines ..... 19. *Bidens*
10b. Leaves mainly crowded at base, few cauline at anthesis, pinnatisect with the leaf segments linear; pappus of 2 retrorsely barbed spines ..... 20. *Glossocardia*
9b. Pappus absent or not as above.
11a. Capitula sessile or subsessile, usually several aggregated on axils or branch terminals; cypselae of ray florets with hard lacerate wings on margins; pappus of 2–4 sharp and stiff spines (not retrorsely barbed) ..... 21. *Synedrella*
11b. Capitula distinctly pedunculate, solitary or in loose corymbs; cypselae of ray florets not winged; pappus absent, or shortly toothed, or appeared as scarious crown, or of 1–3 scarious bristles.
12a. Receptacle conspicuously conical-columnar; involucres shallow and disk-like ..... 22. *Spilanthes*
12b. Receptacle plain or convex; involucres campanulate or hemispherical.
13a. Ligulate florets white; disk tubular florets 4-lobed at apex; paleae plain and lanceolate, not enclosing the cypselae ..... 23. *Eclipta*
13b. Ligulate florets yellow; disk tubular florets 5-lobed at apex; paleae curved, oblanceolate-oblong to linear, ± enclosing the cypselae.
14a. Capitula ca. 1 cm in diam.; ray florets very short, ligules ca. 3 mm; pappus of 2–5 unequal bristles, connate at the base ..... 24. *Blainvillea*
14b. Capitula 1.5–2.5 cm in diam.; ray florets showny, ligules 6–11 mm; pappus absent, or a toothed cup or ring, or of short scales with sometimes a few bristles ..... 25. *Wedelia*

Key 3

1a. Style with hairy thick ring below the fork; receptacle densely fringed; phyllaries prickly or bearing scarious appendages at apices; capitula with all florets tubular.
- 2a. Phyllaries spinulose at apices, at least for the outer few layers; leaves spiny along the margin; filaments papillose hairy; style branches coherent ..... 26. *Cirsium*
- 2b. Phyllaries without prickles; leaves not spiny along the margin; filaments glabrous; style branches separate.
  - 3a. Phyllaries with crested scarious appendages on abaxial side near the apex ..... 27. *Hemisteptia*
  - 3b. Phyllaries with or without scarious / herbaceous appendages on the apices, but not on abaxial side ..... 28. *Saussurea*

1b. Style without hairy thick ring below the fork; receptacle usually naked, sometimes hairy, or rarely paleate; phyllaries neither prickly nor scariously appendaged at apices; head with marginal florets ligulate, filiform-tubular, or bilabiate; disk florets tubular or bilabiate.
- 4a. Peripheral florets, if present, bilabiate with inner lip cleft into two filiform segments while outer lip ligulate or not; central florets bilabiate or deeply 5-cleft.
  - 5a. Capitula arranged as spikes, racemes or rarely panicles; homogamous with all florets bisexual, (1 or)3(–5) florets per head.
    - 6a. Pappus of scabrid bristles ..... 29. *Pertya*
    - 6b. Pappus of plumose bristles ..... 30. *Ainsliaea*
  - 5b. Capitula solitary, heterogamous with marginal florets female and disk florets bisexual; with many florets per head, pappus setaceous ..... 31. *Gerbera*
- 4b. Peripheral florets filiform-tubular or ligulate, not bilabiate; central florets tubular and shallowly 4–5-lobed.
  - 7a. Cypselae strongly incurved; pappus lacking; marginal florets ligulate; disk florets tubular and 5-lobed apically ..... 32. *Calendula*
  - 7b. Cypselae straight, not incurved; pappus hairy, scarious coroniform, or absent; marginal florets filiform-tubular or ligulate; disk florets tubular and 4–5-lobed apically.
    - 8a. Capitula radiate with marginal female florets conspicuously ligulate; receptacle paleate; pappus scarious in coroniform, together with several awns ..... 33. *Anisopappus*
    - 8b. Capitula disciform with marginal female florets narrowly to filiform-tubular, or radiate with the ligules of female florets minute or absent; receptacle naked or hairy along the margin of areoles, without paleae; pappus setaceous or absent.
      - 9a. Pappus none.
        - 10a. Plants erect; all florets fertile; cypselae rostrate at distal end ..... 34. *Carpesium*
        - 10b. Plants usually prostrate, sometimes erect; marginal female florets fertile but central bisexual florets sterile; cypselae truncate at apex ..... 35. *Epaltes*
      - 9b. Pappus present and setaceous, persistent or deciduous.
        - 11a. Stems winged; outer series of phyllaries usually recurved at tips ..... 36. *Laggera*
        - 11b. Stems not winged; phyllaries appressed or sometimes reflexed after anthesis.
          - 12a. Leaves subentire to entire; phyllaries totally or with margin broadly membranous, appressed and imbricate, colour brown, straw-yellow to lemon-yellow ..... 37. *Gnaphalium*
          - 12b. Leaf margin usually toothed, or some laciniate to pinnately lobed; phyllaries herbaceous, some with margin thinly scarious, colour green or purplish red, sometimes straw-coloured.
            - 13a. Central bisexual florets usually more than marginal female florets, which are narrowly tubular with apex 2–3-lobed ..... 38. *Duhaldea*
            - 13b. Central bisexual florets fewer than marginal female ones.
              - 14a. Capitula usually corymbose; phyllaries broadly ovate to lanceolate; pappus persistent ..... 39. *Pluchea*
              - 14b. Capitula usually paniculate; phyllaries linear to linear-lanceolate; pappus deciduous or not ..... 40. *Blumea*

Key 4

1a. Capitula heterogamous with marginal female florets and disk bisexual florets.
- 2a. Capitula disciform bearing filiform-tubular female florets ..... 41. *Erechtites*
- 2b. Capitula radiate bearing ligulate female florets.
  - 3a. Leaves mainly cauline or with both cauline and radical; cauline leaf blade oblong-lanceolate, ovate-lanceolate to elongate deltoid; sessile or with petiole not longer than 2 cm ..... 42. *Senecio*
  - 3b. Leaves mainly radical, basal leaf blade cordate-reniform for species in Hong Kong, cauline ones absent or few appeared as bracts; petioles long ranging from 4 cm up to 30 cm.
    - 4a. Leaves rolling inward when young; cypselae hairy ..... 43. *Farfugium*
    - 4b. Leaves rolling backward when young; cypselae glabrous ..... 44. *Ligularia*

1b. Capitula homogamous with all florets bisexual and tubular.
- 5a. Involucres non-calyculate, without bracteoles at base ..... 45. *Emilia*
- 5b. Involucres calyculate.

6a. Corolla tube filiform, gradually and slightly widen at summit; capitula nodding at anthesis.....46. *Crassocephalum*
6b. Corolla tube filiform, abruptly broaden into campanulate or cylindric form near summit; capitula erect at anthesis .....47. *Gynura*

Key 5

1a. Leaves alternate, scattered, or rosulate; anther bases acute, auriculate or sagittate; stylar branches long and slender, puberulent, apices acute, acuminate to subulate.
2a. Capitula pedunculate, in racemose, paniculate or corymbose form; pappus mainly capillary or some with outer series chaffy, mostly deciduous.....48. *Vernonia*
2b. Capitula sessile, aggregated into axillary or terminal glomerules; pappus chaffy and extending into bristles, persistent.
3a. Glomerules of clustered capitula pedunculate, terminal to stem branches, and subtended by 3 foliaceous ovate bracts; pappus bristles all straight and stiff.....49. *Elephantopus*
3b. Glomerules of clustered capitula sessile, spicate in arrangement, not subtended by ovate bracts; some pappus bristles folded, sigmoid.....50. *Pseudelephantopus*
1b. Leaves opposite; anther bases obtuse or truncate; stylar branches clavate or thickened upward, papillose or naked without hair, apices obtuse to rounded.
4a. Pappus club-shaped, 3–4-lobed, lobe terminated by a gland.....51. *Adenostemma*
4b. Pappus capillary or paleaceous.
5a. Climbing perennial vines over trees and shrubs; capitula 4-flowered; flowers white.....52. *Mikania*
5b. Erect annual herbs; capitula with 5 or more florets.
6a. Pappus 5, scarious and awned, involucral bracts persistent after fruit dispersal.....53. *Ageratum*
6b. Pappus consisting of numerous capillary hairs.
7a. Receptacle flat or slightly convex; involucral bracts persistent after fruit dispersal; flowers white, pink or purple.....54. *Eupatorium*
7b. Receptacle highly conical; involucral bracts shed off after fruit dispersal; flowers blue or violet-blue .....55. *Praxelis*

Key 6

1a. Capitula heterogamous-radiate or homogamous-discoid; involucres with 1–3 series of phyllaries, seldom many, foliaceous to herbaceous, or sometimes petal-like, membranous, or coriaceous; receptacle flat, convex, hemispherical to globose, bristly hairy or glabrous; pappus of scales, awns, rarely hairy or absent; leaves opposite, alternate or with both, sometimes with conspicuous oil glands growing along margin.
2a. Plants hairy; leaves eglandular; phyllaries distinct, arranged in 2–3 series; cypselae turbinate and 5-angulate..56. *Gaillardia*
2b. Plants glabrous; leaf margins glandular-dotted; phyllaries in 1 row, usually connate as a tube at flowering stage; cypselae compressed-tetragonous or narrow cylindric.
3a. Capitula heterogamous and radiate; involucres 1–2 cm wide; pappus of scales or awns.....57. *Tagetes*
3b. Capitula homogamous and discoid; involucres 0.3–0.4 cm wide; pappus of bristle hair.....58. *Porophyllum*
1b. Capitula heterogamous-radiate or -disciform, or homogamous-discoid; involucres with 2–7 series of phyllaries, never in 1 row, mostly herbaceous with scarious margin or scarious throughout, sometimes coriaceous; receptacle variable, flat, convex, hemispherical, globose, conical to turbinate, mostly naked, sometimes hairy or toothed; pappus hairy or of coronate scales; leaves always alternate, without oil glands growing along margin.
4a. Style branches complanate and extended to distinct lanceolate or triangular papillose apical appendages; outer pistillate florets ligulate or filiform-tubular; pappus of hair, scarious crown, or absent; plants inodorous.
5a. Capitula radiate; ligulate florets yellow.....59. *Solidago*
5b. Capitula radiate with marginal florets not yellow; or disciform without ligulate florets.
6a. Marginal female florets tubular with corolla tube regularly 2–4-lobed.
7a. Pappus lacking.....60. *Dichrocephala*
7b. Pappus united into a cupular crown.....61. *Grangea*
6b. Marginal female florets ligulate, or filiform-tubular but not regularly lobed, some bearing a minute ligule.
8a. Leaves all radical and rosulate at anthesis; cypselae beaked; pappus absent.....62. *Lagenophora*
8b. Leaves cauline and alternate, or with both radical and cauline at anthesis; cypselae not beaked; bearing pappus of hair, scales or bristles.
9a. Outer female florets many-seriate, corolla filiform-tubular, with inconspicuous ligules or lacking.
10a. Plants herbaceous, rarely shrubby; cypselae compressed.....63. *Conyza*
10b. Plants scandent or slender subshrub; cypselae cylindric.....64. *Microglossa*
9b. Outer female florets 1–2(or 3)-seriate, corolla not filiform, with conspicuous and spreading ligules.
11a. Pappus of very short scabrid bristles or coronate scales.....65. *Kalimeris*
11b. Pappus of long capillary bristles, with or without scales in outer layer.
12a. Outermost phyllaries foliaceous.....66. *Callistephus*
12b. Outermost phyllaries scaly, non-foliaceous.
13a. Involucre consisting of many layers of definitely imbricate phyllaries; ray female florets usually in 1 series; style appendages lanceolate.....67. *Aster*

13b. Involucre consisting of 2–3 layers of not definitely imbricate phyllaries; ray female florets 2–many-seriate; style appendages rounded or shortly triangular...68. *Erigeron*

4b. Style branches of bisexual florets truncate at apices, and usually penicillate at tips; corolla of outer pistillate florets ligulate, tubular, filiform-tubular, conical-tubular, urceolate or lacking; pappus of short coronate scales or absent; plants strongly scented.

14a. Capitula large, 2–25 cm across or much larger, radiate, with corolla of marginal florets ligulate or as modified ligule.

15a. Cypselae developed from ray florets 2–3-winged, those from disk florets 1–2-winged ..... 69. *Chrysanthemum*

15b. All cypselae without wings.

16a. Corolla tube of disk florets conspicuously swollen at base; cypselae 10-ribbed; pappus none or of short scarious crown or auricle on ray cypselae ..... 70. *Leucanthemum*

16b. Corolla tube of disk florets narrowed at base; cypselae 5–8-ribbed; pappus absent.....71. *Dendranthema*

14b. Capitula small, 0.15–1 cm across, disciform, with corolla of marginal florets tubular, filiform-tubular, conical-tubular, urceolate or absent.

17a. Outer female florets with corolla; cypselae subterete, obovoid or 4–5-angulate, ribbed or striate, but not thickly winged.

18a. Capitula axillary, often opposed to leaves; marginal female florets in many series; corolla of disk florets 4-lobed at apex ..... 72. *Centipeda*

18b. Capitula in racemose, paniculate or spike form; marginal female florets in 1–2 rows; corolla of disk florets 5-lobed at apex.

19a. Pappus of short coronate scales; cypselae with 3–5 prominent ribs ..... 73. *Crossostephium*

19b. Pappus absent; cypselae faintly striate ..... 74. *Artemisia*

17b. Outer female florets without corolla; cypselae dorsiventrally compressed with thicken lateral wings.

20a. Capitula pedunculate; all florets fertile; cypselae stalked at base, lateral thickened wings smooth, not rugose, apex glabrous ..... 75. *Cotula*

20b. Capitula sessile; outer female florets fertile, inner disk florets usually functionally male and infertile; cypselae not stalked at base, lateral thickened wings rugose, apex villous ..... 76. *Soliva*

1. Taraxacum F. H. Wigg. 蒲公英屬

Perennial lactiferous and acaulescent herbs, scapes erect and hollow. Leaves all radical, rosulate at base, shape spatulate, oblanceolate to lanceolate, pinnatilobed, pinnatifid to pinnatisect, rarely entire. Capitula homogamous with all florets ligulate, hermaphrodite and fertile, solitary and terminal to scape. Involucres campanulate; phyllaries herbaceous, abaxial side sometimes with thickened or horn-like structure near the apex, outer layers short, in 2–3 rows, reflexed or adpressed at anthesis; inner layers longer, in single row, erect. Receptacle flat, naked, seldom with paleae. Ligulate florets many, corolla yellow, rarely white, red or purple-red, apex truncate and 5-toothed; anther bases sagittate, bearing apical appendages; style branches slender, linear and obtuse. Cypselae fusiform or obovate-oblong, 5–10-ribbed, acutely to obtusely tuberculate, apex attenuate to form filiform beak. Pappus copious, growing on the beak-like a parachute, capillary, length unequal, persistent. Upon fruiting stage, the whole involucre reflexed and the seeds arranged as globular head exposing to the wind.

About 2000 species native to temperate and subtropical regions, mainly distributed in the N hemisphere; about 70 species in China; one species naturalized in Hong Kong.

1. Taraxacum officinale F. H. Wigg.
藥用蒲公英 **(Fig. 219; Photo 453)**

Prim. Fl. Holsat. 56. 1780; FKH 150. 1912; S. Y. Hu, Quart. Jn. Taiwan Mus. 22: 657. 1969; FTW ed. 2, 4: 1079. 1998; FRPS 80(2): 50. 1999.

Taraxacum dens-leonis Desf., Fl. Atlant. 2: 228. 1799; FHK 192. 1861.

Perennial herbs; scapes erect and hollow, 5–40 cm tall, glabrous or cobwebby on upper portion, base usually tinged purple-red. Leaves oblanceolate, 4–20 × 1–7 cm, or much larger, runcinate-pinnatilobed to pinnatifid, apical lobes usually larger, triangular or triangular-hastate, acute or obtuse; lateral lobes 4–7



Figure 219. *Taraxacum officinale* F. H. Wigg.
1. flowering and fruiting plant; *2.* outer and inner phyllaries; *3.* floret; *4.* cypsela; *5.* lower portion of cypsela. (drawn by P. Ma)

pairs, triangular to triangular-lanceolate, downward-pointing, margin irregularly toothed; leaf base sometimes tinged purple-red, both surfaces glabrous or sparsely arachnoid hairy along veins. Capitula 2.5–5 cm across, homogamous with all florets ligulate and hermaphrodite, solitary at scape terminal. Involucres broadly campanulate; phyllaries green, apex acuminate, without prominent horn-like structure near apex or slightly thickened along midvein; outer involucral bracts 1–2 rows, lanceolate, 4–10 × 1.5–3.5 mm, reflexed at flowering stage; inner ones in 1 row, linear-lanceolate, 16–25 × 1.2–1.5 mm, erect at first and later reflexed at fruiting stage. Ligulate florets yellow in colour, ligule 5-toothed apically. Cypselae pale brown, obovate-oblong, 3–4 × 0.8–1.2 mm, ribbed and sharply tuberculate along ribs on upper half, lower half slightly and obtusely roughened, apex forming a narrow pyramidal tubercle 0.4–0.6 mm, subtending the apical filiform beak with length 6–12 mm. Pappus white, 5–6 mm, growing on the beak, like a parachute.

Locality: Naturalized. *Y. S. Lau 2508; L. T. Lo 653; P. S. Choi 127.*

Distribution: Xinjiang; Kirghizstan, Kazakstan, Europe and N America.

Ecology: Grassy hillslopes. Flowering & fruiting: Mar.– Aug.

Uses: Medicinal (folklore).

Notes: The species was reported as *Taraxacum mongolicum* Hand.-Mazz. previously (Check List HK Plants 288. 2002; 98. 2004).

2. Sonchus L. 苦苣菜屬

Annual, biennial or perennial herbs. Radical leaves rosulate. Cauline leaves alternate, base usually auriculate and amplexicaul, margin entire, toothed, pinnatifid to pinnatisect, often bearing callose hair or spines. Capitula homogamous, arranged as corymbs, corymbose panicles or pseudo-umbels, usually pendulous after flowering stage. Involucres ovoid, campanulate, urceolate, cylindric or disciform; phyllaries 3–5-seriate, imbricate, herbaceous or membranous, glabrous or glandular-hairy, margin usually scarious. Receptacle plain, naked. Florets many, more than 80, all bisexual and fertile, corolla ligulate, yellow, ligule truncate and 3- or 5-toothed apically; anther bases sagittate; stylar branches slender. Cypselae ovoid or ellipsoidal, rarely obconic, ribbed, horizontally rugose or smooth, apex without beaks. Pappus copious, many-seriate, white, capillary and soft, entangled with each other.

About 50 species distributed in Europe, Asia, Africa, Australia and N America; eight species in China; two species in Hong Kong.

1a. Basal and lower cauline leaves mostly simple, appearing oblanceolate to oblanceolate-oblong, occasionally lyrately pinnatilobed or pinnatifid ..... 1. *S. arvensis*

1b. Basal and lower cauline leaves mostly pinnatifid, pinnatisect, or lyrately pinnatisect, seldom simple ..... 2. *S. oleraceus*

1. Sonchus arvensis L. 苣荬菜 **(Fig. 220; Photo 454)**

Sp. Pl. 793. 1753; FKH 151. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 21(3–4): 162. 1968; FRPS 80(1): 64. 1997; FTW ed. 2, 4: 1071. 1998; FGD 8: 260, fig. 161. 2007.

Perennial lactiferous herbs; stem erect, 0.3–1.5(–2) m tall, striate, apically branched, the upper stem portion, branches and peduncles covered with yellow to dark purple stipitate glandular hair. Basal and lower leaves oblanceolate to oblanceolate-oblong, 6–30 × 1.5–7.5 cm, mostly simple, occasionally lyrately pinnatilobed or pinnatifid with several lateral lobes hemispherical, semi-elliptic, ovate to deltoid, sometimes oblique; while apical lobes larger, ovate, ovate-oblong to elliptic; leaf upper and lower surfaces glabrous, margin minutely denticulate or mucronulate; radical leaves with base narrowed and apex obtuse-rounded; lower leaves with base auriculate and semi-amplexicaul; apex obtuse to acute. Middle and upper leaves gradually smaller, lanceolate or linear, base sessile and semi-amplexicaul, apex acute, auriculate or not. Capitula 2 cm across, in corymbose arrangement or sub-umbelliform. Involucres campanulate-urceolate with base slightly swollen, 14–15 × 6–8 mm; phyllaries herbaceous green, abaxial side stipitate glandular, margin hyaline, apex acute or acuminate, in 3–4 rows; outer series elongate-triangular to lanceolate, 4–5 × 1–1.8 mm; middle ones lanceolate, 6–8.5 × 1.8–2.5 mm; inner layers linear, 10–13 × 1.5–2.5 mm. All florets yellow, hermaphrodite and fertile, corolla ligulate, 13–15 mm, lower tube 8–9 mm, hairy near the summit, ligule 5–5.5 mm, apex minutely 5-lobed. Cypselae brown, ellipsoidal, somewhat compressed, 3–3.2 × 0.8–1 mm, narrowed at both ends, glabrous, ribbed, transversely rugose. Pappus white, 7–8 mm, capillary and slender, entangled with each other, deciduous.



Figure 220. *Sonchus arvensis* L.

1. flowering plant; *2.* basal leaf; *3.* flowering branch; *4.* portion of stem; *5.* outer phyllary; *6.* floret; *7.* stamens; *8.* stylar branches; *9.* cypsela; *10.* portion of receptacle. (drawn by X. L. Zeng)

Locality: Common in Hong Kong. *L. T. Lo 231; Y. S. Lau 87; S. Y. Hu 13053* (CUHK).
Distribution: Widely distributed in China; also in Europe.
Ecology: Wastelands, roadsides, cultivated lands. Flowering & fruiting: Jan.–Sep.
Uses: Medicinal (folklore).

2. Sonchus oleraceus L. 苦苣菜 **(Photo 455)**

Sp. Pl. 794. 1753; FHK 194. 1861; FKH 151. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 21(3–4): 164. 1968; FRPS 80(1): 63. 1997; FTW ed. 2, 4: 1073. 1998; FGD 8: 260. 2007.

Annual or biennial herbs; stem erect, 30–150 cm tall, simple or branched in upper portion, striate, glabrous except the apical branches and peduncles covered with stipitate glandular hair. Basal leaves oblanceolate, lyrately pinnatifid or pinnatisect, base attenuate and narrowed down to form winged petiole, apex rounded or obtuse, margin toothed. Cauline leaves oblanceolate or elliptic, pinnatisect or lyrately pinnatisect, 4–20 × 1.8–9 cm, base abruptly narrowed down to form winged petiole, wing gradually broaden towards the base, forming circular auricles, semi-amplexicaul, margin and auricle unequally mucronate and spiny, apical lobes broadly triangular, broadly hastate or ovate-cordate; lateral lobes 1–5 pairs, elliptic to lanceolate, pointing backward, apices of all lobes acuminate, acute or obtuse. Upper leaves similar in shape, or appearing lanceolate to linear-lanceolate, base widen and semi-amplexicaul, apex acute to acuminate, margin entire, toothed throughout or on the apical half only. All leaves glabrous above and beneath. Capitula few, arranged as tight corymbs or racemes at branch terminals, or solitary. Involucres broad-campanulate, 1 cm × 0.6–0.7 cm; phyllaries 3–4-seriate, imbricate, stipitate glandular hairy on midvein or not, membranous along margin and apex, minutely hairy near apex; outer two layers lanceolate or elongat-triangular, 3–7 × 1–1.5 mm; middle and inner ones lanceolate to linear-lanceolate, 8–10 × 1.5–2 mm. All florets yellow, ligulate, about 10 mm, ligule 5–5.5 mm, 5-toothed at apex, lower tube 4–5 mm, hairy near summit. Cypselae brown, ellipsoidal or oblanceolate-ellipsoidal, 3 × 1 mm, flattened, ribbed, transversely rugose, without hair, apex narrowed, beakless. Pappus white, 6–7 mm, capillary and entangled with each other.

Locality: Naturalized and widely distributed in Hong Kong. *Y. S. Lau 3115; Y. W. Lam 724, 764.*
Distribution: Native to Europe and C Asia; widely distributed in China.
Ecology: Wastelands. Flowering & fruiting: Jan.–Jul.
Uses: Food (vegetable), medicinal (folklore).

3. Youngia Cass. 黃鵪菜屬

Annual, biennial or perennial lactiferous herbs; stem usually branched. Leaves mostly basal, sometimes alternate on stem, usually pinnately divided. Capitula small, homogamous with all florets ligulate and bisexual, pedunculate and arranged as panicles, corymbs or paniculate corymbs. Involucres cylindric to campanulate; mainly with a principal series of linear phyllaries and 1–2 rows of much reduced ovate ones at bottom, abaxial side with or without cristate appendages near the apex. Receptacle plain, alveolate, usually naked. Ligulate florets 5–25, corolla yellow, ligule truncate and 5-lobed at apex; style branches slender; anther bases sagittate. Cypselae fusiform, 10–20-ribbed, apex shortly beaked or without beaks. Pappus 1–2-seriate, white or rarely grey, capillary or scaberulous, deciduous or persistent.

About 40 species distributed in C, E and tropical Asia, especially in Himalayas; about 37 species in China; two species in Hong Kong.

1a. Basal leaf with apical lobes hastate, irregularly hastate, ovate or lanceolate, apex acuminate to long-acuminate; middle and upper cauline leaves present; ligulate florets 7–9 mm long ..... 1. *Y. heterophylla*
1b. Basal leaf with apical lobes ovate, deltoid-ovate or obovate, apex rounded or obtuse; cauline leaves absent, or seldom with 1–2; ligulate florets 5–6 mm long ..... 2. *Y. japonica*

1. Youngia heterophylla (Hemsl.) Babc. & Stebbins 異葉黃鵪菜 **(Photo 456)**

Publ. Carnegie Inst. Wash. 484: 87. 1937; S. Y. Hu, Quart. J. Taiwan Mus. 22(1–2): 32. 1969; FRPS 80(1): 152. 1997.
Crepis heterophylla Hemsl., J. Linn. Soc. Bot. 23: 475. 1888.

Annual or biennial herbs; 30–100 cm tall; stem erect, solitary or fasciculate, branched, loosely hairy in lower portion. Leaves subglabrous or sparsely crisped scabrous above and beneath, upper surfaces green, lower surfaces tinged reddish purple especially for the radical leaves. Basal leaves elliptic or oblanceolate-oblong, 7–25 × 3–13 cm, lyrately deeply pinnatisect, apical lobes hastate, irregularly hastate, ovate or lanceolate, 4.5–14 × 2–11 cm, apex acuminate to long acuminate; lateral lobes 1–8 pairs, opposite to each other or obliquely opposite, elliptic or auriculate, apex acute or obtuse, growing smaller downward, all lobes margin mucronulate, faintly or conspicuously dentate-sinuate; leaf petiole 3–7 cm, winged. Cauline leaves hastate or lyrately trifoliate. The upper leaves lanceolate to linear-lanceolate, often non-divided, those growing near or on peduncles much reduced in size, linear-subulate. Capitula homogamous with all florets ligulate and hermaphrodite, with 11–25 florets per head, corymbose at terminal. Involucres cylindric, 6 mm long; phyllaries glabrous, apex acute; outer layers small ovate, 0.5–1 × 0.5–0.7 mm; inner layers linear-lanceolate, 6 × 1–1.2 mm. Ligulate florets yellow, length 7–9 mm, lower tube 3 mm, pubescent outside, ligule 4–6 mm, apex 5-lobed; anther tube exserted, base sagittate, apical appendages rounded; stylar branches slender, 1–1.2 mm. Cypselae brown, fusiform, 3 × 0.8 mm, 14–15-ribbed, minutely hairy, apex without beaks. Pappus white, 3–4 mm, scaberulous.

Locality: Ng Tung Chai, Kadoorie Farm. *P. S. Choi 330; N. H. Li 54; S. Y. Hu 11840* (CUHK).

Distribution: Guizhou, Yunnan, Sichuan, Shaanxi, Hubei, Hunan, Jiangxi.

Ecology: Margins of forests, wastelands. Flowering: Mar.–May.

2. Youngia japonica (L.) DC. 黃鵪菜 **(Fig. 221; Photo 457)**

Prodr. 7: 194. 1838; S. Y. Hu, Quart. J. Taiwan Mus. 22(1–2): 33. 1969; FRPS 80(1): 155. 1997; FTW ed. 2, 4: 1098. 1998; FGD 8: 268, fig. 165. 2007.

Crepis japonica (L.) Benth., FHK 194. 1861; FKH 150. 1912.

Prenanthes japonica L., Mant. Pl. 1: 107. 1767.

Annual herbs 10–100 cm tall; stem erect, lower portion covered with crisped multicellular hair. Radical leaves rosulate at base, obovate, oblanceolate, elliptic or oblong, 4–13 × 2.5–5.5 cm, lyrately pinnatilobed, pinnatifid to pinnatisect, apical lobes large, ovate, deltoid-ovate or obovate, apex rounded or obtuse; lateral lobes 3–7 pairs, elliptic or triangular, gradually smaller downward, the lowermost one auriculate; leaf margin mucronulate and somewhat dentate-sinuate, both surfaces crisped scabrous; petiole 1–11 cm, winged or not. Cauline leaves absent or rarely with 1–2, appearance similar to radical leaves. Capitula 7–8 mm across, corymbose paniculate at stem and branch terminal; peduncle 0.3–2 cm. Involucres cylindric, about 5 × 2–2.5 mm; phyllaries glabrous on abaxial surfaces, apex acute or obtuse, herbaceous with margin membranous; outer layers short ovate, 0.8–1.2 × 0.6–1 mm; inner layers linear, 5 × 0.8–1.2 mm. Ligulate florets 10–20 per head, yellow, corolla 5–6 mm, lower tube 2–2.2 mm, pubescent outside, ligule 3–4 mm, apex 5-toothed; anther exserted, base sagittate, apical appendages rounded; stylar branches slender and recurved, about 1 mm long. Cypselae fusiform, brown, 2–2.2 × 0.5–0.8 mm, 10–13-ribbed, minutely hairy, apex beakless. Pappus bristles 3 mm, white, scaberulous, persistent.

Locality: Common in Hong Kong. *L. T. Lo 32; Y. S. Lau 1960; S. Y. Hu 12989* (CUHK).

Distribution: Widely distributed in China; E & S Asia, Indochina.

Ecology: Wastelands, roadsides, margins of cultivated lands. Flowering & fruiting: Feb.–May.

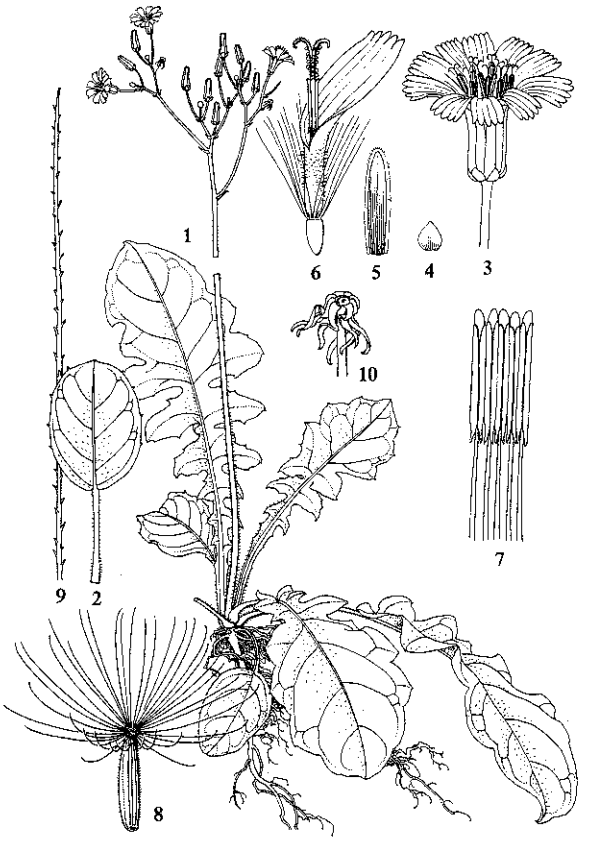


Figure 221. *Youngia japonica* (L.) DC.

1. flowering plant; *2.* one of the first caudical leaves; *3.* capitulum; *4.* outer phyllary; *5.* inner phyllary; *6.* floret; *7.* stamens; *8.* cypsela; *9.* pappus bristle; *10.* capitulum after fruit dispersal. (drawn by X. L. Zeng)

4. Launaea Cass. 栓果菊屬

Biennial or perennial herbs or subshrubs. Leaves undivided or pinnatilobed to pinnatifid, margin usually toothed. Capitula homogamous, all florets ligulate and hermaphrodite, racemose, corymbose, paniculate or fasciculate at stem terminal, or solitary. Involucres cylindric; phyllaries 3–4-seriate, outer layers short, inner layers much longer. Receptacle plain, naked. Ligulate florets yellow or reddish purple, ligule truncate and 5-toothed at apex; stylar branches slender; anther bases sagittate. Cypselae 3–6-ribbed, apex truncate and beakless. Pappus capillary, white, persistent or deciduous as a whole ring.

About 50 species distributed in Africa, Europe and Asia; two species in China; one species in Hong Kong.

1. Launaea sarmentosa (Willd.) Sch.-Bip. ex Kuntze 匍莖栓果菊 **(Fig. 222; Photo 458)**

Revis. Gen. Pl. 1: 350. 1891; S. Y. Hu, Quart. J. Taiwan Mus. 20(1–2): 35. 1967; FRPS 80(1): 164. 1997; FGD 8: 262. 2007.

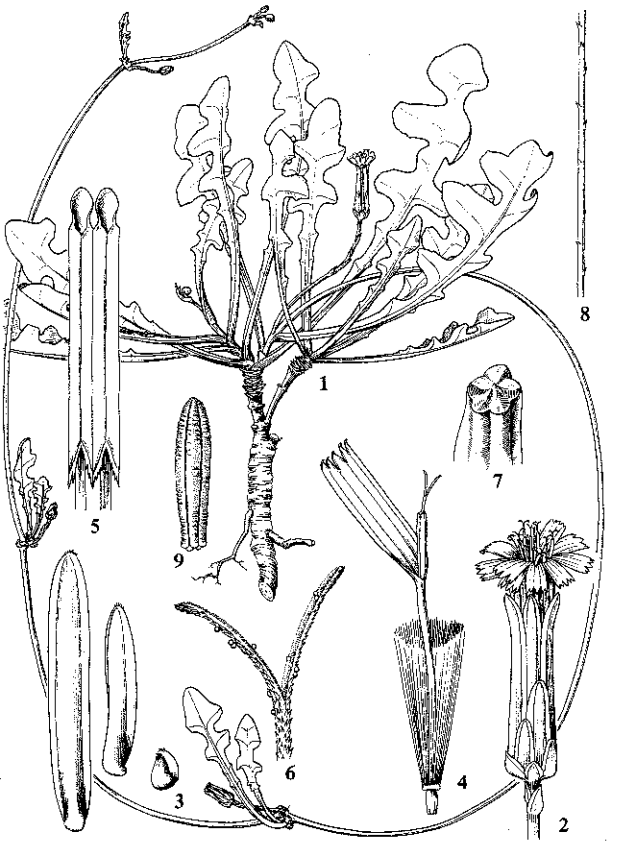


Figure 222. *Launaea sarmentosa* (Willd.) Sch.-Bip. ex Kuntze

1. flowering plant with axillary stolon; *2.* capitulum; *3.* outer phyllary to inner phyllary (right to left); *4.* floret; *5.* anthers; *6.* stylar branches; *7.* basal end of cypsela; *8.* portion of pappus bristle; *9.* cypsela. (drawn by X. L. Zeng)

Prenanthes sarmentosa Willd., Phyt. 10: t. 6, fig. 2. 1794.

Launaea pinnatifida Cass., Ann. Sci. Nat. (Paris) 23: 85. 1831; FKH 151. 1912.

Perennial creeping herbs; stem 20–250 cm or longer, glabrous, subglabrous or arachnoid hairy, with adventitious roots and rosulate leaves growing at nodes. Basal leaves in rosette, oblanceolate, 2–8(–15) × 0.5–2.5(–6) cm, pinnatilobed or with margin crenate-sinuate, apical lobes irregularly rhomboid, triangular or elliptic, apex rounded or obtuse; lateral lobes 1–5 pairs, triangular to elliptic, gradually smaller downward, opposite or alternate with each other, apex obtuse to rounded. Cauline leaves growing on stem nodes, rosulate, shape similar to basal ones but smaller in size. All leaves with base attenuate into winged petiole 0.5–5 cm long or sessile, both surfaces glabrous. Capitula homogamous, about 12–14 florets per head, solitary to the rosettes of basal leaves and of stem nodes; peduncles 0.5–4.5 cm, bearing few ovate bracteoles about 3 mm long near the capitulum. Involucres cylindric, 12–14 × 3–4 mm; phyllaries 3–4-seriate, margin membranous, glabrous abaxially; outer rows small, triangular or ovate, 2–4 × 1.2–2 mm, obtuse; median ones ovate-lanceolate to lanceolate, 5–8 × 1.2–2 mm, acute to obtuse; inner ones linear, 10–14 × 1.5–2 mm, acute or obtuse. Ligulate florets yellow, 1.8 cm, lower tube 1 cm, ligule 0.8 cm, 5-lobed apically; anther bases sagittate and serrulate, apical appendages rounded; stylar branches slender and hairy. Cypselae brown, cylindric, 3.5 mm, largely and obtusely 4-ribbed, transversely rugose. Pappus white, capillary and slender, 8–10 mm, connate at base, shed off as a whole ring.

Locality: Common in Hong Kong. *S. P. Lau 42; Y. W. Lam 463; S. Y. Hu 10252* (CUHK).

Distribution: Hainan, Guangdong and other S China coastal regions; India, Egypt, W Africa.

Ecology: Sandy beaches. Flowering & fruiting: Mar.–Dec.

5. Pterocypsela C. Shih 翅果菊屬

Annual, biennial or perennial herbs. Leaves entire, or variously lobed to pinnatisect. Capitula homogamous with all florets ligulate and bisexual, at terminal arranged as corymbs, panicles or racemose panicles. Involucres ovoid; phyllaries green and thick, 4–5-seriate, gradually longer inward, imbricate. Receptacle plain and naked. Ligulate florets 9–25 per head, corolla yellow, rarely white, ligule truncate and 5-toothed at apex, white pubescent near the summit of lower tube; anther bases sagittate; stylar branches slender. Cypselae obovate, elliptic or oblong, colour black, blackish brown to reddish brown, dorsiventrally compressed, surface glabrous, 1- or 3-striate on each side, margin thinly or thickly winged, apex with stout or filiform beak. Pappus in 2 series, white.

About 11 species distributed in E & SE Asia; mostly in China; three species in Hong Kong.

1a. Cypselae 1-striate on each surface; leaves simple or divided; stem and leaves glabrous throughout.
  2a. Leaves undivided, appearing linear to linear-lanceolate ..... 1. *P. indica*
  2b. Leaves regularly or irregularly 1–2-pinnatisect ..... 2. *P. laciniata*
1b. Cypselae 3-striate on each side; leaves lyrately pinnatifid to pinnatisect, upper surfaces scabrous, lower surfaces pilose along veins and margins; stem usually densely hairy in lower portions ..... 3. *P. raddeana*

1. Pterocypsela indica (L.) C. Shih 翅果菊(山萵苣) (Photos 459–460)

Acta Phytotax. Sin. 26(5): 387. 1988; FRPS 80(1): 229. 1997; FTW ed. 2, 4: 1043. 1998; FGD 8: 264. 2007.

Lactuca indica L., Mant. Pl. 278. 1771.

Lactuca brevirostris Champ., Hooker's J. Bot. Kew Gard. Misc. 4: 237. 1852; FHK 192. 1861; FKH 150. 1912.

Large annual or biennial herbs; stem glabrous, erect, 0.5–2 m tall, branched apically. Leaves glabrous above and beneath. Lower leaves deciduous upon fruiting stage. Middle cauline leaves sessile, linear or linear-lanceolate, 8.5–31 × 0.5–3 cm, not divided, base cuneate, apex acuminate, margin entire or mucronate near base. Upper leaves linear, smaller in size. Capitula homogamous with all florets ligulate and hermaphrodite, paniculate or racemose-paniculate at terminal; peduncles 5–25 mm, bearing several linear-subulate bracteoles. Involucres ovoid-cylindric, 13–15 × 4–5 mm; phyllaries in 4 series, thick in texture, glabrous abaxially, margin and apex tinged purplish red and narrowly membranous; outer ones ovate, 2.5–3.5 × 1–2 mm, apex acute or obtuse; median ones ovate-oblong, 5–8 × 2–2.5 mm, acute or obtuse; inner ones linear-lanceolate, 13–14 × 2 mm, rounded. Ligulate florets 21–27 per head, corolla yellow, 12–14 mm, lower tube 4–4.5 mm, densely hairy near summit, ligule 8–9 mm, apex 5-lobed. Cypselae black, elliptic, 3–4 × 1.8–2 mm, compressed, lateral margins thicken as wings, apex acute or acuminate, forming pale brown rostrum 1–1.5 mm, 1-striate on each side. Pappus 2-seriate, parachute-like at the end of the rostrum, 7–8 mm, white.

Locality: Common in Hong Kong. *H. C. Tang 2072; Y. S. Lau 2629; S. Y. Hu 7840* (CUHK).

Distribution: Widely distributed in China; Indochina, India, Malaysia, Japan, Russia (Far East region).

Ecology: Margins of forests, wastelands. Flowering: Jul.–Nov.

Notes: The type specimen of *Lactuca brevirostris* was collected by J. G. Champion from Hong Kong Island between 1847 and 1850.

2. Pterocypsela laciniata (Houtt.) C. Shih 多裂翅果菊 (Fig. 223)

Acta Phytotax. Sin. 26(5): 388. 1988; FRPS 80(1): 230. 1997; FGD 8: 265. 2008.

Prenanthes laciniata Houtt., Nat. Hist. 10: 381. 1779.

Perennial herbs; stem erect, 0.6–2 m tall, stout, branched apically, glabrous. Lower and middle cauline leaves glabrous on both sides, oblanceolate, elliptic or oblong, 13–25 × 8–10 cm, or much larger, leaf base cuneate and sessile, regularly or irregularly 1–2-pinnatisect, apical lobes long-linear or sometimes lanceolate, primary lateral segments 1–5 pairs, elongate-triangular, lanceolate or falcate, gradually smaller downward; secondary lateral segments linear or triangular, length various; all lobes apex mostly acuminate

or sometimes acute, margin mucronulate. Upper leaves smaller in size, divided similarly as the middle leaves, or undivided and appearing linear. Capitula many, arranged as panicles at terminal, homogamous with all florets ligulate and bisexual; peduncles 0.5–3 cm, bearing few small ovate bracteoles. Involucres ovoid-cylindric, 13–14 × 4–5 mm; phyllaries 4–5-seriate, acute or obtuse apically, glabrous abaxially, margin and apex thinly membranous and tinged reddish purple; outer ones ovate, 2–3 × 1–2 mm; median ones ovate-oblong, 4–5 × 1.8–2.2 mm; inner ones linear-lanceolate or linear-oblong, 8–13 × 1.2–2 mm. Ligulate florets about 21 per head, corolla yellow, 12–14 mm, lower tube 6–7 mm, densely hairy near summit, ligule 6–7 mm, 5-lobed at distal end. Cypselae elliptic, compressed, black, 4 × 2–2.1 mm, margin thickly winged, 1-striate on each side, apex with pale brown beak 1–1.2 mm. Pappus 2-seriate, growing on the beak, white, 6–8 mm.

Locality: Sha Tin, Ng Tung Chai, Lantau Island. *S. Y. Hu 12132* (CUHK); *Y. W. Lam 641; HK sheet 34062.*

Distribution: Widely distributed in China; also in Japan, Russia (Far East region).

Ecology: Margins of forests, wastelands. Flowering: Jul.–Oct.

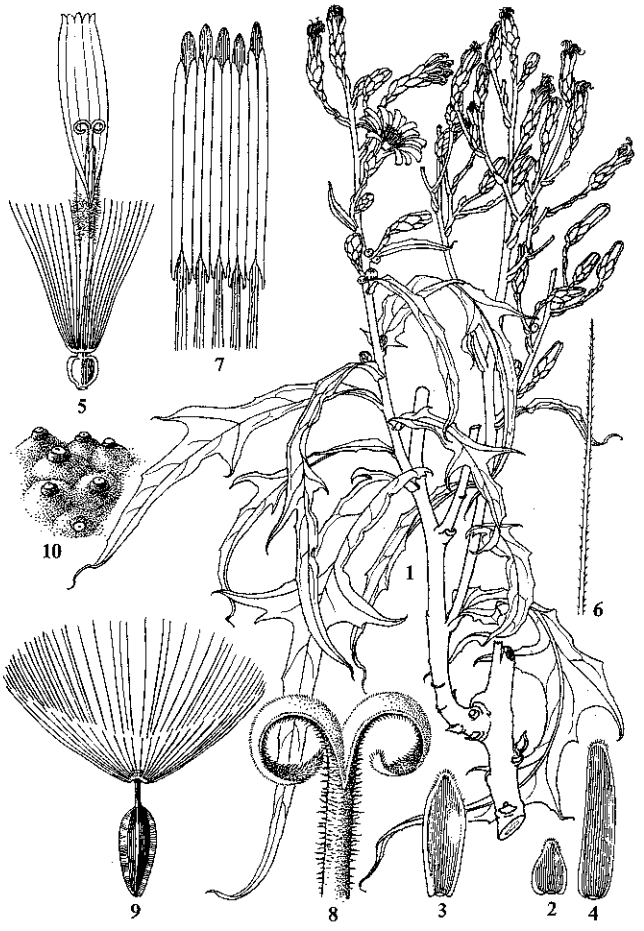


Figure 223. *Pterocypsela laciniata* (Houtt.) C. Shih
1. flowering branch; *2.* outer phyllary; *3.* intermediate phyllary; *4.* inner phyllary; *5.* floret; *6.* pappus bristle; *7.* stamens; *8.* stylar branches; *9.* cypsela; *10.* portion of receptacle. (drawn by X. L. Zeng)

3. Pterocypsela raddeana (Maxim.) C. Shih 毛脈翅果菊
Acta Phytotax. Sin. 26(5): 386. 1988; FRPS 80(1): 227. 1997.

Lactuca raddeana Maxim., Bull. Acad. Imp. Sci. Saint-Petersbourg 19: 526. 1874.

Biennial or perennial herbs; stem erect, 0.8–2 m tall; branched apically, usually densely hairy in lower portion, glabrous above. Leaves sessile, scabrous on upper surfaces, pilose along veins and margins on lower surfaces. Lower and middle cauline leaves elliptic-oblong, 7–13.5 × 2–5.5 cm, or much larger in size, lyrately pinnatilobed, pinnatifid to pinnatisect, apical lobes larger than the lateral lobes, rarely equal-sized, deltoid, ovate-deltoid, subrhomboid or ovate-lanceolate, apex acute or acuminate, margin shallowly and irregularly dentate-sinuate; lateral segments 1–3 pairs, triangular or elliptic, acute, margin mucronulate. Upper leaves smaller, ovate, elliptic, oblong or ovate-elliptic, acute or acuminate. Capitula homogamous, with all florets ligulate and bisexual, numerous at terminal forming narrow panicle. Peduncles 5–15 mm, bearing few small bracteoles. Involucres ovoid-cylindric, 7–8 mm; phyllaries 4-seriate, pale purplish red; outer ones ovate-triangular, 1–1.5 × 0.5–1.5 mm, acute; middle ones ovate-oblong, 2–3 × 1–1.5 mm, obtuse; inner ones linear-lanceolate, 6–8 × 1.2–1.5 mm, obtuse. Ligulate florets yellow, lower tube densely hairy near summit, ligule 5-toothed at apex. Cypselae elliptic, brown or reddish brown, compressed, each side 3-striate, margin thickly winged, apex with beak 0.1–0.5 mm. Pappus in 2 series, growing on the beak, white, 4–6 mm.

Locality: Ma On Shan. *S. Y. Hu 10554, 12045* (CUHK); *HK sheet 30425.*

Distribution: Widely distributed in S, E, C, N & NE China.

Ecology: Thickets and cultivated areas. Flowering: May–Sep.

6. Lactuca L. 萵苣屬

Annual, biennial or perennial lactiferous herbs. Leaves simple or divided. Capitula homogamous will all florets ligulate, arranged as corymbs or panicles at stem and branch terminals. Involucres ovoid; phyllaries 3–5-seriate, imbricate. Receptacle plain, naked. Ligulate florets about 7–25 per head, yellow, ligule truncate and 5-lobed at apex, bisexual and fertile; anther bases sagittate; stylar branches slender. Cypselae brown, obovate, oblanceolate or elongate-elliptic, compressed, slightly (1 or)3–10-ribbed on each side, apex acute and forming filiform beak usually 2–4 times longer than the cypsela, or sometimes as long as or shorter than the cypsela. Pappus bristles white, in 2 rows, scaberulous or capillary.

About 75 species mainly distributed in N America, Europe, C & W Asia, Mediterranean regions; seven species in China; one species with many cultivars in Hong Kong.

1. Lactuca sativa L. 萵苣 **(Fig. 224; Photo 461)**

Sp. Pl. 785. 1753; S. Y. Hu, Quart. J. Taiwan Mus. 20(1–2): 27. 1967; FRPS 80(1): 233. 1997; FGD 8: 262. 2007.

Annual or biennial lactiferous herbs 25–100 cm tall, glabrous throughout; stem white erect, apically branched. Basal and lower leaves large, undivided, oblanceolate, elliptic-oblanceolate to elliptic, 6–15 × 1.5–7.5 cm, sessile, base cordate or sagittate, semi-amplexicaul, apex obtuse to rounded, margin sinuous or bearing short teeth. Middle and upper leaves with shape similar to the basal and lower ones, or appearing as lanceolate, size gradually smaller when growing upward; the uppermost leaves small, ovate-cordate, sessile, base cordate or sagittate, amplexicaul, margin entire or slightly sinuous. Capitula many, paniculate at stem and branch terminal. Involucres ovoid-cylindric, 10 × 6 mm; phyllaries 5-seriate, apex acute, abaxial side glabrous; outer ones broadly deltoid to ovate, 3–4 × 1.5–2.5 mm; middle and inner ones ovate-lanceolate to lanceolate, 6–10 × 1.5–2 mm. All florets yellow, corolla ligulate, 6–7 mm long, ligule 4–5 mm, apex 5-lobed, lower tube 2 mm, hairy near summit, hermaphrodite and fertile. Cypselae oblanceolate, 4 × 1.3 mm, compressed, pale brown, 6–7-ribbed on each surface, apex acute and beaked, beak filiform, 4–5 mm, equal to or longer than the cypsela body. Pappus bristles in 2 rows, white, scaberulous.

Locality: Cultivated. *Y. S. Lau 2962; HK sheet 16362.*

Distribution: Native to Mediterranean region, cultivated worldwide.

Ecology: Flowering: Feb.–Sep.

Uses: Food (vegetable).

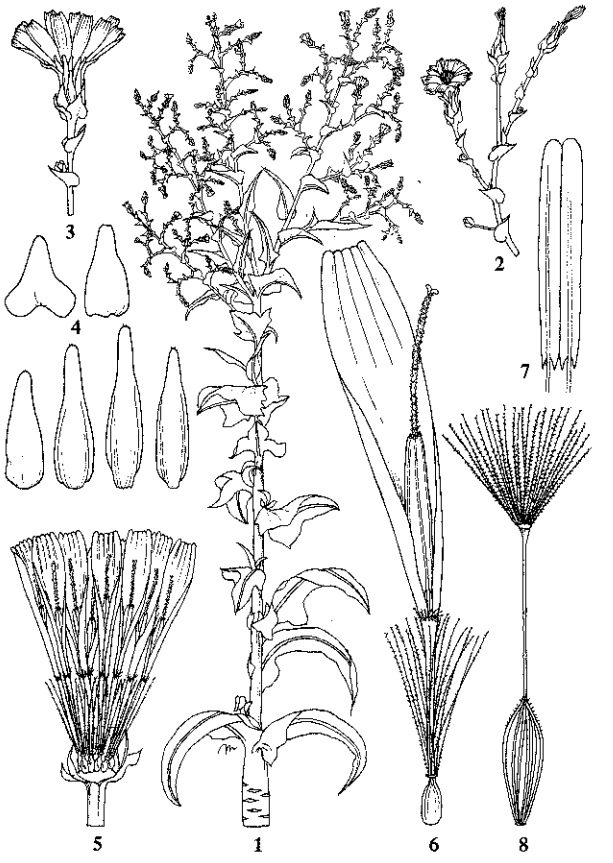


Figure 224. *Lactuca sativa* L.

1. flowering shoot; *2.* flowering branchlet; *3.* capitulum with portion of branchlet; *4.* outermost phyllary to innermost phyllary (top left to low right); *5.* vertical section of capitulum; *6.* floret; *7.* stamens; *8.* cypsela. (drawn by P. Ma)

7. Chorisis DC. 沙苦蕒屬

Perennial glabrous herbs; stem creeping with adventitious roots growing at nodes. Leaves alternate, palmatilobed to palmatisect with 3 or 5 segments, long-petiolate. Capitula homogamous, all florets ligulate and bisexual, axillary, solitary or 2–5 loosely arranged as corymbs. Involucres cylindric; phyllaries 2–3-seriate, outer layers small ovate, inner ones lanceolate. Receptacle plain and nude. Ligulate florets 12–20 per head, corolla yellow, ligule 5-toothed at apex; anther bases sagittate; stylar branches slender. Cypselae brown, fusiform, slightly compressed, obtusely 10-ribbed, glabrous, apex attenuate into thick beak. Pappus in 2 rows, white, scaberulous.

One species only, distributed in Russia, Japan, Korea and China; also in Hong Kong.

1. Chorisis repens (L.) DC. 苦蕒菜 **(Fig. 225; Photo 462)**

Prodr. 7: 178. 1838; FRPS 80(1): 260. 1997.

Prenanthes repens L., Sp. Pl. 798. 1753.

Ixeris repens (L.) A. Gray, Mem. Amer. Acad. n.s. 6: 397. 1858; FHK 194. 1861; S. Y. Hu, Quart. J. Taiwan Mus. 20(1–2): 6. 1967; FTW ed. 2, 4: 1001. 1998; FGD 8: 269. 2007; Check List HK Plants 284. 2002; 97. 2004.

Lactuca repens (L.) Benth. ex Maxim., Bull. Acad. Imp. Sci. Saint-Petersbourg 19: 532. 1874; FKH 150. 1912.

Perennial herbs; stem creeping, up to 2 m or longer, glabrous, forming adventitious roots and long-petiolate leaves at nodes. Leaves thick, broad-ovate, 2.5–3 × 1.5–5 cm, palmatilobed to palmatisect, segments usually 3 or occasionally 5, elliptic, regularly or irregularly orbicular, apex rounded or broadly obtuse, margin mucronulate, shallowly sinuate or sometimes with an obtuse tooth

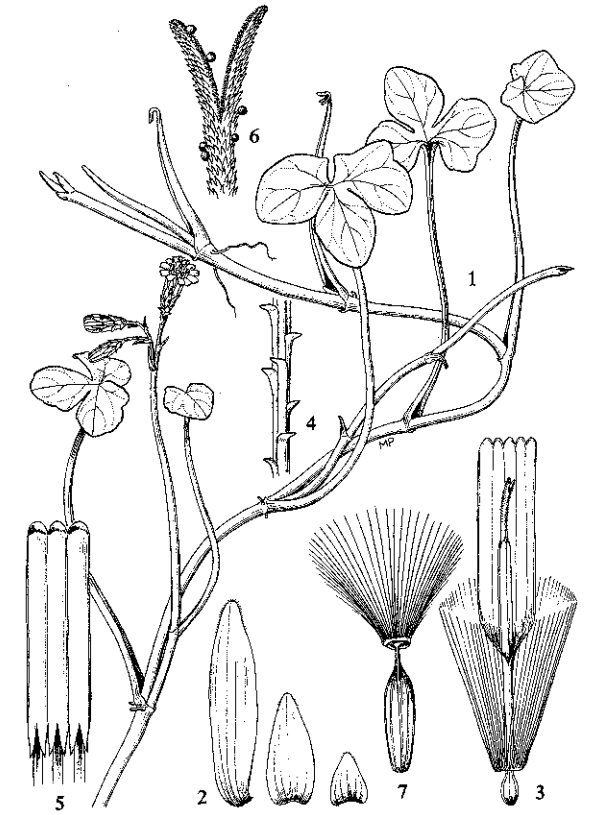


Figure 225. *Chorisis repens* (L.) DC.

1. creeping plant; *2.* outer phyllary to inner phyllary (right to left); *3.* floret; *4.* portion of pappus bristle; *5.* stamens; *6.* stylar branches; *7.* cypsela. (drawn by P. Ma)

or a small elliptic lobe on one side, both surfaces glabrous; petioles 1.5–6.5 cm, base clasping. Flowering branch axillary, 3–5.5 cm, bearing ovate-oblong bracteoles, with 2–6 capitula arranged as loose corymbs. Capitula homogamous with all florets ligulate and hermaphrodite; peduncles 0.8–1.5 cm. Involucres cylindric, 10–12 mm; phyllaries glabrous abaxially, slightly ciliate and sometimes tinged purple near apex, 2–3-seriate; outer two layers ovate or elliptic, 3–6 × 1.2–1.8 mm, apex acute or acuminate; inner layer lanceolate-oblong, 10–12 × 2–2.5 mm, acute. Ligulate florets 12–20 per head, corolla yellow, about 10–11 mm, lower tube 4 mm, ligule 6–7 mm, 5-lobed at apex. Cypselae fusiform, brown, slightly compressed, 4 × 1 mm, glabrous, obtusely 10-ribbed, apex attenuate into a thick beak about 0.5–1 × 0.2–0.3 mm. Pappus growing on the beak, white in colour, 5 mm, minutely scaberulous.

Locality: Common in Hong Kong. *Y. W. Lam 465; HK sheet 16359; S. Y. Hu 12472* (CUHK).

Distribution: Widely distributed in S, E, N & NE China; also in Japan, Korea, Russia (Far East region).

Ecology: Sandy beaches. Flowering: Apr.–Oct.

8. Ixeris Cass. 苦蕒菜屬

Annual or perennial lactiferous herbs, usually glaucous. Radical leaves persistent at anthesis, long-petiolate; cauline ones alternate. Capitula homogamous with all florets ligulate and hermaphrodite, corymbose at terminal. Involucres cylindric or campanulate at flowering stage, sometimes becoming ovoid when fruiting; phyllaries in 2–3 series, herbaceous, glabrous. Receptacle plain, naked. Ligulate florets 10–30 per head, corolla yellow, white or purple, ligule 5-toothed at apex; anther bases sagittate, stylar branches slender. Cypselae compressed, brown, fusiform or elliptic, acutely and sharply 10-ribbed as wings, glabrous, apex attenuate into filiform beak, shorter than the cypsela body. Pappus 2-seriate, white, unequal in length, scaberulous.

About 20 species distributed in E to S Asia; four species in China; two species in Hong Kong.

1a. Cauline leaf base broaden, sagittate and semi-amplexicaul; all leaves non-divided with margin entire; involucres 5–7 mm long; cypsela beak with length 1–1.2 mm; pappus 3 mm ..... 1. *I. polycephala*

1b. Cauline leaf base narrowed, neither widen nor sagittate, non-amplexicaul; leaves entire, toothed, pinnately to lyrate-pinnately divided; involucres 12–14 mm long; cypsela beak with length 2 mm; pappus 6.5–7 mm ..... 2. *I. japonica*

1. Ixeris polycephala Cass. 多頭苦蕒菜

Dict. Sci. Nat. 24: 50. 1822; S. Y. Hu, Quart. J. Taiwan Mus. 20(1–2): 6. 1967; FRPS 80(1): 243. 1997; FTW ed. 2, 4: 998. 1998; FGD 8: 271. 2007.

Annual or perennial herbs; stem erect, 10–80 cm tall, branched, glabrous. Leaves glabrous above and beneath, margin entire or loosely mucronulate near base. Basal leaves linear or linear-lanceolate, 6–12 × 0.5–0.8 cm, base attenuate to the short petiole, apex acute. Lower and middle cauline leaves sessile, linear or lanceolate, 5–24 × 1.2–3 cm, sagittate and semi-amplexicaul basally, acute apically. Upper leaves gradually smaller in size when growing upward. Capitula many, corymbose or in false umbelliform at terminal, nodding after anthesis; peduncle 5–10 mm, having few bracteoles 0.5–2 mm. Involucres cylindric, 5–7 × 2.5–3.5 mm, becoming ovoid upon fruiting; phyllaries 2–3-seriate; outer 1–2 layers tiny, ovate, 0.5–0.8 × 0.2–0.3 mm, acute, inner ones in one row, lanceolate, 5–6 × 1.1–1.5 mm, acute or obtuse, margin membranous, abaxial side sometimes with cristate appendages near apex. Ligulate florets 10–25 per head, corolla yellow, rarely white, 4–4.5 mm. Cypselae fusiform, 2.5 × 0.8 mm, brown, glabrous, sharply and acutely 10-ribbed as wings, apex acute and rostrate, rostrum 1–1.2 mm, filiform. Pappus 3 mm, white, scaberulous, persistent.

Locality: Sai Kung, Fanling. *Y. W. Lam 490*; *S. Y. Hu 6941, 10008* (CUHK).

Distribution: Distributed in S, SW, C & E China; also in Korea, Japan, India.

Ecology: Cultivated lands, wastelands. Flowering: Mar.–Jul.

Uses: Medicinal (folklore).

2. Ixeris japonica (Burm. f.) Nakai 剪刀股 **(Photos 463–464)**

Bot. Mag. Tokyo 40: 575. 1926; FRPS 80(1): 242. 1997; FGD 8: 270. 2007.

Lapsana japonica Burm. f., Fl. Ind. 174. 1768.

Lactuca debilis (Thunb.) Benth. ex Maxim., Bull. Acad. Imp. Sci. Saint-Petersbourg 19: 533. 1874; FKH 150. 1912.

Ixeris debilis A. Gray, Mem. Amer. Acad. Arts, n.s. 6(2): 397. 1858; Benth., FHK 193. 1861.

Lactuca stolonifera auct. non A. Gray: FKH 150. 1912.

Perennial herbs. Stem base creeping and forming adventitious roots at nodes, upper part erect, 12–35 cm tall. All leaves glabrous above and beneath. Radical leaves persistent at anthesis, spatulate-oblanceoalte or ligulate, 3–17 × 1–3.5 cm, base narrowed into long petiole, margin entire, toothed, pinnatilobed, pinnatifid, or lyrately pinnatilobed to pinnatifid, apical lobes elliptic or obovate, apex obtuse or rounded, mucronulate; lateral segments 1–3 pairs, obliquely triangular or elliptic, acute or obtuse. Cauline leaves few, similar to the basal ones, or appearing narrowly elliptic or oblanceolate, base narrowed, sessile or shortly petiolate. Upper leaves small, ovate. Capitula corymbose at terminal. Involucres campanulate, 12–14 × 7 mm; phyllaries 2–3-seriate; outer 1–2 layers ovate, 2–5.5 × 1–1.5 mm, acute; inner ones oblong-lanceolate or lanceolate, 12–14 × 2–3 mm, obtuse, abaxial side glabrous, sometimes with crested appendages near apex. Ligulate florets 24 per head, corolla yellow, 12–15 mm. Cypselae brown, fusiform, 5–6 × 1 mm, glabrous, sharply and acutely 10-ribbed as wings, apex acute and bearing filiform beak 2 mm. Pappus 6.5–7 mm, white, scaberulous.

Locality: Common in Hong Kong. *Y. S. Lau 3249; Y. W. Lam 467; S. Y. Hu 10113* (CUHK).

Distribution: Distributed in S, E, C & NE China; also in Korea, Japan.

Ecology: Cultivated lands, wastelands. Flowering & fruiting: Mar.–Jun.
Uses: Medicinal (folklore).

9. Ixeridium (A. Gray) Tzvelev 小苦荬屬

Perennial herbs; stem mostly erect, sometimes stoloniferous, branched. Leaves pinnately divided or simple, basal ones persistent at flowering stage. Capitula homogamous with all florets ligulate and bisexual, corymbose at terminal. Involucres cylindric; phyllaries 2–4-seriate. Ligulate florets (5–)7–27 per head, corolla yellow, rarely white or purplish red; stylar branches slender; anther bases sagittate. Cypselae brown, rarely black, obtusely 8–10-ribbed, hirtelleous along ribs particularly in upper portion, apex acute and forming filiform beak. Pappus white or brownish, scaberulous.

About 20–25 species, distributed in E to SE Asia; about 13 species in China; two species in Hong Kong.

1a. Basal and stem leaves linear-lanceolate, margin entire ..... 1. *I. gracile*
1b. Basal leaves narrowly elliptic or oblanceolate, margin toothed or pinnatilobed ..... 2. *I. chinense*

1. Ixeridium gracile (DC.) J. H. Pak & Kawano 纖細苦荬菜
Mem. Fac. Sci. Kyoto Univ., Ser. Biol. 15(1–2): 45. 1992.

Ixeridium gracile (DC.) Shih, Acta Phytotax. Sin. 31: 545. 1993; FRPS 80(1): 257. 1997.

Ixeris gracilis (DC.) Stebbins, J. Bot. 75: 50. 1937; FGD 8: 273, fig. 166. 2007; Check List HK Plants 284. 2002; 97. 2004.

Lactuca gracilis DC., Prodr. 7: 140. 1838; FHN 3: 427. 1974.

Perennial herbs, 15–50 cm tall, glabrous. Stem erect, slender, apically many-branched. Basal leaves rosulate, with winged petiole; leaf blade linear to linear lanceolate, 7–15 cm × 5–9 mm, margin entire, narrowed towards both ends. Cauline leaves few, linear to linear-lanceolate, base sessile. Capitula numerous, terminal, corymbose to corymbose-paniculate, with ca. 6 florets. Involucre very small, cylindric, ca. 6 mm. Phyllaries in 2 rows, abaxially glabrous; outer phyllaries 2 or 3, ovate, less than ca. 1 × 0.5 mm; inner phyllaries linear-elliptic, ca. 6 × 0.8 mm. Florets yellow. Achenes brown, narrowly pyramidal, ca. 3 mm, with 10 slender rib or lines, apically gradually narrowed into a filiform ca. 1 mm curved beak. Pappus brown to pale yellow, ca. 3 mm, scabridulous.

Locality: Sai Kung. *Y. W. Lam 488.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Shaanxi, Gansu, Hubei, Hunan, Jiangxi, Zhejiang; Myanmar, India, Bhutan, Nepal.

Ecology: Cultivated areas, wastelands. Flowering & fruiting: Mar.–Oct.
Uses: Medicinal (folklore).

2. Ixeridium chinense (Thunb.) Tzvelev
中華小苦荬(山苦荬) **(Fig. 226; Photo 465)**
Fl. URSS 29: 390. 1964; FRPS 80(1): 251. 1997.

Prenanthes chinensis Thunb., Fl. Jap. 310. 1784.

Lactuca chinensis (Thunb.) Nakai, Bot. Mag. Tokyo 17: 89. 1903.

Ixeris chinensis (Thunb.) Nakai, Bot. Mag. Tokyo 34: 152. 1920; S. Y. Hu, Quart. J. Taiwan Mus. 20(1–2): 1. 1967; FTW ed. 2, 4: 996. 1998; FGD 8: 271. 2007; Check List HK Plants 283. 2002; 97. 2004.

Ixeris versicolor auct. non DC.: FHK 193. 1861.

Lactuca versicolor auct. non Sch.-Bip.: FKH 150. 1912.

Perennial herbs; stem erect, 15–60 cm tall, branched apically. Leaves glabrous on both surfaces. Basal leaves narrowly elliptic, linear or oblanceolate, 8–23 × 0.3–2 cm, base narrowed down as winged petiole, apex acute, obtuse or attenuate, margin subentire or toothed, undivided, or sometimes pinnatilobed, pinnatifid to pinnatisect with lateral segments 2–7 pairs; segments triangular, linear-triangular or linear, the middle segments largest, becoming smaller towards both ends. Cauline leaves few, about 2–4, rarely none, lanceolate or oblong-lanceolate, 5–9 cm, undivided or pinnatifid, margin entire or mucronate-dentate, base slightly to broadly widen and auriculate, amplexicaul, apex acuminate. Upper leaves bract-like. Capitula erect at maturity, homogamous with all florets ligulate and bisexual, corymbose at terminal. Involucres cylindric, about 7–9 mm; phyllaries 3–4-seriate, glabrous; outer layers ovate, 1–1.8 × 0.8–1 mm, acute; inner layers oblong-lanceolate, 7–9 × 1–2 mm, acute or obtuse, margin

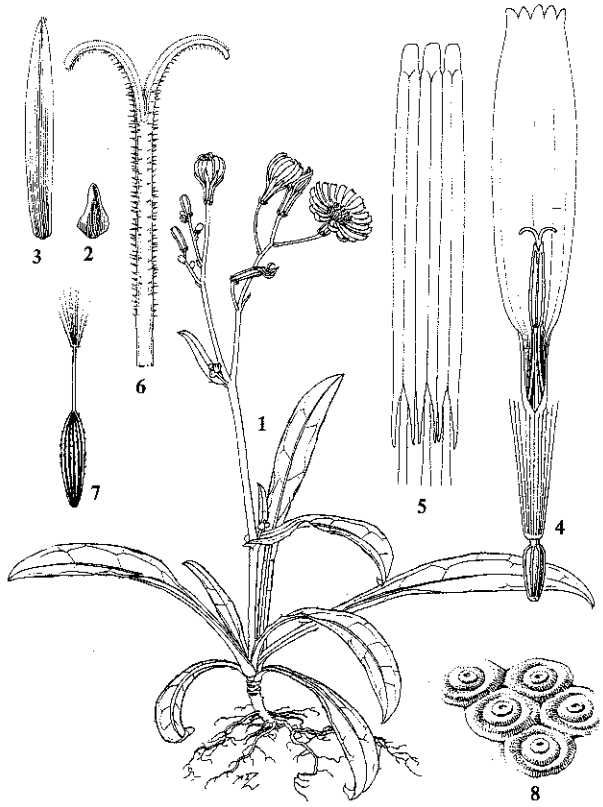


Figure 226. *Ixeridium chinense* (Thunb.) Tzvelev
1. flowering plant; *2–3.* outer and inner phyllaries; *4.* floret; *5.* stamens; *6.* stylar branches; *7.* cypsela; *8.* portion of receptacle. (drawn by X. L. Zeng)

scarious. Florets 21–25 per head, corolla yellow, 7–10 mm. Cypselae brown or reddish brown, narrowly elliptic, 2.8–4 × 0.3–0.6 mm, obtusely 10-ribbed, minutely hirtellous along ribs particularly the upper portion, apex acute and beaked, the beak filiform, 1.8–2.8 mm. Pappus 3–4 mm, white, scaberulous.

Locality: Hong Kong Island, Shing Mun, Fanling, Pat Sin Leng, Sai Kung. *P. S. Choi 423; Y. W. Lam 486; S. Y. Hu 10067*(CUHK).

Distribution: Widely distributed in China; also in Japan, Korea, Russia (Far East region).

Ecology: Cultivated lands, wastelands. Flowering & fruiting: Mar.–Nov.

Uses: Medicinal (folklore).

10. Paraixeris Nakai 黃瓜菜屬

Annual or biennial herbs; leaves alternate, simple or pinnatipartite; radical ones withered at anthesis, rarely persistent. Capitula homogamous with all florets ligulate, arranged as corymbs or corymbose panicles at terminal. Involucres cylindric; phyllaries 2–3-seriate, with or without spongy thickening along midvein. Receptacle plain, naked. Ligulate florets 5–19 per head, corolla yellow or orange-yellow; stylar branches slender; anther bases sagittate. Cypselae mostly black or blackish brown, fusiform, elliptic or elliptic-oblong, 10–12-ribbed, minutely hirtellous along ribs especially on upper portion, apex attenuate, forming thick rostrum. Pappus in one series, white, finely scaberulous, deciduous.

About eight to ten species distributed in E to SE Asia; six species in China; one species in Hong Kong.

1. Paraixeris denticulata (Houtt.) Nakai
黃瓜菜 **(Fig. 227; Photo 466)**

Bot. Mag. (Tokyo) 34: 156. 1920; FRPS 80(1): 262, pl. 1: 3, pl. 58: 1–2. 1997.

Prenanthes denticulata Houtt., Nat. Hist. 10: 385. 1779.

Youngia denticulata (Houtt.) Kitam., Acta Phytotax. Geobot. 11(2): 128. 1942.

Ixeris denticulata (Houtt.) Stebbins, J. Bot. 75: 46. 1937; S. Y. Hu, Quart. J. Taiwan Mus. 20(1–2): 2. 1967.

Lactuca denticulata (Houtt.) Maxim., Mélanges Biol. Bull. Phys.-Math. Acad. Imp. Sci. Saint-Pétersbourg 19: 529–530. 1874; FKH 150. 1912.

Ixeris ramosissima A. Gray, Mem. Amer. Acad.Arts n.s. 6: 397; FHK 193. 1861.

Brachyramphus ramosissimus Benth., London J. Bot. 1: 489. 1842.

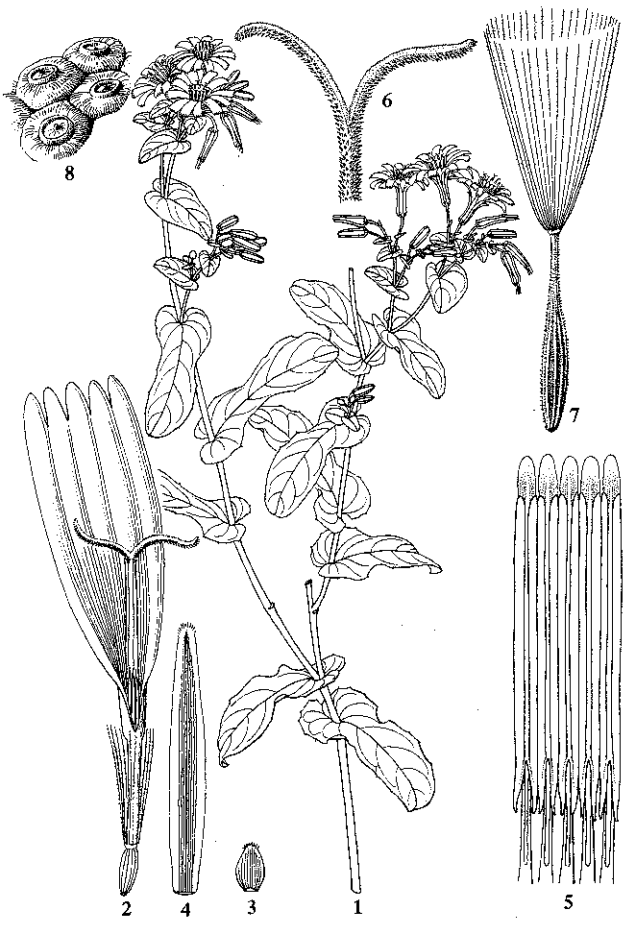


Figure 227. *Paraixeris denticulata* (Houtt.) Nakai
1. flowering branch; *2.* floret; *3–4.* outer and inner phyllaries; *5.* stamens; *6.* stylar branches; *7.* cypsela; *8.* portion of receptacle. (drawn by X. L. Zeng)

Annual or biennial herbs; stem erect, 30–120 cm tall, branched in apical half, glabrous. Leaves glabrous on both surfaces. Radical and lower leaves ovate with margin irregularly dentate, or oblanceolate and lyrately pinnatisect, long-petiolate, withered at flowering stage. Middle cauline leaves mostly sessile or sometimes broadly winged petiolate; leaf blade spatulate, pandurate, pandurate-ovate, elliptic, oblong or lanceolate, 3.5–11 × 1–7 cm, undivided or sometimes lyrately pinnatilobed with 1–2 pairs of elliptic or triangular lateral lobes, base abruptly broaden as round auricles and amplexicaul, apex obtuse to rounded, and usually mucronate, margin entire, mucronate-toothed, or irregularly dentate. Upper leaves sessile, smaller in size, elliptic, oblong to ovate-cordate, base auriculate and amplexicaul. Capitula corymbose-paniculate; peduncles 4–12 mm. Involucres cylindric, 6–8 mm, 1.5–2 mm wide; phyllaries in 2 series, glabrous; outer ones small ovate, 0.5–1 × 0.3–0.5 mm, apex acute; inner ones lanceolate to linear, 6–8 × 0.8–1.5 mm, acute or obtuse, abaxial side with spongy thickening along midvein, sometimes bearing horn-like structure below apex. Ligulate florets 10–15 per head, corolla yellow, 7–8 mm, lower tube about 2.5 mm, upper ligule 4–6 mm, apex 5-lobed. Cypselae cylindric-elliptic, black or blackish brown, 3.2–5 mm including the apical beak, obtusely 10–11-ribbed, hirtellous along ribs, apex attenuate to form a thick and brown beak. Pappus white, minutely scaberulous, 3–4 mm.

Locality: Common in Hong Kong. *L. T. Lo 524; Y. W. Lam 779; S. Y. Hu 8579* (CUHK).

Distribution: Widely distributed in China; Russia (Far East region), Mongolia, Korea, Japan.

Ecology: Margins of forests, open fields and wastelands. Flowering & fruiting: Apr.–Nov.

11. Xanthium L. 蒼耳屬

Coarse annual erect herbs; stem branched, sometimes spiny. Leaves alternate, petiolate, toothed or lobed. Capitula unisexual and monoecious, the male ones at the apical portion of the branch, and the female ones axillary to leaves. Staminate heads globose; involucres broadly hemispherical; phyllaries in 1–3 series, separate, oblong-lanceolate; receptacle cylindric, with paleae enclosing the tubular male florets; corolla tubular and apically 5-lobed; anthers free, apex curved inward, obtuse at base, filaments united into a tube and enclosing the rudimentary style; style undivided with the apical end broadened and pilose. Pistillate heads sessile or with a short stipe, ovoid-oblong; outer phyllaries small, linear; inner phyllaries coriaceous, appeared as an ovoid, hooked and 2-beaked bur in which 2 florets are enclosed; receptacle microscopic, corolla none with only the pistil; stylar branches long and exposed outside the bur. Cypselae 2 per capitulum, ellipsoidal, enclosed in the prickly bur; pappus absent.

About 25 species originally from America, now distributed in most tropical and temperate regions; three species and one variety in China; one species in Hong Kong.

1. **Xanthium sibiricum** Patrin ex Widder
蒼耳 **(Fig. 228; Photo 467)**

Repert. Spec. Nov. Regni Veg. Beih. 20: 32. 1923; FRPS 75: 325, pl. 55: 1–10. 1979; FGD 8: 142, fig. 76. 2007.

Xanthium strumarium L., Sp. Pl. 987. 1753; FHK 181. 1861; FKH 144. 1912; FTW ed. 2, 4: 1098, pl. 524, photo 501. 1998.

Annual herbs 0.5–1.5 m tall; stem pubescent. Leaves broadly ovate-deltoid, median ones 3.5–15 × 3–16.5 cm, 3- or 5-lobed, base cordate to broadly cuneate, apex acute to obtuse, margin irregularly dentate, both surfaces scabrous. Petioles 1.5–16 cm, scabrous. Capitula monoecious. Male head globose, 4–7 mm across, sessile or shortly pedunculate, shorter than 6 mm, densely pubescent and glandular. Phyllaries 1-seriate, oblanceolate-oblong, 1.5–2.5 mm, densely hairy and glandular, apex obtuse-rounded. Receptacle cylindric. Paleae oblanceolate with length 2.2–2.5 mm, acute, hairy and glandular near apex. Male florets numerous, corolla tubular, bell-shaped, 2–3 mm, apex 5-lobed, white or greenish white, hairy and glandular in apical 1/3; anthers free and curved inward, conspicuously exserted. Female heads axillary; phyllaries in 1 row, linear, 2.5–3 mm, hairy; inner phyllaries hard, appeared as a bur with 2 female florets enclosed inside. The bur elliptic, green or yellow-green, narrowed at base forming a short stipe, 2-beaked apically, 1–2.3 cm including the stipe and beaks, 4–7 mm wide, the beak 2–7 mm in length, pubescent throughout and bearing hooked prickles of 1.2–4 mm. Receptacles microscopic. Female florets without corolla, with only the pistils; stylar branches long and exposed outside the bur. Cypselae 2 per each capitulum, obovate.

Locality: Common in Hong Kong. *Y. S. Lau 1426, 2785; S. Y. Hu 12134* (CUHK).

Distribution: Widely distributed in China, Japan, Korea, Russia, Iran, India.

Ecology: Wastelands, roadsides near villages. Flowering & fruiting: May–Sep.

Uses: Material (seed oil used in industry), medicinal (folklore).

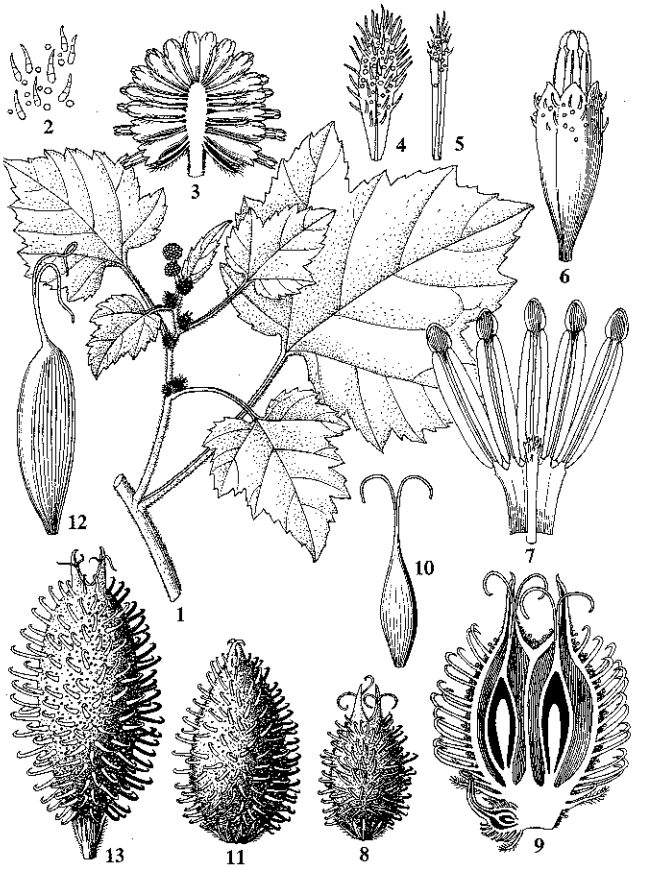


Figure 228. *Xanthium sibiricum* Patrin ex Widder
1. flowering shoot; *2.* trichomes of straight hair and glands on surface of leaf; *3.* vertical section of male capitulum; *4.* phyllary; *5.* palea; *6.* male floret; *7.* male floret with corolla removed and the stamens opened; *8.* female capitulum when anthesis; *9.* vertical section of female capitulum; *10.* pistil; *11.* mature bur; *12.* mature fruit dissected out of a bur; *13.* another bur showing its larger size, elliptic-oblong shapes and a stipe above involucre. (drawn by X. L. Zeng)

12. Galinsoga Ruiz & Pav. 牛膝菊屬

Annual herbs. Leaves opposite. Capitula small, radiate, heterogamous, usually arranged as loose corymbs. Involucres hemispherical or broad campanulate; phyllaries about 5 in 1–2 series, membranous or with the outer series thinly herbaceous. Receptacle conical or elongate, paleate. All florets fertile. Female ones 4–5 in one row, corolla ligulate, spreading, white, entire or 2–3-lobed. Disk ones numerous bisexual, corolla tubular, yellow, apex 5-lobed; anther bases sagittate with small auricles. Cypselae ribbed, obovate-deltoid, pubescent. Pappus scarious, oblong and fimbriate.

About 14 species mainly native to tropical America; one species in Hong Kong.

1. Galinsoga parviflora Cav. 牛膝菊 **(Fig. 229; Photo 468)**
Icon. 3(2): 41, pl. 281. 1795; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 267. 1966; FRPS 75: 384, pl. 66: 5–8. 1979; FTW ed. 2, 4: 967. 1998.

Annual herbs 10–70 cm tall; stem branched especially near the bottom, subglabrous below, pilose and stipitate glandular in upper portion. Leaves opposite; petioles 0.3–1.5 cm; leaf blade ovate, 1.8–4.8 × 0.4–3.4 cm, gradually smaller when growing upward, base rounded or cuneate, apex acute, both surfaces pilose, hair multicellular, denser along margin and veins, margin shallowly serrate or undulate-serrate, sometimes entire. Capitula radiate, heterogamous, arranged as loose corymbs at terminal. Peduncles 1–2.5 cm, densely pilose and stipitate glandular. Involucres hemispherical, 3–4 mm across; phyllaries 1–2-seriate; outer ones smaller, ovate, 2–2.5 × 1–1.2 mm, puberulent; inner ones ovate-oblong, 3 × 2 mm, glabrous on abaxial surface; both membranous, ciliate along margin, and with obtuse apices. Receptacle conical, usually with phyllaries shed off upon fruiting stage. Paleae oblanceolate-oblong, acute, about 3 × 1 mm, ciliate along margin especially at apical half. Marginal ligulate florets 5, female, white, 2.3–2.5 mm, ligule suborbicular with apex deeply 3-lobed, lobes obtuse, corolla tube elongate and densely pilose. Disk tubular florets many, bisexual, yellow, 1–1.5 mm, densely pubescent on lower part, apex 5 deltoid lobes. Cypselae black or blackish brown, obovate-oblong to obovate-deltoid, 1.5–2 mm, 3-ribbed or those developed from disk florets 4–5-ribbed, pubescent. Pappus scarious, white, linear-lanceolate, unequal in length with about 0.5–1.2 mm, apex aristate, margin fimbriate.

Locality: Naturalized. *Y. S. Lau 3055; S. Y. Hu 9437; HK sheet 38970.*

Distribution: Native to S America, widely naturalized in tropical and subtropical regions.

Ecology: Wastelands, margins of farmlands. Flowering & fruiting: Nearly all year round.

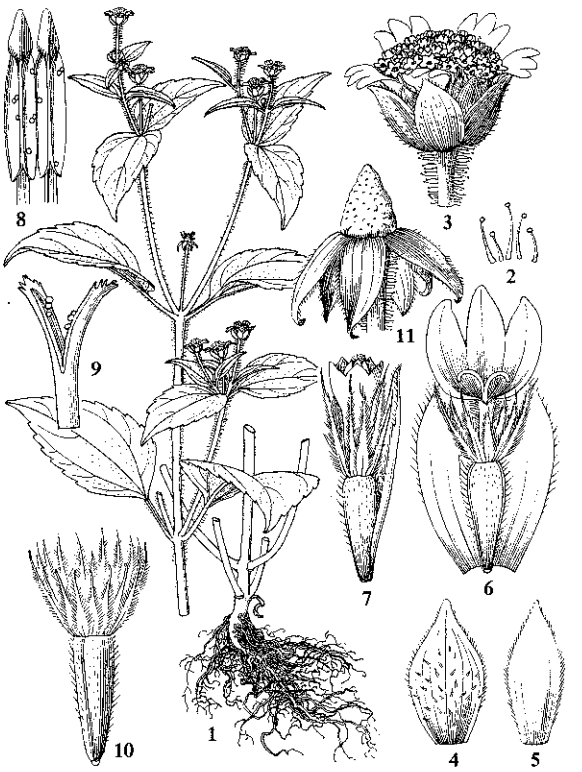


Figure 229. *Galinsoga parviflora* Cav.
1. root and flowering branch of plant; *2.* hairs on peduncle; *3.* capitulum; *4.* outer phyllary; *5.* inner phyllary; *6.* ray floret; *7.* disk floret; *8.* apical portion of stamens; *9.* stylar branches of disk floret; *10.* cypsela; *11.* capitulum after fruit dispersal. (drawn by X. L. Zeng)

13. Tridax L. 羽芒菊屬

Perennial herbs. Leaves opposite, incised-toothed or pinnatisect. Capitula few, heterogamous and radiate, solitary or in cymose form, long-pedunculate. Involucres ovoid or campanulate; phyllaries 2–5-seriate, outer 1–2 layers herbaceous, innermost scarious, longer and narrower. Receptacle flat or convex; paleae scarious. All florets fertile. Marginal florets in 1 row, female, corolla white, yellow or purplish, ligulate, or 2-lipped with the outer lip larger, 3-cleft, and the inner tiny lip 2-lobed or unlobed. Central florets many, bisexual, corolla tubular, 5-dentate apically, yellow or green; anther bases sagittate, apical appendages oblong-ovate; stylar branches rough hairy, subulate at apex. Cypselae oblong-cuneate or subcylindric, hairy. Pappus plumose.

About 26 species native to tropical America; one species in China and in Hong Kong as a common weed.

1. Tridax procumbens L. 羽芒菊 **(Fig. 230; Photo 469)**
Sp. Pl. 900. 1753; S. Y. Hu, Quart. J. Taiwan Mus. 22(1–2): 15. 1969; FRPS 75: 385, pl. 65: 5–7. 1979; FGD 8: 138, fig. 74. 2007; FTW ed. 2, 4: 1084, pl. 517, photo 493. 1998.

Perennial herbs; stem slender and decumbent, 15–50 cm, branched near the base, pilose. Petiole short, 0.3–1 cm. Leaves ovate or ovate-lanceolate, 1.5–4.5 × 0.8–3 cm, base cuneate or

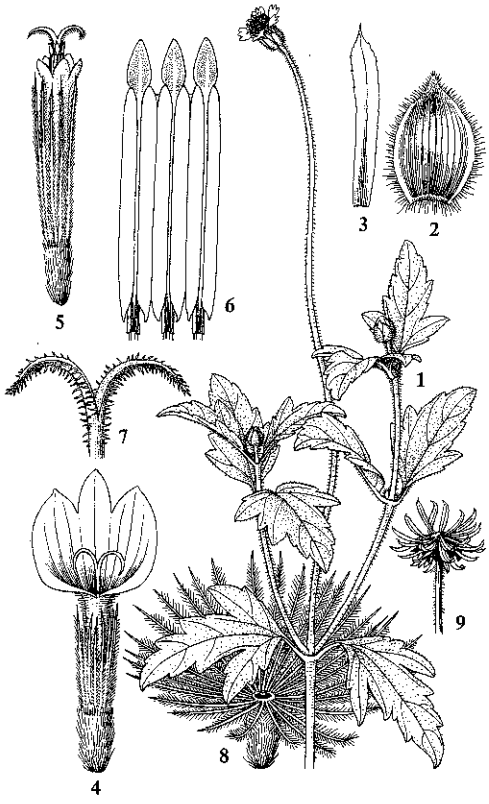


Figure 230. *Tridax procumbens* L.
1. flowering shoot; *2.* phyllary; *3.* palea; *4.* marginal floret; *5.* disk floret; *6.* anthers; *7.* stylar branches of disk floret; *8.* cypsela when fruit dispersal; *9.* capitulum after fruit dispersal. (drawn by X. L. Zeng)

attenuate, apex acute, margin irregularly serrate with tooth size uneven, usually with 1–2 pairs of shallow lobes near base, pilose on both surfaces. Capitula 1–1.5 cm across, solitary. Peduncle 8–23 cm. Involucres campanulate, 7–8 × 6 mm; phyllaries 2–3-seriate, acute or abruptly acute, outer 1–2 layers herbaceous green, tinged purple, strongly pilose; the outermost ones ovate, 5–6 × 2 mm; the median ones ovate-oblong, longer and broader, 7 mm × 3 mm, with scarious purplish margin; the innermost scarious, oblong, 7–8 mm × 2.5 mm, purplish, less hairy. Receptacle convex, paleae persistent, linear, 7–8 × 1.2 mm, acuminate, slightly serrulate near apex, hyaline, shinny, yellowish to brownish purple apically and along midvein, hairy at apical portion. Marginal ligulate florets 5 or 6 in one row, pistillate, corolla pale yellow or cream white, ligule elliptic, 4 × 3 mm, apex deeply 2–3-lobed, acute, with 3 longitudinal lines of hair on the abaxial side, tube elongate, 3–3.5 mm, pubescent. Disk tubular florets many, hermaphrodite, corolla yellow, narrowly trumpet-shaped, 6–7 mm, distal end 5-lobed, hairy outside. Cypselae brown, oblong-cuneate, 2–2.5 mm, densely silky hairy. Pappus unequal in length, about 5–7 mm, spreading, plumose, yellowish or brownish.

Locality: Naturalized and widely distributed in Hong Kong. *Y. S. Lau 1432; H. Y. Yeung 528; S. Y. Hu 6790* (CUHK).

Distribution: Native to tropical America, distributed in S & SE China as well as Asia.

Ecology: Wastelands, roadsides near villages. Flowering: Nov.–Apr. of the following year.

14. Zinnia L. 百日菊屬

Annual or perennial herbs, or subshrubs. Leaves opposite, entire, sessile. Capitula radiate and heterogamous, solitary and terminal on branches. Involucres campanulate; phyllaries in 3 or more series, imbricate, broad and scarious along margin. Receptacle conical or cylindric, chaffy with the palea enclosing the disk florets. Florets all fertile. Marginal ray florets 1-seriate, or many-seriate in cultivated form, female, corolla tubes short, ligules spreading. Central tubular florets many, hermaphrodite, corolla 5-lobed. Stylar branches acute or truncate at apex; anther base entire. Cypselae flattened, subtruncate or obtuse, angulate, with the corolla persistent upon fruiting stage. Pappus none or of 1–3 awns.

About 17 species concentrated in Mexico; one species introduced in Hong Kong for ornamental purposes.

1. Zinnia violacea Cav. 百日菊(魚尾菊) **(Fig. 231)**

Icon. 1(3): 57, pl. 81. 1791; C. M. Hu, Check List HK Plants 290. 2002.

Zinnia elegans Jacq., Coll. Bot. 3: 152. 1789; S. Y. Hu, Quart. J. Taiwan Mus. 22(1–2): 39. 1969; FRPS 75: 336. 1979; FGD 8: 118, fig. 57. 2007.

Annual herb 30–100 cm tall; stem erect, sparingly branched, striate, scabrous. Leaves ovate-lanceolate to ovate-triangular, 3–7 × 1–3 cm, base subcordate, somewhat amplexicaul, sessile, apex acute or acuminate, scaberulous on both surfaces and along margin, entire, trinerved. Capitula heterogamous, radiate, 4–6 cm across, solitary and terminal. Involucres campanulate; phyllaries 3–4-seriate, tricolour, margin black, rounded and hairy along apex; outermost broadly ovate or suborbicular, 4–5 × 2–4 mm; innermost obovate-oblong, 9–10 × 4–5 mm. Receptacle conical; palea with purplish red, triangular and fimbriate appendages at apical end. Ligulate florets variously coloured, white, orange, red to purple, ligules oblanceolate to spatulate, 1.4–3 cm, entire or 2-lobed at apex, scaberulous on both surfaces and along margin, glandular on lower side; style exposed, about 1 cm, branches 5 mm. Disk tubular florets yellow to orange, 7–8 mm, 5 apical lobes ovate-lanceolate, yellowish hairy; anthers included, base obtuse, apical appendages ovate-deltoid; stylar branches elongate, apical appendage penicillate. Cypselae compressed, that developed from ray florets obovate, 6–7 × 4–5 mm, ribbed in the middle and along both margins; those from disk florets obovate-trigonous, 7–8 × 3–4 mm; both hairy and with remnant of corolla attached. Pappus reduced to 2 teeth or absent.

Locality: Cultivated in gardens. *S. Y. Hu 12297* (CUHK); *H. Y. Yeung 181* (CUHK).

Distribution: Native to Mexico, widely cultivated elsewhere.

Ecology: Flowering: Jul.–Oct.

Uses: Ornamental.

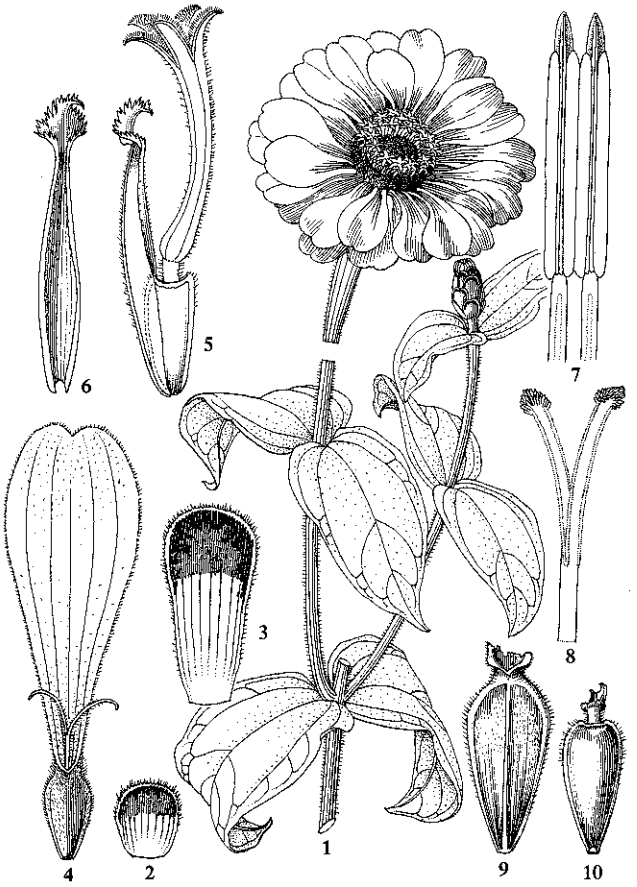


Figure 231. *Zinnia violacea* Cav.

1. flowering branch; *2.* outer phyllary; *3.* inner phyllary; *4.* ray floret; *5.* disk floret subtended by palea; *6.* adaxial view of palea; *7.* stamens; *8.* stylar branches of disk floret; *9.* cypsela developed from ray floret; *10.* cypsela developed from tubular floret. (drawn by X. L. Zeng)

15. Tithonia Desf. ex Juss. 腫柄菊屬

Large annual or perennial erect herbs or shrubs. Leaves alternate in upper stem, opposite near base, simple or 3–5-lobed, trinerved. Capitula heterogamous, radiate, usually solitary; peduncle inflated apically. Involucres hemispherical or broadly campanulate; phyllaries in 2–4 series, bearing many longitudinal lines, hardened below, herbaceous or membranous above. Receptacle convex, paleate; the paleae acuminate to aristate-acuminate, flat or slightly enclosing the achenes. Marginal florets in 1 row, female or neutral, corolla ligulate and spreading, entire or 2–3-lobed at apex. Disk florets many, bisexual and usually fertile, corolla tubular, 5-cleft at apex; anther tube exserted, base sagittate and obtuse, apical appendages ovate-oblong, obtuse; stylar branches terminated by acute-lanceolate hairy appendages. Cypselae oblong or obovate, compressed, 4-ribbed, pubescent. Pappus coronate scales, sometimes together with 1–2 awns.

About ten species native to C America and Mexico; one species cultivated in China and in Hong Kong.

1. Tithonia diversifolia (Hemsl.) A. Gray
腫柄菊 **(Fig. 232; Photo 470)**

Proc. Amer. Acad. Arts 19: 5. 1883; S. Y. Hu, Quart. J. Taiwan Mus. 22(1–2): 13. 1969; FRPS 75: 356, pl. 59: 1–2. 1979; FGD 8: 120, fig. 59. 2007; FTW ed. 2, 4: 1083. 1998.

Mirasolia diversifolia Hemsl., Biol. Cent.-Amer., Bot. 2(8): 168, pl. 47. 1881.

Large shrub-like perennial herbs, 2–3 m tall; stems striate, puberulent in upper younger part. Leaves alternate in upper stem portion, opposite near base; petiole 1–5.5 cm; leaf blade ovate or ovate-triangular, 6–18.5 × 2.5–8.5 cm, 3–5-lobed or sometimes with upper ones not lobed, lobes ovate-lanceolate and acuminate, base attenuate and decurrent forming wings with petiole, margin crenate-serrate, 3-nerved, upper surfaces scaberulous to puberulent, lower surfaces densely pubescent-tomentulose and glandular. Capitula radiate, heterogamous, 5–15 cm across, solitary; peduncle 6–12 cm, swollen near the capitula. Involucres hemispherical, 2–4 cm across; phyllaries 3–4-seriate; outer rows smaller, ovate-elliptic, apex acute, 0.7–1 × 0.4–0.5 cm; inward series longer and becoming reflexed, oblanceolate-oblong, apex obtuse to rounded, 1.8–2.2 × 0.5–0.9 cm, margin membranous on the apical half. Receptacle convex; paleae 11 mm, sharply toothed near the apex. Marginal ligulate florets sterile, 9–14 in one series, corolla yellow, ligule 4 cm, tube 1.5–2 mm and pubescent, apex 2–3-lobed. Disk tubular florets bisexual, many, corolla yellow, 8 mm, narrowed at the middle, broadened in lower part and slightly contracted at base, pubescent on lower region, apex 5-lobed. Cypselae blackish brown, oblong, 5–6 mm, flat and 4-ribbed, shortly sericeous. Pappus of ligulate florets minutely scaly, those of tubular florets with scarious crown 1.5–2 mm, irregularly erose, together with 2 rigid awns 3.5–5 mm.

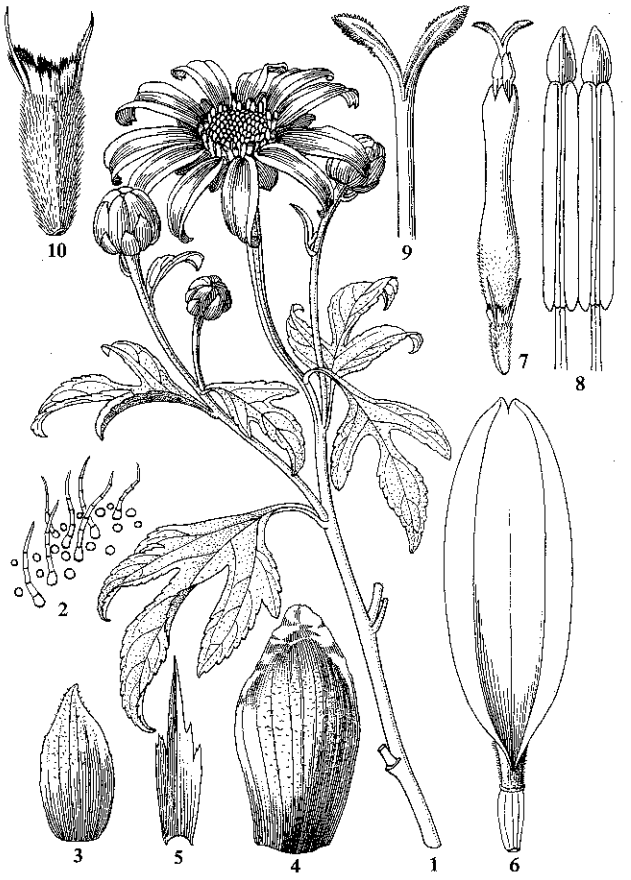


Figure 232. *Tithonia diversifolia* (Hemsl.) A. Gray
1. flowering branch; *2.* straight and glandular trichomes on lower leaf-surface; *3.* outer phyllary; *4.* inner phyllary; *5.* palea; *6.* marginal sterile floret; *7.* disk floret; *8.* anthers; *9.* stylar branches of disk floret; *10.* cypsela. (drawn by X. L. Zeng)

Locality: Cultivated. *Y. W. Lam 1025; S. Y. Hu 6352* (CUHK); *K. Y. Chan 1346* (CUHK).

Distribution: Guangdong, Guangxi, Yunnan and Fujian (cultivated); native to Mexico.

Ecology: Often cultivated on margins of farmlands near villages. Flowering: Jul.–Dec.

Uses: Green manure, ornamental.

16. Helianthus L. 向日葵屬

Annual or perennial large herbs, scabrous to hirsute. Leaves opposite, or those on upper portion alternate, sometimes all alternate, 3-nerved, petiolate. Capitula large, heterogamous and radiate, solitary or in corymbs. Involucres dish-form or broadly hemispherical; phyllaries 2–many-seriate, herbaceous or foliaceous. Receptacle flat or slightly convex; paleae enfolding the florets. Marginal florets neutral, in 1 series, corolla ligulate and spreading, yellow. Central florets bisexual and fertile, numerous, corolla tubular, 5-lobed, yellow, purple or brown. Cypselae oblong or obovate, slightly compressed or 4-angulate. Pappus 2 scales, sometimes together with 2 or more small intermediate scales, deciduous.

About 100 species native to America; one species cultivated in Hong Kong.

Helianthus tuberosus L. (菊芋、菊藷) was also cultivated previously.

1. Helianthus annuus L. 向日葵 **(Fig. 233; Photo 471)**
Sp. Pl. 2: 904. 1753; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 285. 1966; FRPS 75: 358. 1979; FGD 8: 118, fig. 58. 2007.

Stout annual herbs; stems erect, 1–2(–3) m tall, usually not branched, scabrous to hirsute, hair much denser near the head. Leaves mostly alternate except the lowest; petioles 2–17 cm or longer, not winged; leaf blade ovate to cordate-ovate, 4.5–18 × 2–15 cm, or much larger, apex acute or acuminate, 3-nerved, margin coarsely serrate, both surfaces scabrous. Capitula heterogamous and radiate, 10–25(–30) cm across, solitary at terminal, usually nodding. Involucres dish-like, densely hairy at base; phyllaries 2–3-seriate, foliaceous, ovate to lanceolate, 1.5–7 cm, apex attenuate and long-caudate, pilose. Receptacle nearly flat; paleae enfolding the cypselae, trilobed with the midlobe cuspidate, margin of all lobes pubescent. Ligulate florets 1-seriate, corolla yellow, limb spreading, elliptic-oblong, apex acute and entire, tube minute and densely pubescent, infertile. Tubular florets numerous, purplish black, reddish black or brownish black, corolla 5 hairy lobes apically, basally swollen as a ball and densely pubescent. Anther bases sagittate, apical appendages ovate-acute, exserted; stylar branches short and hairy. Cypselae obovate or ovate-oblong, white or greyish, black-lineolate, about 9 × 4–8 mm, slightly compressed, pilose near the summit. Pappus 2 cuspidate scales, deciduous.

Locality: Cultivated. *S. Y. Hu 7648* (CUHK); *S. Y. Hu & K. H. Yung 205* (CUHK); *H. Y. Yeung 171* (CUHK).

Distribution: Native to N America, cultivated worldwide.

Ecology: Flowering: Jul.–Sep.

Uses: Food (oil/fat), ornamental.

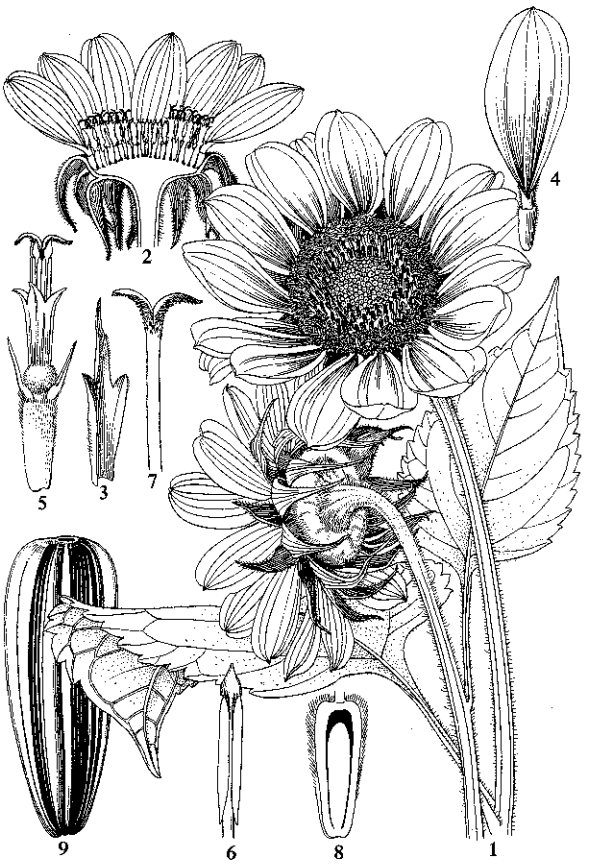


Figure 233. *Helianthus annuus* L.
1. distal portions of the flowering stems; *2.* vertical section of capitulum; *3.* palea; *4.* marginal sterile ray floret; *5.* tubular disk floret; *6.* anther; *7.* stylar branches of disk floret; *8.* vertical section of basal portion of a fertile floret; *9.* fruit. (drawn by X. L. Zeng)

17. Dahlia Cav. 大麗花屬

Perennial herbs; stems stout and erect. Leaves opposite, 1–3-pinnate, or some simple. Capitula large, radiate and heterogamous, long-pedunculate. Involucres hemispherical; phyllaries in 2 series; outer ones row foliaceous, reflexed; inner ones scarious, shortly connate at base. Receptacle plain; paleae membranous. Marginal florets neutral or pistillate, 1-seriate or multi-seriate in cultivation, corolla ligulate, apex entire or 3-toothed. Disk florets bisexual and fertile, corolla tubular, apex 5-lobed; anther bases obtuse; stylar branches hirsute, apical appendages linear-sublanceolate. Cypselae oblong to lanceolate, subtrigonous with the adaxial surface flat, apex rounded, with 2 inconspicuous teeth.

About 15 species native to S & C America, Mexico, one species cultivated in Hong Kong.

1. Dahlia pinnata Cav. 大麗花(洋芍藥) **(Fig. 234; Photo 472)**
Icon. 1: 57. 1791; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 232. 1966; FRPS 75: 367. 1979; FGD 8: 129, fig. 65. 2007.

Perennial herbs with large tuberous fleshy roots; stem erect and stout, branched, 0.5–1.5(–2) m tall. Leaves 1–3-pinnate, some upper leaves simple; leaflets ovate or ovate-oblong, both surfaces glabrous. Capitula large, 6–12 cm across, long pedunculate, usually nodding. Involucres hemispherical; outer phyllaries foliaceous, ovate-elliptic; inner ones scarious, elliptic-lanceolate. Marginal ligulate florets 1-seriate or multi-seriate in some cultivation, neutral, colour various, white, red or purple, ligule ovate, apex entire or minutely 3-toothed. Central tubular florets many, bisexual and fertile, yellow in colour, apical half of

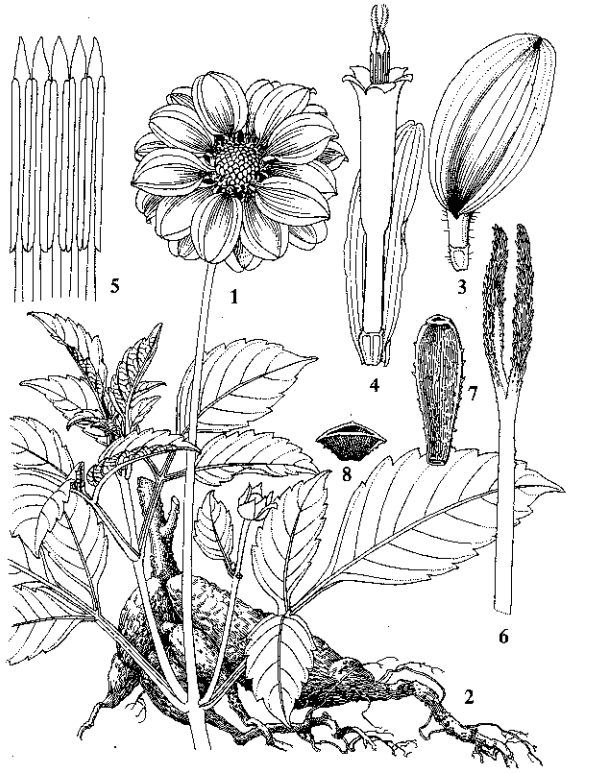


Figure 234. *Dahlia pinnata* Cav.
1. flowering branch; *2.* tuberous fleshy roots; *3.* neuter marginal floret without style; *4.* hermaphrodite disk floret; *5.* stamens; *6.* stylar branches of disk floret; *7.* adaxial view of cypsela; *8.* basal portion of cypsela (plane adaxial side and convex abaxial side). (drawn by X. L. Zeng)

corolla campanulate; some cultivars with all florets ligulate. Cypselae oblong, 9–12 × 3–4 mm, black, adaxial side flattened, abaxial side convex, apex rounded, 2 inconspicuous teeth at summit.

Locality: Cultivated in gardens. *H. Y. Yeung 172* (CUHK).

Distribution: Native to Mexico, cultivated worldwide.

Ecology: Flowering: Aug.–Dec.

Uses: Ornamental.

18. Siegesbeckia L. 豨莶屬

Annual branched erect herbs, glandular and hairy. Leaves opposite, toothed. Capitula radiate, heterogamous, in loose panicle form. Involucres campanulate or hemispherical; phyllaries herbaceous bearing stipitate glands, 2-seriate; outer ones usually 5, linear-spatulate, spreading; inner ones enclosing the hypanthia of ray florets. Receptacle small, paleate; palea membranous, enveloping the cypselae. Marginal florets pistillate, 1–2-seriate, corolla ligulate with apex 2–3-lobed. Disk florets bisexual, corolla tubular and 5-cleft at apex, all florets fertile or with some central florets sterile; stylar branches short, slightly flattened, acute or obtuse; anther bases entire. Cypselae obovate to oblong, oblique-tetragonous, truncate apically, blackish brown, glabrous. Pappus none.

About four species widely distributed in warm areas of the world; three species in China; one species growing as weed in Hong Kong.

1. Siegesbeckia orientalis L. 豨莶 (Fig. 235; Photo 473)

Sp. Pl. 2: 900. 1753; FHK 182. 1861; FKH 145. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 21(3–4): 158. 1968; FRPS 75: 339, pl. 57: 4. 1979; FTW ed. 2, 4: 1062, pl. 506, photo 488. 1998.

Annual erect herbs; stem 30–100 cm tall, branched somewhat dichotomously, pubescent, hair multicellular and appeared denser on upper branches. Basal leaves withered at flowering stage; cauline ones papery, ovate-triangular to ovate-lanceolate, 3–12 × 1–7 cm, base broadly cuneate and narrowed down to form winged petiole, apex acute, margin irregularly toothed, pubescent on both surfaces, glandular abaxially, triplinerved; upper leaves smaller in size, elliptic, shortly petiolate or subsessile, shallowly serrate or subentire. Capitula heterogamous, radiate, 1–2 cm across, loosely arranged as panicles; peduncles 1–4 cm, densely pubescent. Involucres hemispherical; phyllaries herbaceous, hairy and stipitate purplish brown glandular, apex rounded, 2-seriate; outer phyllaries 5–6, linear-spatulate, spreading, 7–11 × 0.5–1 mm; inner ones obovate-oblong, 3–4 × 1.2–2 mm, enclosing the hypanthium of marginal florets. Receptacle small; paleae obovate, 3–3.5 mm, puberulent and sparsely glandular on abaxial side, curved and enveloping the cypselae of disk florets. Florets yellow. Marginal female florets ligulate, corolla tube 1 mm, glandular and hairy, ligule 1.2 mm and 3-lobed. Disk bisexual florets tubular, corolla 1.5 mm, 5-lobed; anthers slightly exserted, basal lobes obtuse, apical appendages ovate-lanceolate elongate; stylar branches very short and slightly flattened, rugose on the abaxial surface. Cypselae blackish brown, 3–3.5 mm, oblique-tetragonous, narrowed basally, a short crown protruded at apex, glabrous. Pappus absent.

Locality: Common in Hong Kong. *L. T. Lo 34; H. Y. Yeung 82* (CUHK); *S. Y. Hu 11524* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Gansu, Shaanxi, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; E Asia, Europe, tropical America.

Ecology: Wastelands, roadsides near villages. Flowering & fruiting: Mar.–Oct.

Uses: Medicinal (folklore).

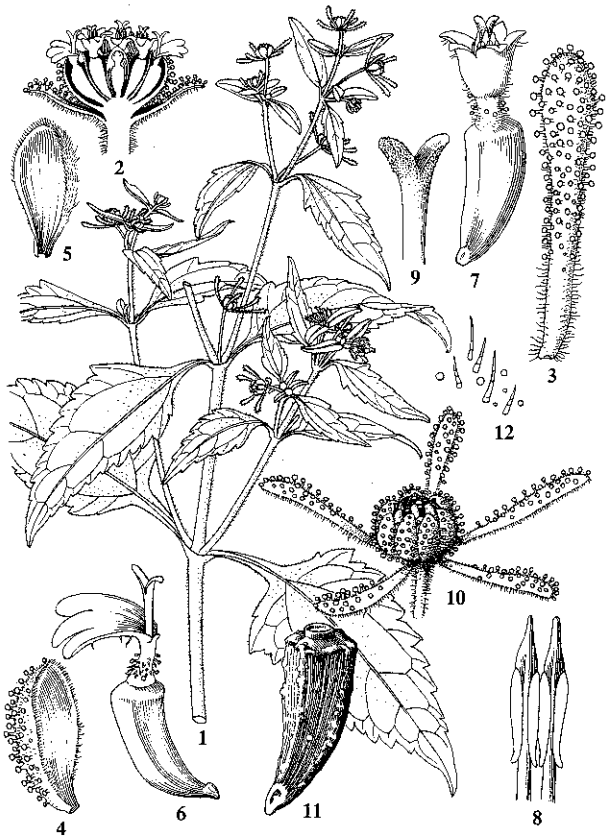


Figure 235. *Siegesbeckia orientalis* L.

1. flowering shoot; *2.* vertical section of capitulum; *3.* outer phyllary; *4.* inner phyllary enclosing marginal floret; *5.* palea of disk floret; *6.* marginal female floret; *7.* disk hermaphrodite floret; *8.* stamens; *9.* stylar branches of disk floret; *10.* capitulum with phyllaries elongate after anthesis; *11.* cypsela; *12.* multicellular straight hair and glands on lower surface of leaf. (drawn by X. L. Zeng)

19. Bidens L. 鬼針草屬

Annual or perennial herbs. Stems erect or creeping, usually tetragonous. Leaves opposite, sometimes alternate in upper portion, simple, toothed or 1–3 times ternate or pinnatisect. Capitula radiate or discoid, solitary or in corymbose panicle. Involucres campanulate or subhemispherical; phyllaries 1–2-seriate, united at the base, outer layers herbaceous, inner ones scarious. Receptacle paleate; palea narrow and scarious. Margin with or without 1 series of ligulate florets, neutral or rarely pistillate, corolla usually white or yellow. Disk florets tubular, hermaphrodite and fertile, corolla 4–5-lobed, yellow or brownish orange; anther bases obtuse or

sagittate; stylar branches flat with hairy acute or acuminate apical appendages. Cypselae compressed or 3–4-angled, linear to obovate-cuneate. Pappus awns 2–4, retrorsely barbed.

More than 200 species distributed in tropical and temperate regions, with richest species in America; ten species in China; four species in Hong Kong.

1a. Capitula radiate, 1.5–3 cm across; ligulate florets longer than 8 mm and conspicuously exposing outside the involucres; pappus usually of 2 stiff awns, rarely 3, but never 4 ..... 1. *B. alba*

1b. Capitula radiate or discoid, 0.6–1 cm across; ligulate florets shorter than 8 mm, usually enclosed in the involucres or slightly exceeding the involucres, sometimes absent; pappus 2–4 stiff awns.

2a. Outermost phyllaries spatulate with apex dilated, hairy along margin; median leaves usually ternate, glabrous or sparsely pubescent; ligulate florets white or absent ..... 2. *B. pilosa*

2b. Outermost phyllaries linear, hairy along margin and on abaxial surfaces; median leaves 1–3-pinnatipartite to pinnatisect, both surfaces pubescent; ligulate florets yellow or absent.

3a. Leaves 2–3-pinnatipartite to pinnatisect, margin irregularly and loosely lobed or toothed, terminal leaflets narrowly rhomboid-lanceolate. ..... 3. *B. bipinnata*

3b. Leaves 1-pinnatipartite to pinnatisect, margin regularly and densely serrate, terminal leaflets ovate ..... 4. *B. biternata*

1. Bidens alba (L.) DC. 白花鬼針草 **(Photo 474)**

Prodr. 5: 605. 1836; F. R. Fosberg & M. H. Sachet, Smithsonian Contr. Bot. 46: 22. 1980.

Coreopsis alba L., Sp. Pl. 2: 908. 1753.

Bidens pilosa var. *radiata* Sch.-Bip. in Webb & Berthel., Hist. Nat. Îles Canaries 3(2): 242. 1844; FTW ed. 2, 4: 870, pl. 404. 1998.

Annual erect herbs, 0.3–1.5 m tall; stems striate, subtetragonous, glabrous or somewhat puberulent. Leaves opposite, ternate to pinnatisect, median ones 3.5–11.5 cm long, margin serrate-mucronate, glabrous on both surfaces except the margin with curved hair, leaf lobes ovate-lanceolate to lanceolate, base usually cuneate, apex acute to acuminate, sometimes truncate or rounded, petiole 1–4.5 cm, narrowly winged, loosely hairy along the margin. Capitula radiate, heterogamous, 1.5–3 cm across, corymbose paniculate at terminal of main stem and lateral branches. Peduncle subglabrous or loosely pubescent, 1.8–8 cm. Involucres bowl-shaped, 4–6 mm across, hairy near base; phyllaries 2-seriate; outer ones herbaceous, spatulate with apex dilated, rounded and reflexed, 3–4 × 1–1.5 mm, ciliate along margin; inner rows scarious, linear-lanceolate, 5–5.5 × 1.2–1.3 mm, ciliate near the apex. Marginal ligulate florets prominent and exposing outside the involucres, 5–8 per capitulum, neutral, corolla white, tube 1–2 mm, ligule 8–14 mm, apex with 3 rounded-obtuse lobes. Disk tubular florets many, perfect, corolla yellow, 5 mm, the upper 2/3 broadly campanulate, the lower 1/3 narrowed, apically 5-cleft, puberulent on abaxial side of the lobes. Cypselae linear, 7–9.5 × 0.8–0.9 mm, slightly compressed, striate, blackish brown, bearing pale brown hooks and tubercles near two distal ends. Pappus 2(–3) stiff awns of 2 mm long, retrorsely barbed, pale brown.

Locality: Naturalized and widely distributed in Hong Kong. *Y. S. Lau 3191; Y. W. Lam 21.; S. Y. Hu & Y. C. Kong 050* (CUHK).

Distribution: Native to tropical America, widely naturalized in the tropics.

Ecology: Wastelands, roadsides. Flowering: May–Dec.

Notes: Often regarded as a variety of *Bidens pilosa*.

2. Bidens pilosa L. 鬼針草 **(Photo 475)**

Sp. Pl. 2: 832. 1753; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 318. 1965; FRPS 75: 377. 1979; FGD 8: 135. 2007; FTW ed. 2, 4: 869. 1998.

Annual erect herbs; stems 20–100 cm tall, subtetragonous, glabrous or with upper portion sparsely puberulent. Leaves mostly ternate, the median ones 3–7 cm long, with petiole 1–3.3 cm and narrowly winged, leaf segments ovate, the terminal lobes larger, apically acuminate and basally rounded or narrowed to the petiole, lateral lobes smaller, base rounded or broadly cuneate, apex acute, both surfaces glabrous or loosely pubescent, margin serrate-mucronate; upper leaves sometimes non-divided, lanceolate in shape. Capitula 0.8–1 cm across, discoid with all florets tubular or heterogamous with several small rays. Peduncle 1.5–7.5 cm, those in fruiting stage longer. Involucres hairy near the base; outer phyllaries herbaceous green, spatulate, 3–4 mm at anthesis, up to 5 mm at fruiting stage, margin ciliate, apex obtuse-rounded; inner phyllaries scarious, brown, lanceolate-oblong, 4–5 mm when flowering, 5–6 mm when fruiting, margin yellowish membranous, apex densely hairy. Palea narrower, linear-lanceolate. Ligulate florets, if present, 4–5 mm, nearly enclosed in the involucres and thus inconspicuous, neutral, white in colour. Tubular florets 3 mm, 5-toothed, yellow, fertile. Cypselae blackish brown, linear, 5–9 × 0.7–1 mm, somewhat laterally compressed, slightly 4-angulate, finely hispid in upper part. Pappus 2–3 stiff awns, pale brown, 2–2.5 mm, retrorsely barbed.

Locality: Naturalized and widely distributed in Hong Kong. *H. C. Tang 2357; Y. S. Lau 85; S. Y. Hu 5293* (CUHK).

Distribution: S to C, E to SW China; widely distributed in Asia and tropical America.

Ecology: Wastelands, roadsides. Flowering: Jun.–Dec.

Uses: Medicinal (folklore).

Notes: Usually the plants bearing ray florets are regarded as *B. pilosa* var. *minor* (Blume) Sherff, while the ones bearing discoid heads are known as *B. pilosa* var. *pilosa*.

3. Bidens bipinnata L. 婆婆針 **(Photo 476)**

Sp. Pl. 2: 832. 1753; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 315. 1965; FRPS 75: 380, pl. 64: 3–6. 1979; FGD 8: 136. 2007; FTW ed. 2, 4: 868, photo 422. 1998.

Annual erect herbs, 20–100 cm tall, subtetragonous, glabrous or sparsely puberulent on upper part. Petiole 1.5–5 cm. Leaves 3–14 cm long, bipinnate or bipinnatipartite, terminal leaflets rhomboid-lanceolate, apex acuminate, lateral segments ovate and acute, both surfaces pubescent, especially along margin and veins, margin irregularly and loosely toothed or lobed. Capitula 6–10 mm across. Peduncle 1.5–10 cm, longer in fruiting stage. Involucres bowl-shaped, base hairy; outer phyllaries herbaceous green, linear-lanceolate, 4–5 mm, apex obtuse, hairy along margin and on abaxial side; inner phyllaries scarious brown, lanceolate-oblong, 4–6 mm, pubescent, margin membranous and yellow, apex densely hairy. Paleae lanceolate and narrower. Marginal ligulate florets neutral, corolla 6–7 mm, yellow, ligule elliptic or obovate, apex entire or 2–3-lobed. Central tubular florets hermaphrodite, corolla 4–4.5 mm, yellow, upper 2/3 campanulate, lower 1/3 narrowed, apex 5-cleft. Cypselae blackish brown, linear, 3–4-angulate, slightly compressed, 7–10 × 0.8–1 mm, tuberculate and shortly hooked at upper part. Pappus of (2–)3–4, stiff and retrorsely barbed awns, pale brown, 3 mm.

Locality: Common in Hong Kong. *Y. S. Lau 2297; Y. W. Lam 758; S. Y. Hu 6960* (CUHK).

Distribution: S to N and NE, E to SW China; America, Europe, Asia, E Africa.

Ecology: Wastelands, roadsides. Flowering: Jun.–Sep.

Uses: Medicinal (folklore).

4. Bidens biternata (Lour.) Merr. & Sherff
金盞銀盤 **(Fig. 236)**

Bot. Gaz. 88(3): 293. 1929; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 315. 1965; FRPS 75: 378, pl. 65: 1–4. 1979; FGD 8: 136, fig. 71. 2007; FTW ed. 2, 4: 869. 1998.

Coreopsis biternata Lour., Fl. Cochinch. 2: 508. 1790.

Annual erect herbs; stem 30–150 cm tall, subtetragonous, glabrous or sparsely puberulent. Leaves 1-pinnatisect to pinnatipartite, 3–10 cm long, terminal segment ovate-lanceolate, 2.5–7.5 × 1–3 cm, base cuneate, apex acuminate, lateral segments 1–2 pairs, ovate, smaller than the terminal ones, 1.5–5 × 0.7–2 cm, apex acute or obtuse; both regularly and densely serrate-mucronate, pubescent on both surfaces. Capitula 6–9 mm across. Peduncles 1.5–7.5 cm, in fruiting stage appeared longer. Involucres bowl-shaped, hairy below; outer phyllaries herbaceous green, linear, 2–3 mm when flowering, 3–4 mm when fruiting, width 0.5–0.8 mm, apex acute to obtuse, hairy along margin and on abaxial side; inner phyllaries scarious brown, lanceolate-oblong, 5–6 mm, hairy outside, margin membranous and yellow, apex acuminate and densely hairy. Palea oblong, narrower. Ligulate florets 3–5, or sometimes absent, neutral, corolla pale yellow, oblong, 4–5.5 × 2.5–3 mm. Tubular florets bisexual, 4–4.5 mm, 5-dentate, yellow. Cypselae blackish brown, linear, tetragonous, narrowed at two distal ends, 8–12 × 0.8–1 mm, finely hispid on the upper part. Pappus 3–4 stiff awns, about 3 mm, pale brown, retrorsely barbed.

Locality: Peng Chau, Ping Chau, Tai Po. *HK sheet 2660; S. Y. Hu 7895* (CUHK); *Y. Wong 008* (CUHK).

Distribution: S to N and E to SE China; Asia, Africa, Australia.

Ecology: Wastelands, roadsides near villages. Flowering: Jun.–Oct.

Uses: Medicinal (folklore).

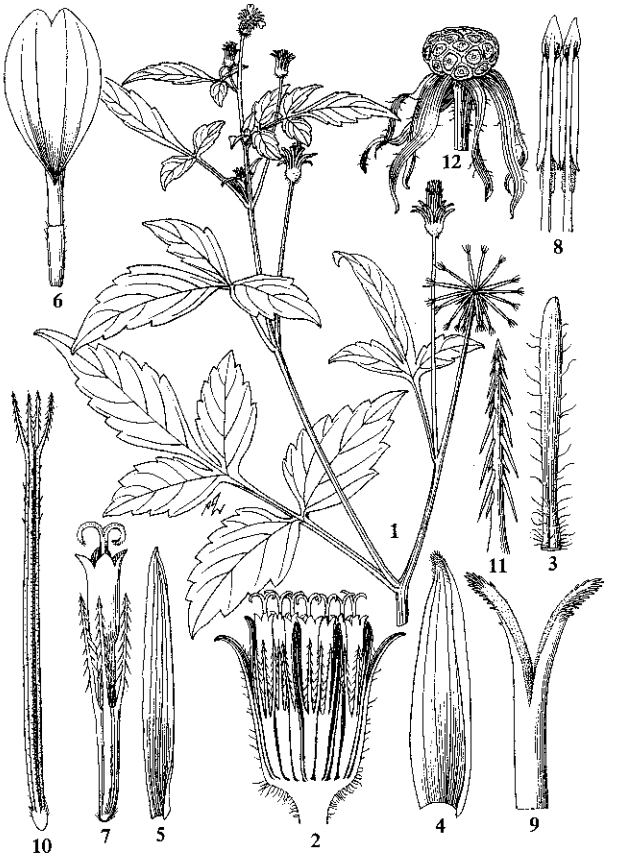


Figure 236. *Bidens biternata* (Lour.) Merr. & Sherff
1. flowering and fruiting branch; *2.* vertical section of capitulum; *3.* outer phyllary; *4.* inner phyllary; *5.* palea of inner floret; *6.* sterile ray floret; *7.* disk floret; *8.* stamens; *9.* stylar branches of disk floret; *10.* cypsela with four barbed bristles; *11.* enlarged view of barbed bristle; *12.* receptacle after fruit dispersal. (drawn by X. L. Zeng)

20. Glossocardia Cass. 鹿角草屬

Perennial herbs; stems erect or ascending, branched mainly from base. Leaves mostly crowded at base, radical leaves pinnatisect with the leaf segments linear, long-petiolate; cauline leaves few and alternate, pinnatisect or linear. Capitula small, heterogamous and radiate, solitary or few formed as loose corymbs. Involucres campanulate; phyllaries 2–3-seriate, connate at base, inner ones longer. Receptacle flat; paleae scarious, linear and flat. All florets fertile. Peripheral florets ligulate, female, 1-seriate, ligule spreading, entire or 3-dentate at apex. Central florets tubular, hermaphrodite, corolla 4-lobed apically; anther bases obtuse, apical appendages short and broadly ovate, stylar branches hairy. Cypselae glabrous, linear, flat, ribbed. Pappus of 2 stiff awns, retrorsely barbed.

About 11 species distributed in N Africa, tropical Asia, Australia and the Pacific islands; one species in China and in Hong Kong.

1. Glossocardia bidens (Retz.) Veldkamp
鹿角草 **(Fig. 237; Photo 477)**

Blumea 35(2): 468. 1991; FTW ed. 2, 4: 971, pl. 461, photo 455. 1998.

Zinnia bidens Retz., Observ. Bot. 5: 28. 1788.

Glossogyne tenuifolia (Labill.) Cass. ex Less., Syn. Gen. Compos. 212. 1832; Benth., FHK 184. 1861; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 271. 1966; FRPS 75: 381, pl. 66: 1–4. 1979; FGD 8: 137, fig. 72. 2007.

Perennial herbs 15–30 cm tall; stem branched mainly at base, glabrous. Radical leaves many and persistent, pinnatisect with 2–3 pairs of lateral segments, without clear distinction of lamina and petiole, totally 3.5–9 cm long, the apical divided portion 1.5–2.5 cm, the basal undivided petiole-like portion 2–6.5 cm, lateral segments linear, the lowest ones longer, 5–20 × 1–2 mm, all apex rounded to obtuse, mucronate, both surfaces glabrous; cauline leaves few, usually linear, some pinnatisect. Capitula heterogamous and radiate, 5–8 mm across, solitary and terminating branches, base bearing one linear prophyll (ca. 2 mm). Involucres campanulate-hemispherical; phyllaries in 2 series, lanceolate-oblong, 2–3.5 mm with the inner layers longer, apex obtuse, margin scarious and ciliate. Receptacle flat. Paleae linear with hyaline and shallowly dentate margin, those subtending inner disk florets with broad bases. Ray florets 8–9 in one row, female, corolla yellow, about 4 mm, ligule elliptic-oblong, 2.5–3 × 2.5 mm, spreading, apex 3-dentate. Disk tubular florets bisexual, corolla yellow, 2.8–3 mm, basal 1/3 narrowed, apical 2/3 campanulate, apex 4-lobed. Cypselae black, linear, 5–6 × 0.8–1 mm, flat, ribbed, glabrous. Pappus 2 stiff awns, 1–1.5 mm, pale brown, retrorsely barbed.

Locality: Wong Nai Chung Gap, Tai Tam, Sha Tin, Sai Kung, Po Toi Islands. *L. T. Lo 144, 502; Y. W. Lam 1040.*

Distribution: Hainan, Guangdong, Guangxi, Taiwan; Philippines, Malaysia, Australia.

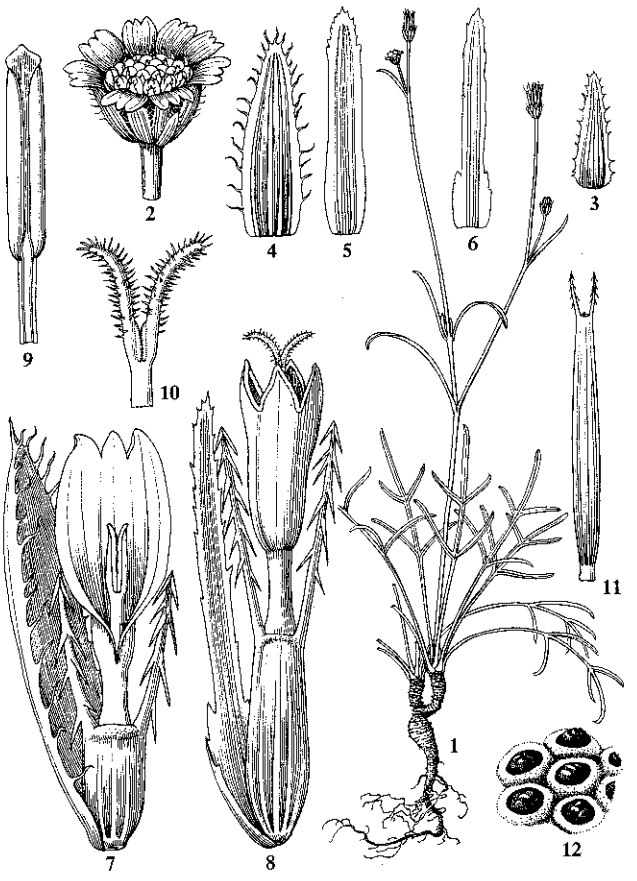


Figure 237. *Glossocardia bidens* (Retz.) Veldkamp
1. flowering plant; *2.* capitulum; *3.* outer phyllary; *4.* inner phyllary; *5.* linear palea; *6.* palea of inner disk floret; *7.* marginal ligulate floret; *8.* disk tubular floret; *9.* stamen; *10.* stylar branches of disk floret; *11.* cypsela; *12.* portion of naked receptacle. (drawn by X. L. Zeng)

Ecology: Sandy slopes and rocky places near seashore. Flowering & fruiting: Jun.–Sep.

Uses: Medicinal (folklore).

21. Synedrella Gaertn. 金腰箭属

Annual erect herbs; stem pubescent to pilose, branches and leaves both opposite. Leaves toothed and with winged petiole. Capitula heterogamous, radiate, sessile or shortly pedunculate, usually with several heads aggregated on axils and branch terminals. Involucres ovoid-oblong; phyllaries few, outer ones foliaceous, inner ones scarious and narrower, subtending the ray florets. Receptacle small; paleae scarious, subtending the disk florets. All florets fertile. Marginal florets female, corolla ligulate, limb short and apically 2–3-toothed. Disk florets bisexual, corolla tubular, apices shallowly 4-lobed; anthers 4, apex rounded, base entire or shortly bifid, truncate or shortly sagittate; stylar branches slender, hairy and acute. Cypselae of ray florets dorsiventrally compressed, margin with broad lacerate hard wings; pappus two sharp and stiff spines at apex. Cypselae of disk florets narrower, oblong-cuneate, flat or subtrigonous, not winged, usually tuberculate; pappus 2–4 stiff spines at summit.

About 50 species native to America and Africa, one species commonly distributed in tropical and subtropical regions.

1. Synedrella nodiflora (L.) Gaertn. 金腰箭 **(Fig. 238; Photo 478)**

Fruct. Sem. Pl. 2(3): 456. 1791; S. Y. Hu, Quart. J. Taiwan Mus. 21(3–4): 173. 1968; FRPS 75: 363, pl. 61: 3–6. 1979; FGD 8: 132, fig. 68. 2007; FTW ed. 2, 4: 1075, pl. 513. 1998.

Verbesina nodiflora L., Cent. Pl. 1: 28. 1755.

Annual herbs; stem erect, 30–120 cm tall, dichotomously branched, appressed pilose, or glabrous in lower part. Leaves ovate to ovate-lanceolate, middle cauline ones 3–12.5 × 1.2–6 cm, base decurrent to form winged petiole of 0.5–4 cm, apex acute, adaxial surface dark green, abaxial surface paler, both surfaces appressed pubescent, hair denser abaxially, triplinerved, margin crenulate-serrulate. Upper leaves smaller. Capitula 8–10 × 4–5 mm, mostly sessile or sometimes shortly pedunculate, always with 2–6 heads aggregated in axil or at branch terminal. Involucres ovoid-oblong; phyllaries few; outermost 2 phyllaries foliaceous green, lanceolate, 8–10 × 2.5 mm, apex acute, pubescent; inner phyllaries scarious, oblong, 6–7 × 2–3 mm, obtuse, glabrous or sparsely puberulent, shortly ciliate along margin, subtending the ray florets. Receptacle small; paleae linear, 6–7 × 0.5–1 mm, margin minutely ciliate, subtending

the disk florets. Ray pistillate florets yellow, 3.2–3.5 mm, ligule elliptic, 2 rounded lobes at apex, tube nearly as long as the ligule. Disk florets bisexual, tubular, 3.2–3.5 mm, 4-lobed at apex, yellow. All florets fertile. Cypselae developed from ligulate florets obovate-oblong, 4 × 1 mm, compressed and slightly curved inward, black in colour, margin with brownish white broad and hard wings, bearing 4–6 pairs of upward-directed spines; pappus 2 straight hard spines about 2 mm. Cypselae developed from tubular florets oblong-cuneate, flat or subtrigonous, 4–4.5 × 0.8–1 mm, black or blackish brown, tuberculate, pubescent; pappus 2–4, spiny, 3–4 mm, pale brown.

Locality: Naturalized and widely distributed in Hong Kong. *Y. S. Lau 2039; H. Y. Yeung 46* (CUHK); *S. Y. Hu 5810* (CUHK).

Distribution: Native to America, widely naturalized in tropical and subtropical regions.

Ecology: Wastelands, roadsides near villages. Flowering: Jun.–Oct.

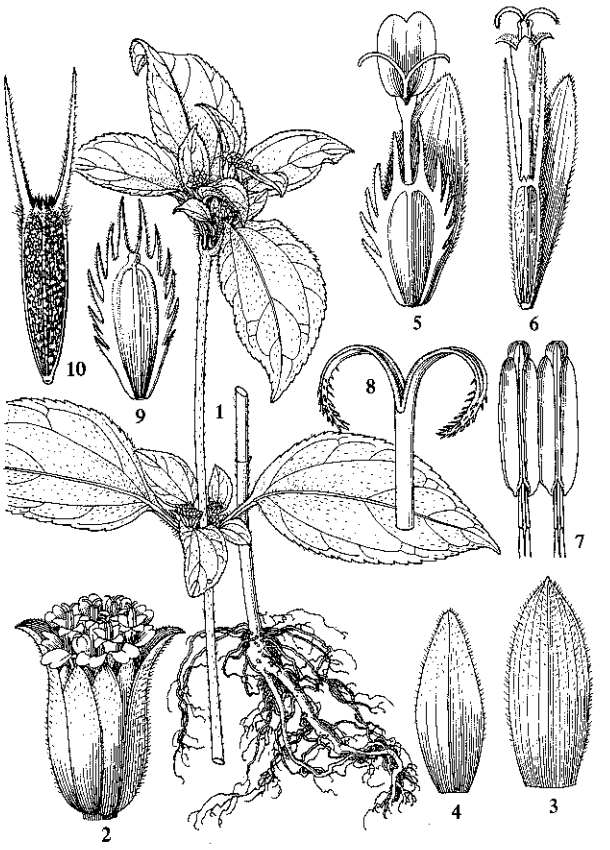


Figure 238. *Synedrella nodiflora* (L.) Gaertn.
1. flowering plant showing root; *2.* capitulum; *3.* outer phyllary *4.* inner phyllary; *5.* marginal ligulate floret; *6.* disk floret; *7.* stamens; *8.* stylar branches of disk floret; *9.* cypsela from marginal floret; *10.* cypsela from disk floret. (drawn by X. L. Zeng)

22. *Spilanthes* Jacq. 金鈕扣屬

Annual or perennial herbs; stems erect or ascending. Leaves opposite, sometimes with the basal ones rosulate. Capitula heterogamous-radiate or homogamous-discoid, solitary, terminal to stem and branches, or axillary to upper leaves, bearing long peduncles. Involucres shallow-dish-like; phyllaries in 1–2 series. Receptacle cylindric-conical; paleae cymbiform, enclosing the ovaries of disk florets. All florets fertile. Ray florets, when present, pistillate, 1-seriate, corolla ligulate with apex 2–3-lobed. Central florets hermaphrodite, many, corolla tubular and 4–5-cleft apically; anther base obtuse, apex acute; stylar branches short and truncate. Cypselae obovate-oblong, the marginal ones 3-angled, the disk ones laterally compressed. Pappus none or with 1–2(–3) short awns.

About 60 species mainly native to tropical areas of America; two species in China; two species in Hong Kong.

1a. Capitula discoid; ray florets slightly exceeding the phyllaries ..... 1. *S. paniculata*

1b. Capitula radiate; ray florets greatly exceeding the phyllaries ..... 2. *S. grandiflora*

1. *Spilanthes paniculata* Wall. ex DC.

金鈕扣 **(Fig. 239; Photos 479–480)**

Prodr. 5: 625. 1836; FRPS 75: 359, pl. 61: 1–2. 1979; FGD 8: 126, fig. 63. 2007.

Acmella paniculata (Wall. ex DC.) R. K. Jansen, Syst. Bot. Monogr. 8: 67. 1985; FTW ed. 2, 4: 814, pl. 376, photo 406. 1998.

Annual herbs; stems erect or ascending, rooting at nodes when lower portion of stem touched the ground, 20–60(–100) cm tall, branched, striate, subglabrous or sparsely puberulent, tinged purple. Petioles 0.3–2 cm, glabrous or loosely hairy; Leaves ovate to ovate-lanceolate, 1.5–7 × 0.5–3.5 cm, base cuneate and decurrent to the petiole, apex acute, margin irregularly serrate or undulate-serrate, sometimes entire, both surfaces glabrous. Capitula solitary, or several arranged as loose panicles, ovoid in shape, 6–11 × 5–10 mm, with or without ligulate florets. Peduncles 1.5–6 cm, sparsely puberulent near the head. Involucre like a shallow dish, bearing one series of herbaceous phyllaries, subtending the ligulate florets if present, ovate to ovate-oblong, 2.8–4 × 1.2–2 mm, apex

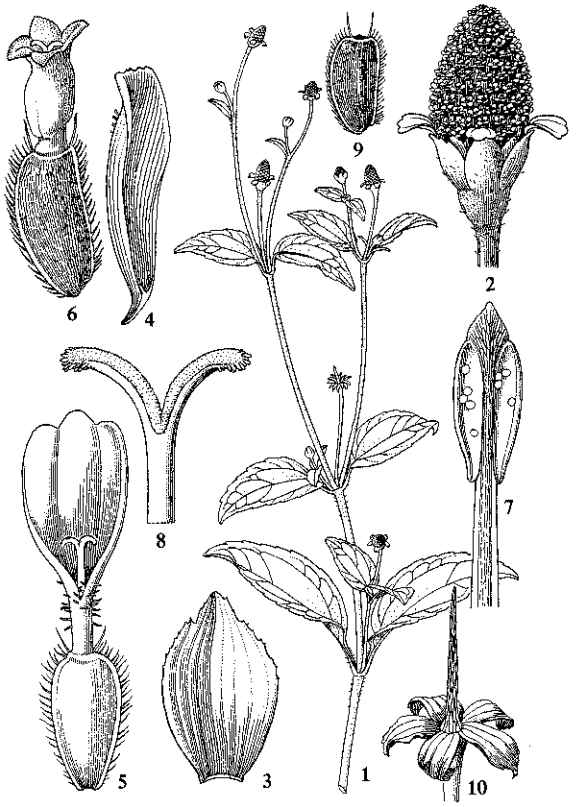


Figure 239. *Spilanthes paniculata* Wall. ex DC.
1. flowering shoot; *2.* capitulum; *3.* phyllary; *4.* palea; *5.* marginal ray floret; *6.* disk floret; *7.* stamen; *8.* stylar branches of disk floret; *9.* cypsela; *10.* capitulum after fruit dispersal showing columnar receptacle. (drawn by X. L. Zeng)

acute to obtuse, glabrous but ciliate along margin. Receptacle cylindric-conical, 5–7 mm high, longer than the phyllaries. Paleae scarious, cymbiform, enfolding the hypanthia of disk florets, 2.2–4.5 × 1–2 mm. Florets yellow or white, fertile. Ray florets 4–6, with ligule broadly obovate, 1.5–2 mm, apex 3 rounded lobes, tube 1 mm, pubescent. Tubular florets 1.3–2 mm, usually 4-toothed at apex; anthers included, base obtuse, apical appendages broad-ovate; stylar branches short, apex truncate, penicillate. Cypselae black, obovate-oblong, 1.5–2.5 mm, the marginal ones 3-angled, the disk ones bilaterally flattened, both with concave apices, several hair growing near the summit, densely ciliate along margin. Pappus absent or of 2 unequal awns.

Locality: Common in Hong Kong. *Y. W. Lam 546, 1348; S. Y. Hu 8981* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; Malaysia, S & SE Asia.

Ecology: Roadsides and wastelands near villages. Flowering & fruiting: Apr.–Nov.

Uses: Medicinal (folklore).

2. Spilanthes grandiflora Turcz. 大花金鈕扣 **(Photo 481)**

Bull. Soc. Imp. Naturalistes Moscou 24: 185. 1851.

Acmella grandflora (Turcz.) R. K. Jansen, Syst. Bot. Monogr. 8: 75. 1985.

Perennial herbs, 20–70 cm tall; stems erect to ascending or rarely decumbent, glabrous to moderately pilose. Petioles 2–12.5 mm, glabrous to moderately pilose; leaf blade ovate-lanceolate or lanceolate, rarely ovate, 2.5–8 × 0.3–3 cm, base attenuate, apex acute to acuminate or rounded, usually glabrous to sparsely pilose adaxially, glabrous to usually sparsely or moderately pilose abaxially, margin entire to very coarsely and irregularly dentate, sparsely to moderately ciliate. Capitula radiate, solitary, or several arranged as loose panicles, ovoid in shape, 7.5–15.5 × 5.5–11.5 mm. Peduncles 4–37 cm, glabrous to moderately pilose. Receptacle cylindric-conical, 4.5–11.5 mm high, 0.9–2.7 mm in diam., apex acuminate. Phyllaries triseriate, lanceolate to narrowly ovate, apex acute. Pales 4.1–6.8 × 0.5–1.2 mm, apex acute to acuminate, stramineous. Ray florets 11–12, greatly exceeding the phyllaries; corollas yellow, tube 1.3–2.0 mm, limb 4.1–10.3 × 1.1–3.3 mm; cypselae 1.5–2.5 mm. Disk corollas 2.5–3 mm; anthers usually black; cypselae 2–2.7 mm. Pappus usually of 3 subequal bristles, 0.7–1.1 mm, or pappus absent.

Locality: Kowloon Reservoirs, Shing Mun. *Y. S. Lau 2438, 3014.*

Distribution: Widely distributed in tropical and subtropical regions.

Ecology: Wastelands. Flowering & fruiting: Apr.–Nov.

23. Eclipta L. 鱧腸屬

Annual branched herbs, strigose. Leaves opposite. Capitula pedunculate, heterogamous, radiate. Involucres campanulate to hemispherical; phyllaries herbaceous, in about 2 rows, subequal in size. Receptacle convex, paleate; the paleae linear, bristle-like, hairy at the distal half. Florets white. Ray florets 2-seriate, pistillate and fertile, corolla ligulate, limb bifid or entire. Disk florets many, hermaphrodite and fertile, corolla tubular, 4-lobed at apex; anther bases entire or minutely bifid; stylar branches complanate and obtuse, papillose on the abaxial sides. Cypselae laterally compressed or slightly 3–4-angled, truncate at apex, tuberculate on both sides. Pappus none or shortly toothed.

About four species in tropical regions; one species in China and in Hong Kong.

1. Eclipta prostrata (L.) L.鱧腸 **(Fig. 240; Photo 482)**

Mant. Pl. 2: 286. 1771; FHK 181, 1861; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 241. 1966; FRPS 75: 344, pl. 58: 1–5. 1979; FTW ed. 2, 4: 935. 1998.

Verbesina prostrata L., Sp. Pl. 2: 902. 1753.

Eclipta alba (L.) Haask., Pl. Jav. Rar. 528. 1848; FHK 181. 1861; FKH 145. 1912.

Verbesina alba L., Sp. Pl. 2: 902. 1753.

Annual herbs; stems erect, ascending or prostrate, 8–70 cm tall, branched mainly at the bottom, covered with adpressed strigose hair throughout. Leaves opposite, subsessile or shortly petiolate, lanceolate or elliptic, 2–6.5 × 0.3–1.8 cm, base narrowed, apex acute-acuminate, margin serrulate or sometimes slightly undulate, strigose on both surfaces. Capitula 6–8 mm across when flowering, enlarged to 10 mm in fruiting stage. Involucres hemispherical; phyllaries green, herbaceous, in 2 series, lanceolate-oblong, 3–4 × 1.5–2 mm, outer ones slightly longer,

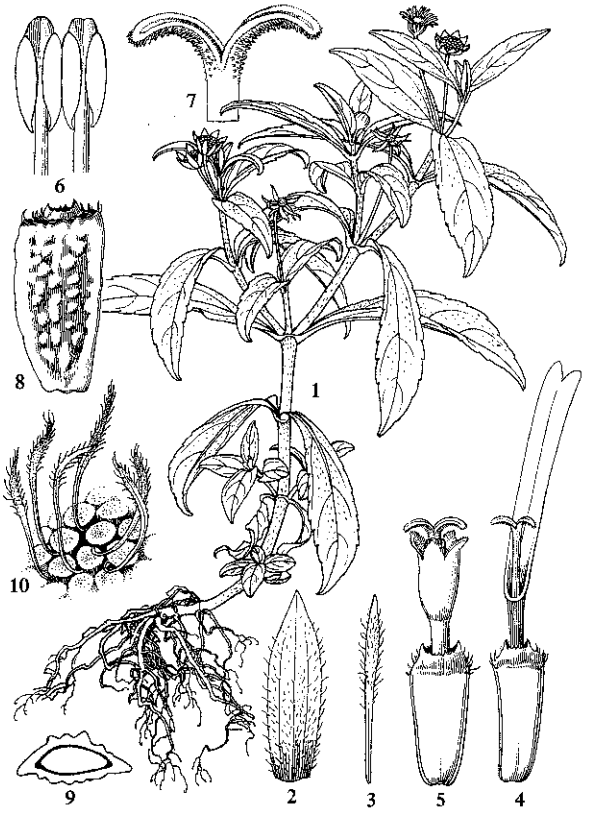


Figure 240. *Eclipta prostrata* (L.) L.

1. whole plant; *2.* phyllary; *3.* palea; *4.* marginal female floret; *5.* disk hermaphrodite floret; *6.* anthers; *7.* stylar branches of disk floret; *8.* cypsela; *9.* cross section of cypsela; *10.* portion of receptacle with persistent paleae. (drawn by X. L. Zeng)

apex acute, abaxial surfaces strigose. Receptacle convex, paleate; paleae 1.8–2.2 mm, linear, hairy at distal half. Marginal ligulate florets 2-seriate, corolla white, tube 0.8–1 mm, ligule 1.6–1.8 mm, bifid or entire. Disk tubular florets many, corolla white, 1.3–1.5 mm, 4-cleft at apex; anther bases sagittate and acute, apical appendages rounded; stylar branches flattened, apex obtuse, outer surfaces papillose. Cypselae brown, oblong, 2.5–2.8 × 1.3–1.5 mm, laterally compressed with those developed from female florets showing slightly 3-angled in cross-section, those from bisexual florets slightly 4-angled, apex truncate, tuberculate on two surfaces, ribbed on lateral margins, glabrous, Pappus none or of few short teeth.

Locality: Common in Hong Kong. *Y. S. Lau 1984; S. Y. Hu 5289* (CUHK); *S. L. Thrower 473* (CUHK).

Distribution: Spread over most provinces of China; widely distributed in tropical and subtropical regions.

Ecology: Streamsides, banks of paddy fields, roadsides and other wet places. Flowering: Jun.–Nov.

Uses: Medicinal (folklore).

24. Blainvillea Cass. 百能葳屬

Annual or perennial herbs. Leaves opposite or the upper part alternate, petiolate, margin serrate. Capitula small, subsessile or pedunclate, terminal or axillary, radiate or subdisciform, yellow; ray floret female, 1–2-seriate, fertile; ligules small, 2–3-toothed or absent; disk floret hermaphroditic, fertile, tubular, limb dilated 5-fid. Involucre broadly ovoid, or subglobose. Phyllaries few, outer ones herbaceous; inner ones passing into the rigidly scarious paleae. Receptacle small, convex. Anther-bases obtuse, entire. Style-arms of disk floret narrow, flattened, with acute or subobtuse appendages. Cypselae truncate, of ray floret triquetrous or dorsally compressed, of disk floret 3–4-angled or laterally compressed. Pappus of 2–5, unequal bristles, connate at the base.

About ten species widely spread in tropics; one species in China and in Hong Kong.

1. Blainvillea acumella (L.) Philip. 百能葳 **(Photo 483)**

Blumea 6: 350. 1950; FHN 3: 405, fig. 808. 1974; FRPS 75: 348, pl. 59: 3–6. 1979; FGD 8: 122, fig. 61. 2007.

Spilanthes acmella (L.) Murray, Syst. Veg. ed. 13, 610. 1774.

Blainvillea latifolia (L. f.) DC. ex Wright, Contr. Bot. Ind. 17. 1834.

Eclipta latifolia L. f., Suppl. P. 378. 1781.

Verbesina acmella L., Fl. Zeyl. 309. 1748.

Annual herbs, 40–60 cm tall; stem erect, many-branched, pubescent. Lower leaves opposite; petioles ca. 1 cm; leaf blade ovate to ovate-lanceolate, 3–6 × 2–3 cm, base cuneate, apex acuminate, margin sparsely serrate, strigose or pilose on both surfaces; upper leaves smaller, usually alternate, ovate to ovate-oblong, 2–3 × 1.3–1.5 cm, base usually rounded. Capitula axillary or terminal, ca. 1 cm in diam., peduncles slender, 1.5–4 cm. Phyllaries in two series; outer ones herbaceous, green, ovate-oblong, ca. 6 mm long, apex shortly acute or obtuse, dorsally covered with harsh hairs; inner ones ovate to oblong-linear, ca. 5 mm, apex acute, lower part scarious, sparsely pubescent. Paleae oblong-lanceolate, ca. 5 mm, apex aristiform, dorsally pubescent. Ray florets one series, ligules yellow or yellowish white, ca. 3 mm, apex 2–4-toothed. Disk florets campanulate, limbs 5-toothed. Cypselae of ray florets cuneiform triquetrous, curved, ca. 4 mm, those of disk florets compressed, ca. 5 mm. Pappus of 2–5, unequal bristles, connate at the base.

Locality: Tai Mo Shan. *HK sheet 41860, 41861.*

Distribution: Hainan, Guangdong, Yunnan; India, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam, Africa, America, Australia.

Ecology: Grassy hillslopes, roadsides.

25. Wedelia Jacq. 蟛蜞菊屬

Annual or perennial herbs; stems erect, creeping or scandent. Leaves opposite, margin toothed, rarely entire. Capitula heterogamous, radiate. Involucres campanulate or hemispherical; phyllaries 2–3-seriate, imbricate; outer layer foliaceous, green, strigose; inner one subcoriaceous at base, narrower, subtending the ray florets. Receptacle flat or convex, paleate; the paleae curved and enveloping the disk florets. All florets fertile. Marginal florets female, corolla ligulate, spreading, apex 2–3-lobed, tube short, yellow, in one series. Disk florets bisexual, corolla tubular, apex shallowly 5-cleft, yellow, numerous; anther bases sagittate, apical appendages ovate, acute or obtuse; stylar branches papillose-hairy. Cypselae obovate or oblong-cuneate, those developed from ligulate florets trigonous, those formed from tubular florets laterally compressed. Pappus none or of 1–3 bristles or appeared as scarious crown.

About 60 species distributed in tropical and subtropical regions; six species in China; five species in Hong Kong (three native species growing wild, one introduced species commonly cultivated and naturalized).

1a. Middle and lower leaves wider than 2 cm; margin with more than 3 pairs of serrate or serrulate teeth.
  2a. Capitula solitary with elongate peduncle; pappus cup-shaped with sharply toothed rim.
    3a. Leaves usually trilobed at the middle; petiole less than 5 mm, winged ..... 1. *W. trilobata*
    3b. Leaves not lobed; petiole 1–2 cm, not winged ..... 2. *W. wallichii*
  2b. Capitula 2–6 or more arranged as loose corymbs with peduncles 2–6 cm long; pappus absent or of 1 bristle ..... 3. *W. biflora*
1b. Middle and lower leaves with width less than 2 cm; margin entire or bearing 1–3 pairs of serrate or serrulate teeth.
  4a. Peduncle elongate with 2.8–9.5 cm long; phyllaries in outer series longer than paleae; pappus short scarious crown with toothed rim ..... 4. *W. chinensis*

4b. Peduncle 0.8–1.8 cm long; phyllaries in outer series shorter than paleae; pappus obsolete or of 1–2 bristles .....5. *W. prostrata*

1. Wedelia trilobata (L.) Hitchc.
三裂葉蟛蜞菊 **(Fig. 241; Photo 484)**

Rep. (Annual) Missouri Bot. Gard. 4: 99. 1893; FTW ed. 2, 4: 1097. 1998.

Silphium trilobatum L. Syst. Nat. ed. 10, 2: 1233. 1759.

Perennial creeping herbs; stems prostrate or decumbent, green or dull red, glabrous or loosely hirsute. Leaves opposite, rhomboid to lanceolate in outline, trilobed at about middle, 4–10 × 2–5 cm, base attenuate to form wing with petiole, apex acute, margin coarsely serrate, triplinerved, scabrous on both surfaces with abaxial side glandular-dotted, veins prominent beneath; the free part of petiole 3–7(–10) mm. Capitula solitary, heterogamous, radiate, 2.5–3 cm across. Peduncle elongate, 6–18 cm, densely pilose. Involucres campanulate; phyllaries in 3 series; the outer 2 layers green, foliaceous, elliptic-oblong, subequal in length and width, 8–10 × 2.5–3 mm, apex acute, abaxially scabrous; the innermost ones scarious basally and slightly herbaceous adaxially, linear-oblong, 6 × 1.5 mm, erose-ciliate near apex, acute, subtending the ovaries of marginal ligulate florets. Receptacle plain or slightly convex, paleaceous; the paleae linear, 6–8 × 1–1.2 mm, serrulate near apex, enfolding the ovaries of tubular florets. Ray florets 12–16, corolla ligulate and spreading, yellow to orange-yellow, ligule oblong, 6–7(–12) × 5 mm, apex 2–3-toothed, tube short, 1–1.5(–1.8) mm. Tubular florets many, more than 40, corolla yellow, 4–5 mm, limb 5-lobed, strongly barbate inside. Cypselae 4.5–5 mm, puberulent and glandular near apex, those of ligulate florets oblong-cuneate, triangular in cross-section, those of tubular florets clavate, terete. Pappus cup-shaped with sharply toothed rim.

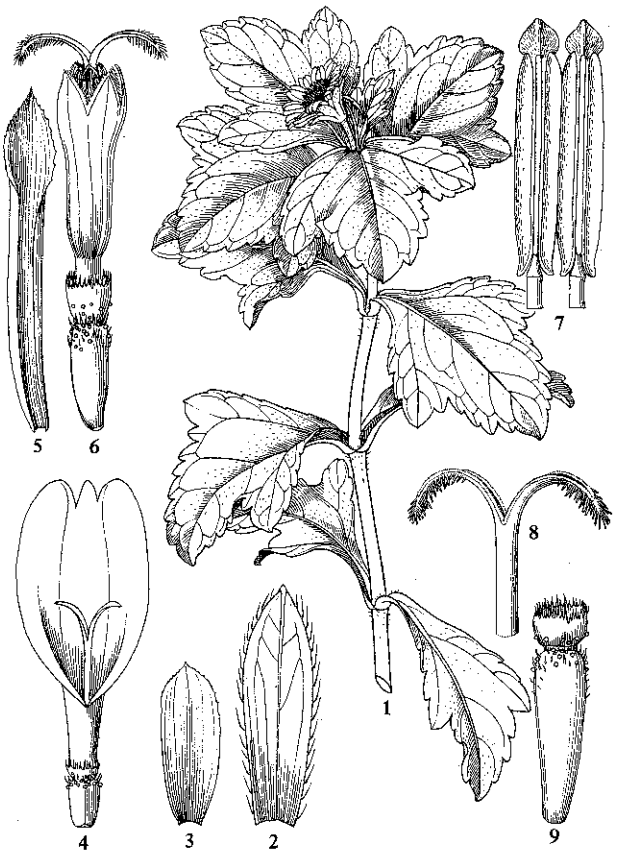


Figure 241. *Wedelia trilobata* (L.) Hitchc.
1. flowering shoot; *2.* outer phyllary; *3.* inner phyllary; *4.* marginal floret; *5.* palea; *6.* disk floret; *7.* stamens; *8.* stylar branches of disk floret; *9.* cypsela from disk floret. (drawn by X. L. Zeng)

Locality: Naturalized and widely cultivated. *Y. S. Lau 2587; Y. Wong 014* (CUHK); *S. Y. Hu 11043* (CUHK).

Distribution: Native to tropical America, widely distributed in the tropics; introduced into Hong Kong in 1971 from S Africa by Mr. Horace Kadoorie.

Ecology: Commonly planted as ground cover for earth slopes and bare hillsides, recently becoming naturalized in Hong Kong. Flowering: Nearly all year round.

2. Wedelia wallichii Less. 山蟛蜞菊

Linnaea 6: 162. 1831; FRPS 75: 352. 1979; FGD 8: 124. 2007.

Wedelia urticifolia DC., Contr. Bot. India 18. 1834; FRPS 75: 352. 1979; FFJ 5: 353. 1993.

Perennial herbs, 20–60 cm tall. Stems suberect, hispid to glabrous. Lower leaves opposite; petioles 1–2 cm; leaf blade ovate or ovate-lanceolate, 5–9 × 3–7 cm, base rounded or cuneate, apex acuminate, margin crenulate, hispid on both surfaces; upper leaves smaller, lanceolate, petiolate or sessile. Capitula ca. 15 mm in diam., solitary on elongate peduncle. Involucre broadly campanulate or hemispherical, 10–15 mm in diam. Phyllaries in two series; outer ones herbaceous, green, oblong, ca. 10 mm, apex obtuse or shortly acute, dorsally scabrous hairy; inner ones oblong to lanceolate, ca. 7 mm, scarious, dorsally pubescent in upper part, apex acuminate. Paleae oblong, sparsely pubescent. Ray florets one seriate, ligules oblong, 4–6 × 2 mm , yellow, apex 2–3-toothed. Disk florets tubular, yellow, limbs 5-toothed. Cypselae obovoid, compressed or obtusely 3-angled, tip contracted. Pappus cup-shaped, with 2–3 bristles.

Locality: Shing Mun. *Y. S. Lau 2498.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan; Bhutan, India, Myanmar, Nepal, Thailand.

Ecology: Margins of forests, grassy hillslopes, streamsides. Flowering: Apr.–Oct.

3. Wedelia biflora (L.) DC. 雙頭菊(孿花蟛蜞菊) **(Fig. 242; Photo 485)**

Contr. Bot. India 18. 1837; FHK 183. 1861; FKH 145. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 22(1–2): 26. 1969; FRPS 75: 351, pl. 60: 1–6. 1979; FGD 8: 124. 2007; FTW ed. 2, 4: 1093, photo 498. 1998.

Verbesina biflora L., Sp. Pl. ed. 2, 2: 1272. 1763.

Wollastonia biflora (L.) DC., Prodr. 5: 546. 1836; S. Y. Hu, Quart. J. Taiwan Mus. 22(1–2): 28. 1969; Check List HK Plants 290. 2002; 99. 2004.

Melanthera biflora (L.) Wild, Kirkia 5: 4. 1965.

Perennial herbs or subshrubs, 1–2 m tall; stem branched, scandent, extending to 2–4 m or longer, glabrous or sparsely strigose. Leaves ovate to ovate-lanceolate, 4–14 × 1–7.5 cm, those on upper stem appearing smaller in size, base varied from rounded, truncate to cuneate, showing slightly decurrent, apex acuminate, margin regularly serrate, both surfaces covered with short appressed hairs, denser on abaxial side; petiole slender, 0.7–5 cm. Capitula radiate, heterogamous, about 2 cm across, usually 2–6 or more heads arranged as loose corymbs at terminal, sometimes axillary; peduncles slender, 1.5–6 cm, densely strigose. Involucres hemispherical or ovoid; phyllaries 2-seriate, foliaceous, ovate-lanceolate, two layers subequal in length, 4.5–5 × 1.5–2 mm, apex obtuse or slightly acute, densely scabrous, subtending the ray florets. Paleae obovate-oblanceolate, 5–6 mm × 1.5–2 mm, obtuse or shortly acute, upper portion foliaceous and scaberulous, lower half scarious and glabrous, enfolding the achenes of disk florets. Marginal ligulate florets pistillate, in 1 series, corolla yellow, ligule 6–7 × 3–4 mm, tube 1.5–2 mm, apex 2-lobed, pubescent near the apical region of the abaxial side. Central tubular florets hermaphrodite, many, 4–5 mm, apex 5 lobes and pubescent on abaxial side. Cypselae 3–3.5 × 2–2.5 mm, those developed from ligulate florets thickly trigonous, those from tubular florets 4-angled, both cuneate at base, broadly truncate at top, strongly pubescent near the summit, glabrous in lower part. Pappus none or of 1 bristle 1.5–2 mm, easily shed off.

Locality: Common in Hong Kong. *Y. S. Lau 736; S. Y. Hu 6549* (CUHK); *Joseph P. W. Woo & T. K. Woo 864* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; E & S Asia, Malaysia, Australia.

Ecology: Common on sandy beaches or in thickets near seashore. Flowering: Mar.–Nov.

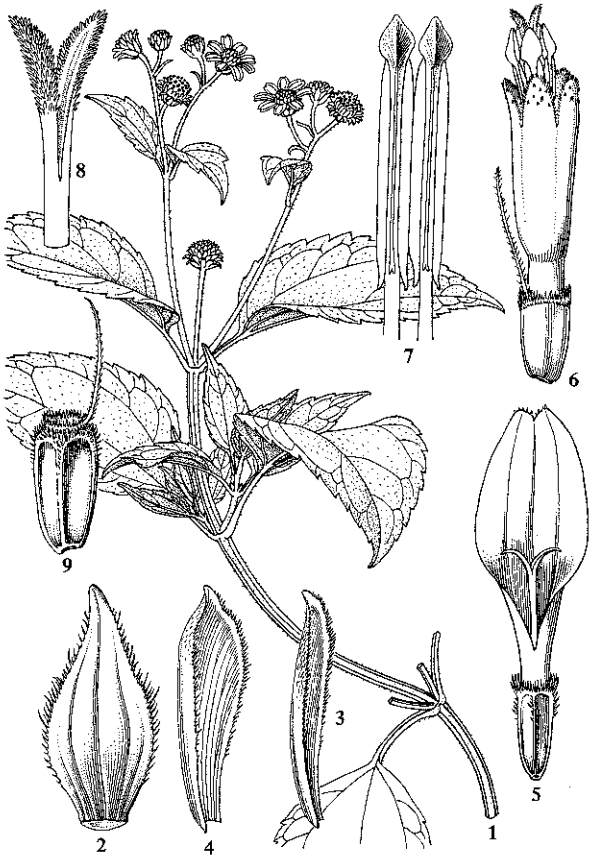


Figure 242. *Wedelia biflora* (L.) DC.
1. flowering branch; *2.* phyllary; *3.* palea at flowering time; *4.* palea of fruit; *5.* ray floret; *6.* disk floret; *7.* stamens; *8.* stylar branches of disk floret; *9.* cypsela. (drawn by X. L. Zeng)

4. Wedelia chinensis (Osbeck) Merr. 蟛蜞菊 **(Photo 486)**

Philipp. J. Sci. 12(2): 111. 1917; S. Y. Hu, Quart. J. Taiwan Mus. 22(1–2): 26. 1969; FRPS 75: 354, pl. 60: 7–11. 1979; FGD 8: 125, fig. 62. 2007; FTW ed. 2, 4: 1094, pl. 522, photo 499. 1998.

Wedelia calendulacea (L.) Less., Syn. Gen. Compos. 222. 1832; FHK 182. 1861; FKH 145. 1912.

Solidago chinensis Osbeck, Dagb. Ostind. Resa 241. 1757.

Perennial creeping herbs; stems decumbent with the lower part rooting at nodes, upper part ascending and becoming erect, strigose-pilose. Leaves elliptic-oblong to linear-oblong, 2.5–7 × 0.5–1.7 cm, subsessile or shortly petiolate, base cuneate, apex acute, margin entire or bearing 1–3 pairs of serrate teeth, scabrous on both surfaces, midvein prominent on abaxial side. Capitula heterogamous, radiate, 1.3–2.4 cm across, solitary. Peduncle 2.8–9.5 cm, densely strigose. Involucres campanulate; phyllaries 2–3-seriate; the outer one or two layers foliaceous, green, oblong, subequal, 8–10 × 3–4 mm, apex obtuse to rounded, abaxially scabrous; the innermost layer scarious in lower portion and herbaceous in upper region, linear-oblong, 6–7 × 1.8–2 mm, apex acute or acuminate, ciliate along margin of apical half. Receptacle flat, paleaceous; the paleae linear, 6 mm × 1 mm, acuminate, subtending the florets. Ray florets 1-seriate, pistillate, fertile, corolla ligulate, spreading, yellow in colour, ligule oblong, 8 × 3–3.5 mm, apex 2–3-dentate, tube 1–1.2 mm. Disk florets many, hermaphrodite, fertile, corolla tubular, yellow, 4–5 mm, apex 5 ovate obtuse lobes, glabrous or puberulent inside. Cypselae obovate-oblanceolate, 3–4 mm, loosely hairy near apex, those developed from ligulate florets 3-ridged, those from tubular florets laterally flattened. Pappus a short scarious crown with toothed rim.

Locality: Common in Hong Kong. *L. T. Lo 69; Y. S. Lau 2334; P. S. Choi 102.*

Distribution: S, E & NE China; E & S Asia, Malaysia.

Ecology: Banks of paddy fields and other wet places. Flowering & fruiting: Mar.– Sep.

5. Wedelia prostrata Hemsl. 滷地菊 **(Photo 487)**

J. Linn. Soc., Bot. 23(157): 434. 1888; FKH 145. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 22(1–2): 27. 1969; FRPS 75: 353. 1979; FGD 8: 125. 2007; FTW ed. 2, 4: 1094, pl. 523, photo 500. 1998.

Wollastonia prostrata Hook. & Arn., Bot. Beechey Voy. 265. 1838.

Verbesina prostrata Hook. & Arn., Bot. Beechey Voy. 195. 1837.

Annual creeping herbs; stem rooting at nodes in lower part, flowering branches ascending, hirsute with the hair basally swollen. Leaves ovate to ovate-oblong, 1–2.5 × 0.3–0.9 cm, base cuneate, apex acute, margin 1–3 pairs of serrulate teeth, both surfaces scabrous,

3-veined; petiole 2–6 mm. Capitula 1–2 cm across; peduncle 0.8–1.8 cm, densely hirsute. Involucres hemispherical; phyllaries 2-seriate; the outer ones foliaceous, ovate or ovate-oblong, 4–5 × 2–3 mm, acute or obtuse, densely scabrous; the inner ones basally scarious, apically herbaceous, oblanceolate-oblong, 5–5.5 × 1–1.2 mm, acute-acuminate, ciliate near apex. Paleae linear-oblong, enfolding the floret hypanthia, length 6 mm, apically herbaceous and hairy, acute. Marginal florets pistillate, corolla ligulate, yellow, ligule oblong, 5.5–7 × 3–4 mm, apex lobe 3, tube 1 mm. Central florets many, hermaphrodite, corolla tubular, yellow, 4–5 mm, 5-cleft at apex, lobes sparsely hairy on abaxial side. Cypselae oblong-cuneate, 3–3.5 mm, apex truncate and hairy. Pappus 1–2 bristles or obsolete.

Locality: Shek O, Sai Kung (Ham Tin, Tai Long Wan and Long Ke Wan). *Y. S. Lau 364, 2568; S. Y. Hu & P. P. H. But 22723* (CUHK); *N. H. Li & K. M. Lau 157* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Fujian, Zhejiang, Jiangsu, Taiwan; India, Vietnam, Philippines, Japan, Korea.

Ecology: Sandy places near seaside. Flowering & fruiting: Mar.–Sep.

26. Cirsium Mill. 蓟屬

Annual, biennial or perennial herbs, monoecious, rarely dioecious, plant spiny. Stem branched or not. Leaves alternate, entire, serrate-dentate to pinnatifid, spiny along margin. Capitula homogamous and discoid, with all florets bisexual or all female, nodding or erect, long-pedunculate or sessile and spicate. Involucres ovoid, campanulate to globose; phyllaries in many rows, imbricate or inconspicuously imbricate, erect or spreading, cobwebby-hairy, often sticky, apex spinulose. Receptacle plain or convex, densely long-hairy. Florets red, purple, rarely yellow or white, corolla tubular, limb equally to obliquely 5-lobed, sometimes deeply cleft; anther bases sagittate, basal appendages lacerate, filaments free, papillose hairy; stylar branches coherent except the obtuse tips, with a ring of hair below the branches. Cypselae glabrous, compressed or faintly tetragonous, ribbed or smooth, apex truncate or obliquely truncate, rostrate. Pappus unequal in length, plumose, base connate and shed off as a ring.

About 250–300 species distributed in Europe, Asia, N Africa, N & C America; about 50 species in China; three species in Hong Kong.

1a. Leaves obviously pinnatilobed to pinnatisect; apices of all phyllaries acute or acuminate, not dilated nor bearing scarious appendages ..... 1. *C. japonicum*

1b. Leaves simple, oblong, oblong-lanceolate to broadly linear, margin entire or dentate-serrate, but not pinnatilobed; apices of inner phyllaries dilated and reddish scarious.

2a. Abaxial surface of leaves densely woolly hairy ..... 2. *C. hupehense*

2b. Abaxial surfaces of leaves subglabrous to loosely cobwebby hairy ..... 3. *C. lineare*

1. Cirsium japonicum Fisch. ex DC. 蓟 **(Photo 488)**

Prodr. 6: 642. 1837; S. Y. Hu, Quart. J. Taiwan Mus. 19(1–2): 55. 1966; FRPS 78(1): 103. 1987; FGD 8: 249, fig. 151. 2007;.

Cnicus japonicus (Fisch. ex DC.) Maxim., Bull. Acad. Imp. Sci. Saint-Petersbourg 19(5): 503. 1874; FKH 149. 1912.

Perennial herbs; stem erect, 30–150 cm tall, striate, branched or not, loosely to densely multicellular-hairy and tomentose, especially near the head. Leaves green and multicellular scabrous above and beneath. Leaves oblanceolate or oblong in outline, 6–30 × 2–10 cm, pinnatilobed to pinnatisect, lateral segments 6–12 pairs, triangular, hemispherical or oblong, width varied from 0.5–4 cm, those in the middle larger in size, margin coarsely and irregularly dentate, spines unequal in length, 1–6 mm, leaf base attenuate as short or long winged petiole, the petiole wing also toothed and spiny, apical segment ovate or triangular. Upper stem leaves gradually smaller in size, sessile, base dilated and semi-amplexicaul. Capitula erect, seldom nodding, solitary or few at stem terminal. Involucres broadly campanulate, 2.5–3 cm across; phyllaries 6-seriate, imbricate, abaxial side cobwebby hairy and with viscid glands along midvein, margin ciliate; outer layers lanceolate, 5–7 × 2 mm, apical spinules long and hard, 2.5–5 mm; middle layers oblong-lanceolate, 10–13 × 1.5–2 mm, spinules short and soft, 1–3 mm; inner layers linear-lanceolate with length 15–20 mm, width 1–1.2 mm, apex acuminate without spinules. Florets red or purple, 2–2.2 cm, lower filiform tube 0.9–1.1 cm, upper limb 1.1–1.2 mm and unequally cleft into 5 linear lobes 5–6 mm. Cypselae compressed, obliquely cuneate-oblanceolate, 3.5 mm, apex obliquely truncate and with rostrum less than 1 mm. Pappus pale brown, feathery, length unequal, 1–1.6 cm, base connate and shed off as a ring.

Locality: Cape D'Aguilar, Clear Water Bay, Sai Kung, Lantau Island. *T. K. Leung & T. K. Wang 2515; S. Y. Hu & P. P. H. But 23833* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Shaanxi, Hebei, Hubei, Hunan, Jiangxi, Anhui, Shandong, Jiangsu, Zhejiang, Fujian, Taiwan; Korea, Japan.

Ecology: Grassy hillslopes. Flowering & fruiting: Apr.–Nov.

Uses: Medicinal (folklore).

2. Cirsium hupehense Pamp. 湖北蓟(馬刺蓟) **(Fig. 243)**

Nuovo Giorn. Bot. Ital. n.s. 18(1): 86. 1911; FRPS 78(1): 121. 1987; FGD 8; 250. 2007.

Perennial herbs, 50–200 cm tall; stem erect, striate, branched or not, loosely greyish white tomentose especially on the upper portion. Leaves thick, upper surfaces green, subglabrous or scabrous, lower surfaces greyish white, densely woolly hairy, distinctly one-veined. Median cauline leaves oblong or oblong-lanceolate, 7–13 × 0.8–2.5 cm, sessile, apex acute, margin entire or sometimes basally dentate or dentate-serrate, but never pinnatilobed or cleft, spinules alternatively long and short growing along margin, the longer ones 3–5 mm, the short ones 1–2 mm. Upper leaves smaller in size, oblong, lanceolate to linear. Capitula arranged as loose corymbs at branch terminal,

seldom solitary. Involucres ovoid-globose, 1.2–2.5 cm across; phyllaries 6-seriate, imbricate, abaxial side viscid and arachnoid hairy; outer two layers ovate-lanceolate, 4–5 × 1 mm, apical spinule about 1 mm; middle layers lanceolate, 6–7 × 2 mm, spinule 1–2 mm, sometimes scarious near the base of spine; inner two layers lanceolate-oblong to oblong, 10–15 × 1–1.5 mm, apex dilated and scarious, forming appendages about 1–3 mm, purplish red. Florets purple, pink to red, corolla lower tube filiform, 9–11 mm, upper limb broaden, 9–10 mm, apex obliquely and deeply cleft as 5 linear lobes 5–6 mm. Cypselae cuneate-obovate, about 2–4 mm, apex obliquely truncate and rostrate. Pappus plumose, unequal in length, varied from 1–1.6 cm, white to pale brown, base connate and deciduous as a ring.

Locality: Common in Hong Kong. *Y. S. Lau 186, 1332; P. S. Choi 456.*

Didtribution: Guangdong, Yunnan, Sichuan, Shaanxi, Hebei, Henan, Hubei, Hunan, Jiangxi, Anhui, Fujian.

Ecology: Margins of forests, wastelands. Flowering: Oct.–May of the following year.

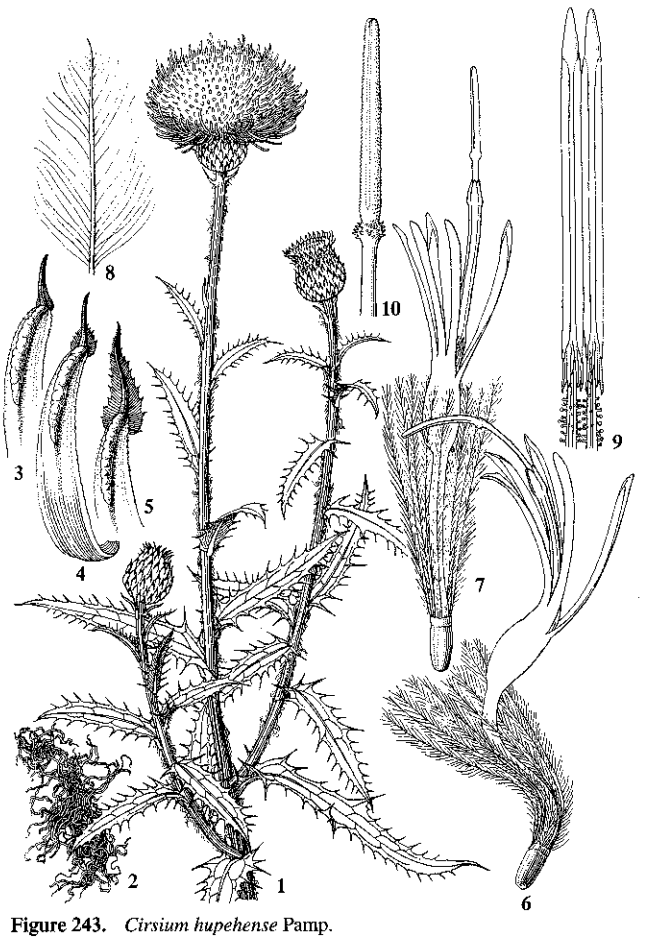


Figure 243. *Cirsium hupehense* Pamp.
1. flowering branch; *2.* lanate hair from lower surface of leaf; *3–5.* outer and middle phyllaries; *6.* outer floret; *7.* inner floret; *8.* pappus bristle; *9.* stamens; *10.* distal portion of style. (drawn by X. L. Zeng)

3. Cirsium lineare (Thunb.) Sch. Bip. 絲葉薊

Linnaea 19: 335. 1874; S. Y. Hu, Quart. J. Taiwan Mus. 19(1–2): 58. 1966; FTW ed. 2, 4: 909, pl. 428. 1998; FRPS 78(1): 120. 1987; FGD 8: 250. 2007; Kitam., Acta Phytotax. Geobot. 41: 179. 1991.

Carduus linearis Thunb., Fl. Jap. 305. 1784.

Cirsium chinense Gardner & Champ., Hooker's J. Bot. Kew Gard. Misc. 1: 323. 1849; FHK 168. 1861.

Cnicus chinensis Benth. ex Maxim., Bull. Acad. Imp. Sci. Saint-Petersbourg 19(5): 503–504. 1874; FKH 149. 1912.

herbs; stem erect, 50–150 cm tall, striate, branched **glabrous**, subglabrous or sparsely cobwebby hairy **Middle** leaves oblong, lanceolate to **2.5 cm**, gradually smaller in size when growing upward, lanceolate to linear-lanceolate, base attenuate, apex **ate**, sessile or shortly petiolate, adaxial surfaces green, scabrous, abaxial surfaces pale green or whitish, **margin** entire, sometimes basally dentate, but not pinnatilobed, finely and closely curved-spinulose.

Locality: **branch** terminal. Involucres ovoid; phyllaries 6-seriate, imbricate; outer and median layers *C. P. Lau 178* (CUH **5 mm**, apex spinules 2 mm; inner layers lanceolate to linear-lanceolate, 1–1.5 cm, apex

Distribution: Guang **corolla 2 cm**, lower tube as long as upper limb, apex obliquely and deeply cleft into 5

Ecology: Grassy hillslop **1.8 mm**, smooth and glabrous, with many blackish brown lines, apex obliquely

Notes: The type specimen of **brown to** greyish white, plumose, 1.3–1.5 cm, base connate and shed off as a

land. *S. L. Thrower 1431, 1422* (CUHK); *S. Y. Hu 11148* (CUHK);

Annual or biennial herbs; stem erect, branched **ngol**, Jiangsu, Zhejiang, Fujian, Taiwan; Korea, Japan. greyish white and densely tomentose. Capitula hom solitary. Involucres ovoid; phyllaries many-seriate, imbric **from** Victoria Peak between 1847 and 1849. near apices. Receptacle flat or slightly convex, densely fimbriat upper limb short, deeply 5-cleft, lower tube long filiform; anther b glabrous; stylar branches separate, apices truncate. Cypselae oblong-cun inner layer long plumose, base connate and deciduous as a ring; outer layer **ces green** and glabrous, lower surfaces

One species distributed in Asia and Australia.

stem and branch terminal, rarely **e appendages** on abaxial sides **ular**, red or purple in colour, **filaments** separate and **te**. Pappus 2-seriate,

Annual creeping herbs; stem rooting at nodes in lower part, flowering branches ascending, **hirsute** wit Leaves ovate to ovate-oblong, 1–2.5 × 0.3–0.9 cm, base cuneate, apex acute, margin 1–3 pairs of **serrulate teeth**,

1. Hemisteptia lyrata (Bunge) Bunge 泥胡菜 **(Fig. 244)**

Dorp. Jahrb. Litt. 1: 222. 1833; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 287. 1966; FRPS 78(1): 138. 1985; FTW ed. 2, 4: 989. 1998; FGD 8: 253, fig. 154. 2007.

Cirsium lyratum Bunge, Enum. Pl. Chin. Bor. 36. 1833.

Saussurea carthamoides Benth., FHK 168. 1861.

Saussurea affinis Spreng. ex DC., Prodr. 6: 538. 1838; FKH 149. 1912.

Annual herbs; stem 30–100 cm tall, striate, arachnoid-tomentose hairy, branched apically. Radical leaves usually withered at anthesis. Lower and middle cauline leaves oblong to oblanceolate, 4–21 × 1.5–9 cm, adaxial surface green and glabrous, abaxial surface greyish white and densely tomentose, lyrately pinnatisect or sometimes the lower leaves not lobed, lateral lobes 2–6 pairs, variable in shape, elliptic, obovate, to oblanceolate, those near base smaller; apical lobe large, rhomboid, deltoid or ovate, apex acute, obtuse to rounded, leaf margin shallowly toothed or not; petioles long in the lowermost leaves, gradually shorter for leaves growing upward. Upper leaves few, linear to linear-lanceolate, sessile. Capitula arranged as loose corymbs at stem terminal, rarely solitary. Involucres ovoid; phyllaries many-seriate, imbricate; outer few layers triangular-ovate to elliptic-ovate, 1.5–4 × 1.3–1.5 mm, acute or acuminate, with purple-red cristate appendages on abaxial side near the apex; middle layers ovate-oblong to oblong, 4–7 × 1.2–1.3 mm, apex not crested; inner ones linear-lanceolate to linear, 6–12 × 0.8–1 mm, acuminate and without appendages, tinged red. Florets purple to red, corolla 8.5–13 mm; upper limb 2.2–3 mm, deeply cleft into 5 linear lobes 2–2.5 mm; lower tube filiform, 6.5–10 mm. Cypselae oblong-cuneate, 2.5–4 × 1 mm, brown or reddish-brown, 13–16-ribbed, apex obliquely truncate. Pappus white, in 2 rows; inner ones plumose, 6–9 mm, base connate and deciduous as a ring; outer 3–9 short scales, growing on one side.

Locality: Sha Tin, Tai Po, Fanling, Sai Kung. *Y. S. Lau 3294; Y. W. Lam 191; S. Y. Hu 22790* (CUHK).

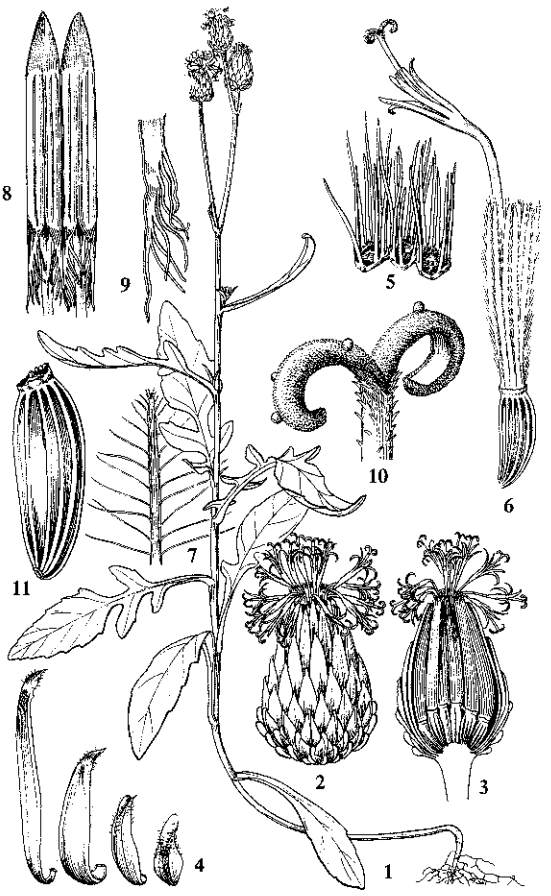


Figure 244. *Hemisteptia lyrata* (Bunge) Bunge

1. flowering plant; *2.* capitulum; *3.* vertical section of capitulum; *4.* inner phyllary to outer phyllary (left to right); *5.* portion of receptacle; *6.* floret; *7.* distal portion of pappus hair; *8.* anthers; *9.* fringed base of theca; *10.* stylar branches; *11.* cypsela. (drawn by P. Ma)

Distribution: Widely distributed in China except Xinjiang and Xizang; also in Korea, Japan, Vietnam, Laos.

Ecology: Margins of forests, wastelands, margins of cultivated lands. Flowering: Mar.–Aug.

28. Saussurea DC. 風毛菊屬

Annual, biennial or perennial herbs, sometimes subshrubs; stem glabrous, pubescent to tomentose, or plant without stem. Leaves alternate, margin entire, toothed, pinnatifid to pinnatisect. Capitula homogamous and discoid, sessile or pedunculate, in corymbose, paniculate or racemose form, sometimes aggregated on stem terminal, rarely solitary. Involucres cylindric, campanulate, ovoid or globose; phyllaries in many rows, appressed, imbricate, growing longer and narrower inward, sometimes with reddish scarious apical appendages or herbaceous green appendages. Receptacle flat or convex, densely setaceous or not. All florets bisexual and fertile, corolla tubular, lower tube filiform, upper limb broaden and deeply cleft into 5 lobes, colour purple or purple-red, rarely white; anther bases sagittate, basal appendages lacerate, filaments separate and glabrous; style branches divided, linear, obtuse or subobtuse apically. Cypselae obtusely 4-angulate or many-ribbed, sometimes transversely rugose, apex truncate, shortly coronate or not. Pappus (1–)2-seriate; outer ones shorter in length, capillary or slightly plumose, deciduous individually; inner ones longer, plumose, base connate, deciduous as a ring or persistent.

About 400 species distributed in Asia, Europe, N America and Australia; about 260 species in China; one species in Hong Kong.

1. Saussurea japonica (Thunb.) DC. 風毛菊 **(Fig. 245)**

Ann. Mus. Natl. Hist. Nat. 16: 203. 1810; FHK 167. 1861; FKH 149. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 20(3–4): 330. 1967; FTW ed. 2, 4: 1049. 1998; FRPS 78(2): 47. 1999.

Serratula japonica Thunb., Fl. Jap. 305. 1784.

Saussurea linearis Champ. ex Benth., Hooker's Journ. Bot. Kew Gard. Misc. 4: 235. 1852.

Biennial or perennial herbs; stem erect, 0.5–2 m tall, striate, not winged, densely pubescent and glandular. Lower leaves petiolate, petioles 2–12 cm, narrowly winged, leaf blade lanceolate, elliptic to oblong, 6–22 × 3–9.5 cm, pinnately toothed, pinnatifid to pinnatisect, or sometimes not lobed and appeared as lanceolate form, apical lobes lanceolate, lateral lobes 3–7 pairs with shape varied from triangular, lanceolate to linear, the middle ones largest, others gradually smaller towards both ends; all lobes apices obtuse to rounded, margin

1. Hemisteptia lyrata (Bunge) Bunge 泥胡菜 **(Fig. 244)**

Dorp. Jahrb. Litt. 1: 222. 1833; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 287. 1966; FRPS 78(1): 138. 1985; FTW ed. 2, 4: 989. 1998; FGD 8: 253, fig. 154. 2007.

Cirsium lyratum Bunge, Enum. Pl. Chin. Bor. 36. 1833.

Saussurea carthamoides Benth., FHK 168. 1861.

Saussurea affinis Spreng. ex DC., Prodr. 6: 538. 1838; FKH 149. 1912.

Annual herbs; stem 30–100 cm tall, striate, arachnoid-tomentose hairy, branched apically. Radical leaves usually withered at anthesis. Lower and middle cauline leaves oblong to oblanceolate, 4–21 × 1.5–9 cm, adaxial surface green and glabrous, abaxial surface greyish white and densely tomentose, lyrately pinnatisect or sometimes the lower leaves not lobed, lateral lobes 2–6 pairs, variable in shape, elliptic, obovate, to oblanceolate, those near base smaller; apical lobe large, rhomboid, deltoid or ovate, apex acute, obtuse to rounded, leaf margin shallowly toothed or not; petioles long in the lowermost leaves, gradually shorter for leaves growing upward. Upper leaves few, linear to linear-lanceolate, sessile. Capitula arranged as loose corymbs at stem terminal, rarely solitary. Involucres ovoid; phyllaries many-seriate, imbricate; outer few layers triangular-ovate to elliptic-ovate, 1.5–4 × 1.3–1.5 mm, acute or acuminate, with purple-red cristate appendages on abaxial side near the apex; middle layers ovate-oblong to oblong, 4–7 × 1.2–1.3 mm, apex not crested; inner ones linear-lanceolate to linear, 6–12 × 0.8–1 mm, acuminate and without appendages, tinged red. Florets purple to red, corolla 8.5–13 mm; upper limb 2.2–3 mm, deeply cleft into 5 linear lobes 2–2.5 mm; lower tube filiform, 6.5–10 mm. Cypselae oblong-cuneate, 2.5–4 × 1 mm, brown or reddish-brown, 13–16-ribbed, apex obliquely truncate. Pappus white, in 2 rows; inner ones plumose, 6–9 mm, base connate and deciduous as a ring; outer 3–9 short scales, growing on one side.

Locality: Sha Tin, Tai Po, Fanling, Sai Kung. *Y. S. Lau 3294; Y. W. Lam 191; S. Y. Hu 22790* (CUHK).

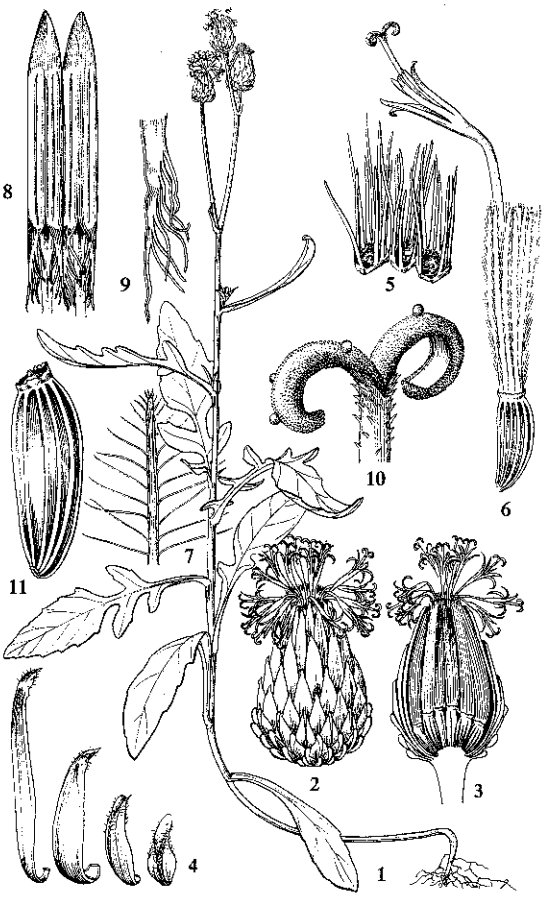


Figure 244. *Hemisteptia lyrata* (Bunge) Bunge

1. flowering plant; *2.* capitulum; *3.* vertical section of capitulum; *4.* inner phyllary to outer phyllary (left to right); *5.* portion of receptacle; *6.* floret; *7.* distal portion of pappus hair; *8.* anthers; *9.* fringed base of theca; *10.* stylar branches; *11.* cypsela. (drawn by P. Ma)

Distribution: Widely distributed in China except Xinjiang and Xizang; also in Korea, Japan, Vietnam, Laos.

Ecology: Margins of forests, wastelands, margins of cultivated lands. Flowering: Mar.–Aug.

28. Saussurea DC. 風毛菊屬

Annual, biennial or perennial herbs, sometimes subshrubs; stem glabrous, pubescent to tomentose, or plant without stem. Leaves alternate, margin entire, toothed, pinnatifid to pinnatisect. Capitula homogamous and discoid, sessile or pedunculate, in corymbose, paniculate or racemose form, sometimes aggregated on stem terminal, rarely solitary. Involucres cylindric, campanulate, ovoid or globose; phyllaries in many rows, appressed, imbricate, growing longer and narrower inward, sometimes with reddish scarious apical appendages or herbaceous green appendages. Receptacle flat or convex, densely setaceous or not. All florets bisexual and fertile, corolla tubular, lower tube filiform, upper limb broaden and deeply cleft into 5 lobes, colour purple or purple-red, rarely white; anther bases sagittate, basal appendages lacerate, filaments separate and glabrous; style branches divided, linear, obtuse or subobtuse apically. Cypselae obtusely 4-angulate or many-ribbed, sometimes transversely rugose, apex truncate, shortly coronate or not. Pappus (1–)2-seriate; outer ones shorter in length, capillary or slightly plumose, deciduous individually; inner ones longer, plumose, base connate, deciduous as a ring or persistent.

About 400 species distributed in Asia, Europe, N America and Australia; about 260 species in China; one species in Hong Kong.

1. Saussurea japonica (Thunb.) DC. 風毛菊 **(Fig. 245)**

Ann. Mus. Natl. Hist. Nat. 16: 203. 1810; FHK 167. 1861; FKH 149. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 20(3–4): 330. 1967; FTW ed. 2, 4: 1049. 1998; FRPS 78(2): 47. 1999.

Serratula japonica Thunb., Fl. Jap. 305. 1784.

Saussurea linearis Champ. ex Benth., Hooker's Journ. Bot. Kew Gard. Misc. 4: 235. 1852.

Biennial or perennial herbs; stem erect, 0.5–2 m tall, striate, not winged, densely pubescent and glandular. Lower leaves petiolate, petioles 2–12 cm, narrowly winged, leaf blade lanceolate, elliptic to oblong, 6–22 × 3–9.5 cm, pinnately toothed, pinnatifid to pinnatisect, or sometimes not lobed and appeared as lanceolate form, apical lobes lanceolate, lateral lobes 3–7 pairs with shape varied from triangular, lanceolate to linear, the middle ones largest, others gradually smaller towards both ends; all lobes apices obtuse to rounded, margin

entire or shallowly toothed. Median cauline leaves shortly petiolate, linear-lanceolate, pinnatilobed or not, margin entire or toothed. Upper leaves sessile, much smaller, linear-lanceolate, linear to bract-like, entire or slightly toothed. All leaves densely glandular and pubescent on both surfaces. Capitula many, arranged as corymbs or corymbose panicles; peduncles 0.5–2 cm, densely glandular and hairy. Involucres cylindric, 10–12 × 5–8 mm; phyllaries 6-seriate, abaxial side covered with glands and cobwebby-tomentose hair, 1-veined at the centre, all bearing purple-red membranous apical appendages which are orbicular and with margin toothed; excluding the appendages, outer few layers of phyllaries ovate, 1.8–4 × 1–2 mm, mostly herbaceous; median ones lanceolate to lanceolate-oblong, 3.5–8 × 1–2 mm, basal portion coriaceous and distal portion herbaceous; inner ones lanceolate to linear, 8–10 × 1–1.5 mm, leathery almost to the distal end. Receptacle densely fringed with hair about 5–7 mm. Florets bisexual and fertile, corolla purple, tubular, 1–1.2 cm, lower tube filiform, 6–7 mm, upper limb 5–6 mm, deeply cleft into 5 linear-lanceolate lobes about 4 mm. Cypselae brown, cylindric and obtusely 4-angled, 2.5–3 × 1 mm, with minute rostrum at apex. Pappus 2-seriate; outer layers capillary, 2–3 mm, deciduous individually; inner layers plumose, 7–8 mm, united at base, shed off as a ring.

Locality: Stanley, Tai Mo Shan, Lantau Island. *Y. S. Lau 1348, 3008; Y. W. Lam 461.*

Distribution: Widely distributed in China; also in Korea, Japan.

Ecology: Grassy hillslopes, wastelands. Flowering: Jun.–Dec.

Notes: The type specimen of *Saussurea linearis* was collected by J. G. Champion from Victoria Peak between 1847 and 1850.

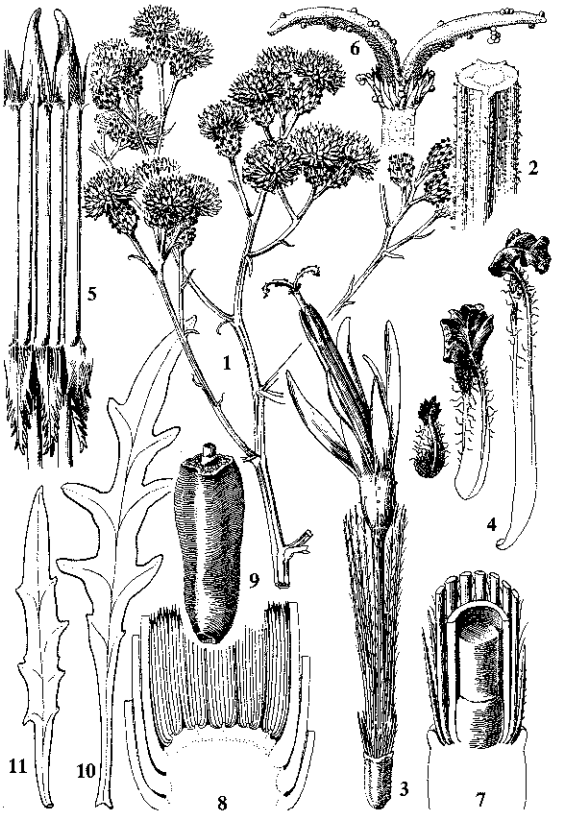


Figure 245. *Saussurea japonica* (Thunb.) DC.
1. flowering branch; *2.* portion of peduncle; *3.* floret; *4.* outermost phyllary to innermost phyllary (left to right); *5.* stamens; *6.* stylar branches; *7.* longitudinal section of apical portion of hypanthium; *8.* vertical section of receptacle; *9.* cypsela; *10.* lower leaf; *11.* median cauline leaf. (drawn by P. Ma)

29. **Pertya** Sch.-Bip. 帚菊屬

Perennial herbs, subshrubs or shrubs. Leaves alternate, or tufted on spur branches petiolate, lanceolate, oblong, or ovate, entire, dentate, or denticulate. Capitula discoid, homogamous, subsessile or pedunculate, solitary and terminal, or arranged in corymbose or paniculate inflorescence. Involucre campanulate or cylindric; phyllaries few- to multi-seriate, imbricate, herbaceous or leathery; receptacle flat, alveolate or not, glabrous or villous around alveola, without paleae. Florets few, hermaphrodite, fertile, tubular, corollas deeply 5-lobed, regularly or slightly irregularly, rarely obviously irregularly, lobes linear, revolute. Anther bases long tailed, apex appendaged. Styles shallowly divided at apex, style arms very short, abaxially with short hairs or papillae, apices obtuse. Cypselae terete, obovoid or obconic, ribbed. Pappus of scabrid bristles, numerous.

About 25 species distributed from Afghanistan to Japan; 18 species (17 endemic) in China; one species in Hong Kong.

1. Pertya pungens Y. C. Tseng 尖苞帚菊 **(Photo 489)**

Guihaia 5(4): 334. 1985; FRPS 79: 16, pl. 3: 6–9. 1996; FCD 8: 240. 2007.

Subshrubs, up to 1 m tall; stem and branches densely pubescent. Leaves alternate; petiole 3–5 mm; leaf blade ovate, 3–5.5 × 2–4 cm, papery, base subtruncate, apex acute, margin remotely callous-denticulate, 3-nerved, pilose on both surfaces. Capitula of 7 florets, usually 2–4 in terminal clusters. Involucre narrowly campanulate, 1.6–1.9 × 0.6 cm; phyllaries ca. 7-seriate, glabrous or only the outer ones pubescent abaxially, apices acute to acuminate, pungent, outer phyllaries ovate, 1.8–4 mm, inner ones 1.2–1.3 cm. Florets hermaphrodite, corolla tubular, ca. 1.3 cm, deeply 5-lobed; lobes linear, 3–6.5 mm, unequal. Cypselae fusiform, 6–7 mm, white villous, ribbed. Pappus scabrous, 1–1.2 cm, brownish, connate at the base.

Locality: Ma On Shan. *K. Y. Tam 102; F. W. Xing 7347, 7511.*

Distribution: Guangdong, Guangxi.

Ecology: Streamsides, margins of forests. Flowering: Oct.–Dec.

Notes: Listed in *Rare and Precious Plants of Hong Kong.*

30. **Ainsliaea** DC. 兔兒風屬

Perennial herbs; stem erect, simple or rarely branched. Leaves rosulate at base or subverticillate at a distance from the rhizomes or on stem middle, margin entire, toothed or lobed, petiolate. Capitula homogamous and discoid, narrow, sessile or shortly pedunculate,

often nodding, solitary or few to many arranged as spikes, racemes or panicles, usually 3 florets per head, or sometimes with 4 or 5 florets, rarely single. Involucres narrow-tubular; phyllaries many-seriate, imbricate, rigid, outer ones short ovate, inner ones lanceolate to oblong, gradually longer inward. Receptacle small and glabrous. All florets hermaphrodite and fertile, corolla tubular, upper limb deeply and obliquely cleft into 5 segments, reflexed; anther bases sagittate with basal appendages filiform, bearing apical appendages; stylar branches short and divergent, adaxial side complanate, apices obtuse rounded to truncate. Cypselae oblanceolate, slightly compressed, usually 5–10-ribbed and hairy, rarely not. Pappus in 1 row, plumose, equal in length, sometimes absent.

About 80 species distributed in E Asia and India; about 40 species in China; three species in Hong Kong.

1a. Leaves ovate, ovate-lanceolate to ovate-oblong, 1.5–6 cm across; lower leaf surfaces and petioles hairy.
  2a. Leaves mainly crowded at base or lower part of stem; leaf base conspicuously cordate; lower leaf surface pale green and usually tinged purplish red ..... 1. *A. fragrans*
  2b. Leaves mainly crowded at stem middle portion or above; leaf base truncate or sometimes faintly cordate; lower leaf surface pale green ..... 2. *A. macroclinidioides*
1b. Leaves linear to oblong, 0.3–0.9 cm wide; lower leaf surfaces and petioles glabrous ..... 3. *A. walkeri*

1. Ainsliaea fragrans Champ.
杏葉兔兒風 **(Fig. 246; Photo 490)**

Hooker's J. Bot. Kew Gard. Misc. 4: 236. 1852; FHK 192. 1861; FKH 149. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 18(1–2): 95. 1965; FRPS 79: 31. 1996; FTW ed. 2, 4: 822. 1998; FGD 8: 241. 2007.

Ainsliaea parvifolia auct. non Merr.: Check List HK Plants 67. 1993.

Perennial herbs; stem erect, scapose and simple, 15–40 cm tall, brownish pubescent to pilose. Leaves 4–6 crowded at base or in the lower part of stem in subverticillate form, ovate to ovate-oblong, 2–11 × 1.5–6 cm, base conspicuously cordate, apex obtuse to rounded and usually mucronulate, margin curved-mucronulate, upper surfaces green, glabrous or loosely hairy, lower surfaces pale green or somewhat purple-red, pilose, hair denser along veins and margins; petiole 2–7 cm, not winged, densely pilose. Capitula with 3 florets each, sessile or with short peduncle 1–2(–9) mm, arranged as spike or raceme; inflorescence axis brownish pubescent to pilose, bearing few subulate bracteoles 1–2 mm. Involucres narrow cylindric-tubular, 8–10 × 3–4 mm; phyllaries about 5–7-seriate, glabrous, sometimes tinged purplish red, apex acute; outer layers ovate, 1.2–2.2 × 0.5–1.3 mm; median layers ovate-elliptic, 3–5 × 1.5–2 mm; inner ones linear-oblong, 5.5–9 × 2–2.5 mm, margin scarious. Receptacle small, naked. All florets bisexual and fertile, colour white, aromatic, corolla tubular, 7–9 mm, upper limb deeply and obliquely cleft into 5 linear segments of 3–5 mm; anther bases sagittate and caudate, apical appendages oblong-truncate; stylar branches short, 0.5 mm, obtuse apically. Cypselae brown, oblanceolate-oblong, slightly compressed, 4–5 × 0.8–1 mm, ribbed, villous especially on the apical portion. Pappus pale brown, equal, plumose, 8–10 mm, base connate.

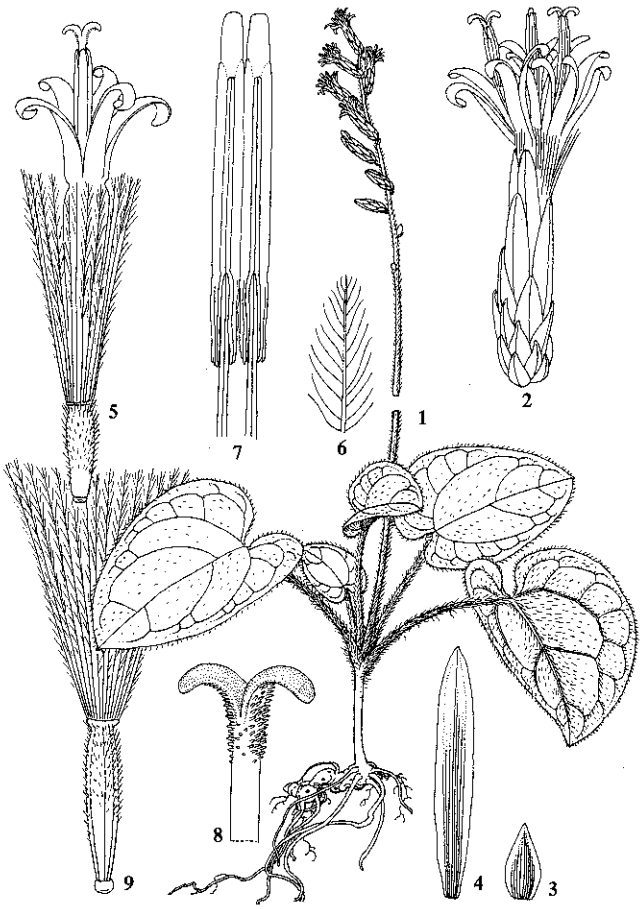


Figure 246. *Ainsliaea fragrans* Champ.
1. flowering plant; *2.* capitulum; *3.* outermost phyllary; *4.* innermost phyllary; *5.* floret; *6.* pappus hair; *7.* stamens; *8.* stylar branches; *9.* mature cypsela. (drawn by X. L. Zeng)

Locality: Common in Hong Kong. *Y. S. Lau 1573; C. P. Lau 083* (CUHK); *S. Y. Hu 9118* (CUHK).

Distribution: Guangdong, Hunan, Jiangxi, Zhejiang, Fujian; Japan.

Ecology: Thickets, grasslands. Flowering: Nov.–Feb. of the following year.

Uses: Medicinal (folklore).

2. Ainsliaea macroclinidioides Hayata 燈臺兔兒風

J. Coll. Sci. Tokyo 25(19): 141, pl. 22. 1908; S. Y. Hu, Quart. J. Taiwan Mus. 18(1–2): 97. 1965; FRPS 79: 59. 1996; FTW ed. 2, 4: 824. 1998; FGD 8: 244. 2007.

Perennial herbs; stem erect or sometimes decumbent, simple, 25–40 cm tall, densely pilose or glabrescent later. Leaves crowded at the stem middle part or above, in rosette or verticillate form, sometimes with few leaves scattered below, ovate to ovate-lanceolate, 2–6 × 1.5–4 cm, base truncate or faintly cordate, apex obtuse or acute, and usually mucronulate, margin entire and curved-mucronulate, adaxial surface green, glabrous or villous, abaxial surface pale green, loosely or densely villous, much hair growing along veins and

margins; petioles 1–6.5 cm, pilose. Capitula with 3 florets each, sessile or shortly pedunculate, arranged as spike or raceme, sometimes with few clustered at apical portion; inflorescence axis glabrous or loosely hairy, bearing few bracteoles. Involucres narrow cylindric-tubular, 3–4 mm across; phyllaries 6–7-seriate, purplish green, longitudinally veined abaxially, glabrous or slightly hairy near apices of those in the inner series; outer phyllaries ovate, 1.2–3 × 0.8–2 mm, obtuse; middle ones ovate-oblong, 4–6 × 2–2.2 mm, obtuse; inner ones lanceolate-oblong, 8–10 × 1.5 mm, acute. Receptacle plain, naked. All florets hermaphrodite and fertile, corolla white, tubular, 10–13 mm, upper limb deeply and obliquely 5-cleft, lobes linear, 4–6 mm; anther bases sagittate and caudate, apical appendages oblong-truncate; stylar branches divergent, less than 1 mm, rather flat, obtuse at apices. Cypselae brown, subcylindric, base narrowed, about 2–3 mm, ribbed, hairy. Pappus in 1 row, 6–7 mm, pale brown, plumose, base connate.

Locality: Ma On Shan, Sunset Peak. *S. Y. Hu 11275* (CUHK); *C. P. Lau 060* (CUHK); *L. T. Lo 327.*

Distribution: Guangdong, Guangxi, Hunan, Hubei, Jiangxi, Anhui, Fujian, Zhejiang, Taiwan.

Ecology: Thin forests, grassy hillslopes. Flowering: Aug.–Dec.

3. Ainsliaea walkeri Hook. f. 華南兔兒風 **(Photo 491)**

Bot. Mag. 102: t. 6225. 1876; FKH 149. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 18(1–2): 102. 1965; FRPS 79: 66. 1996; FGD 8: 245. 2007.

Perennial herbs; stem erect, simple, 15–40 cm high, loosely pubescent on apical part. Leaves crowded on middle portion of stem, sometimes with few scattered below, leaf blade oblong to linear, 3–8 × 0.3–0.7 cm, base gradually narrowed down, apex abruptly acute, margin of leaf apical half with 1–3 mucro growing along each side, upper surfaces green, lower surfaces pale green, glabrous above and below, midvein prominent on both sides; petioles 0.3–2 cm long, glabrous, base slightly broaden. Capitula with 3 florets each, bearing short peduncles of 2–11 mm, arranged as raceme to narrow panicle at terminal; inflorescence axis with few subulate bracteoles. Involucres narrow cylindric-tubular, 9–11 × 2.5–3 mm; phyllaries 5-seriate, glabrous or subglabrous, tinged purple-red at apex and along margin; outer phyllaries ovate, 1–2.5 × 0.5–1 mm, shortly acuminate; median ones ovate-lanceolate to lanceolate, 3–7 × 1.2–1.8 mm, acuminate or acute, margin thinly scarious; inner ones lanceolate to lanceolate-oblong, 8–11 × 1.5–2 mm, acute, margin broadly scarious. Receptacle small, naked. All florets hermaphrodite and fertile, corolla white, ca. 1 cm, upper limb deeply and obliquely cleft into 5 linear segments; anther bases sagittate and caudate, apical appendages obtuse-rounded to truncate; stylar branches divergent, short, less than 0.5 mm, flat, apices obtuse-rounded. Cypselae brown, oblanceolate-oblong, 4–6 × 0.6–1 mm, compressed, ribbed, densely villous. Pappus plumose, 6–6.5 mm, base connate.

Locality: Tai Tam, Bride's Pool, Luk Keng. *P. S. Choi 229; Y. S. Lau 2636; S. Y. Hu 6565* (CUHK).

Distribution: Guangdong, Guangxi, Fujian.

Ecology: Forests of valleys. Flowering: Oct.–Feb. of the following year.

Notes: The type specimen was derived from cultivated plants raised from seed collected by Captain Walker from Hong Kong Island before 1873.

31. Gerbera L. 扶郎花屬(大丁草屬)

Perennial herbs; stem scapose, erect, with or without scaly leaves in linear or subulate form. Leaves mainly radical, rosulate, entire, toothed or pinnatilobed. Capitula solitary and terminal to scape, heterogamous, radiate or disciform. Involucres disk-like, campanulate or turbinate; phyllaries 2–many-seriate, green or sometimes with margin and apex tinged purplish red, glabrous, pubescent or tomentose. Receptacle flat, glabrous, alveolate. All florets fertile. Marginal florets 1–2-seriate, female, usually with vestigial staminodes, corolla bilabiate, outer lip in long or short ligulate form, apex 2–3-toothed, inner lip 2-toothed or deeply divided into 2 filiform segments. Central florets many, hermaphrodite, corolla bilabiate and bilateral symmetrical, outer lip 3–4-lobed, inner lip 2-parted; anther bases sagittate, lobes entire or lacerate; stylar branches obtuse apically, adaxial side somewhat compressed. Cypselae cylindric or fusiform, ribbed, sometimes slightly flattened, usually hairy, apex obtuse or narrowed to form beak. Pappus setae capillary or scaberulous.

About 80 species mainly distributed in Africa, also in E & SE Asia; about 20 species in China; two species (one cultivated) in Hong Kong.

1a. Leaf margin coarsely dentate or irregularly lobed; capitula 5–10 cm across at anthesis; marginal female florets 2.5–4 cm long, bearing ligule much longer than the lower tube; cypselae not beaked ..... 1. *G. jamesonii*

1b. Leaf margin entire; capitula 2.5–4 cm wide at anthesis; marginal female florets 1.4–1.5 cm long, bearing ligule nearly as long as the lower tube; cypselae with beak 6–8 mm long ..... 2. *G. piloselloides*

1. Gerbera jamesonii Bolus 非洲菊(扶郎花) **(Fig. 247)**

Gard. Chron. 1: 772. fig. 122. 1889; et ex Hook. f., Bot. Mag. t. 7087. 1889; FRPS 79: 96. 1996; FGD 8: 247. 2007.

Perennial herbs. Scape 15–50 cm tall, without scaly leaves on it, tomentose, hair longer and denser upward. Leaves all radical, in rosette arrangement, elliptic to oblong, 8–25 × 5–10 cm, base attenuate, apex obtuse to rounded, margin coarsely dentate or irregularly pinnatilobed, upper surfaces pubescent, lower surfaces pubescent-tomentose, or glabrescent when aged, midvein prominent, lateral veins 4–7 pairs; petiole 3–25 cm, striate, hairy. Capitula solitary, terminal to scape, 5–10 cm across at anthesis. Involucres campanulate; phyllaries in 3–4 rows, apex long-acute; outer ones linear or subulate, 4–7 × 0.5–1 mm, densely pubescent-tomentose; middle ones lanceolate, 8–12 × 1–2 mm, pubescent-tomentose, margin scarious; inner ones lanceolate-oblong, 12–14 × 2 mm, scarious, abaxial

side loosely pubescent or glabrous. Receptacle flat, glabrous, alveolate. Marginal florets 2-seriate, the outermost florets colour various, pale red, purple-red, orange-red, orange to yellow, corolla ligulate-bilabiate, ligule elongate-oblong with length 2.5–3.5 cm, width 2–4 mm, apex 2–3-lobed, the opposite lip 6–10 mm, deeply cut into 2 filiform segments, lower tube 2–3 mm, about 1/8 of the ligule, staminodes linear, slightly exserted; style conspicuously exserted, minutely branched. Inner female florets shorter, outer lip 6–7 mm, 2–3-toothed, inner lip 4–5 mm, deeply cleft into 2 linear segments, lower tube 3–4 mm; staminodes linear, stylar branches tiny. Central florets numerous, corolla bilabiate, total 8–9 mm, inner lip deeply 2-cleft; anther bases caudate, apical appendages subtruncate-oblong; style usually hidden in anther tube, branches short, less than 1 mm, apex obtuse. Cypselae cylindric-fusiform, 4–5 mm, densely pubescent. Pappus 6–7 mm, greyish white, or orange-brown after dried.

Locality: Cultivated. *Y. S. Lau 428; H. Y. Yeung 101* (CUHK); *S. Y. Hu 6385* (CUHK).

Distribution: Native to Africa, cultivated elsewhere.

Ecology: Flowering: Winter to spring of the following year.

Uses: Ornamental.

2. Gerbera piloselloides (L.) Cass.

毛大丁草 **(Fig. 248, Photo 492)**

Dict. Sci. Nat. 18: 461. 1820; FHK 191. 1861; FKH 149. 1912; FRPS 79: 94. 1996; FGD 8: 246. 2007.

Arnica piloselloides L., Pl. Rar. Afr. 22. 1760.

Piloselloides hirsuta (Forsk.) C. Jeffrey, Kew Bull. 21: 218. 1967.

Perennial herbs; stem scapose, 20–60 cm tall, usually without bract-like leaves, or occasionally have one, densely tomentose, hair denser upward. Leaves radical and rosulate, obovate, obovate-oblong or oblong, 5–15 × 1.8–6 cm, base attenuate or obtuse, apex rounded, margin entire and densely hairy, adaxial surfaces pubescent, or glabrescent when aged, abaxial side densely white arachnoid-tomentose, midvein prominent on lower side, lateral veins 6–9 pairs; petioles 1–8.5 cm, densely tomentose. Capitula solitary to scape terminal, 2.5–4 cm across. Involucres tubular; phyllaries 2-seriate, linear or linear-lanceolate, apex acute, abaxial side densely brownish tomentose; outer ones 6–10 × 1–1.3 mm; inner ones 12–16 × 1.5–2 mm, margin scarious. Receptacle naked, alveolate. Marginal florets female, in 2 rows, outermost one with corolla ligulate-bilabiate, 14–15 mm, outer lip ligule-form, white adaxially, purple or purple-pink abaxially, oblanceolate or spatulate-oblong, 8–10 mm, apex faintly 3-toothed; opposite lip 4–5 mm, deeply divided into 2 filiform segments; lower tube about 6 mm in length; style minutely branched. Inner female florets about 10 mm, outer lip nearly as long as inner lip, about 3–5 mm, outer lip minutely 3-toothed, inner lip 2-cleft; lower tube 5 mm; style shortly branched. Central florets bisexual, many, corolla 10–11.5 mm, outer lip and inner lip 2–2.5 mm, the outer one 3-lobed, the inner one 2-cleft; lower tube 8–9 mm; anther bases caudate, apical appendages truncate; stylar branches short, about 1 mm, obtuse at apices. Cypselae fusiform, 6-striate, 5–6 mm, pubescent, apex bearing glabrous beak 6–8 mm. Pappus capillary, 9–10 mm, orange-red or pale brown.

Locality: Clear Water Bay, Ma On Shan, Tai Mo Shan, Lantau Island, Ping Chau. *Y. S. Lau 2127; S. P. Lau 43; S. Y. Hu 11946* (CUHK).

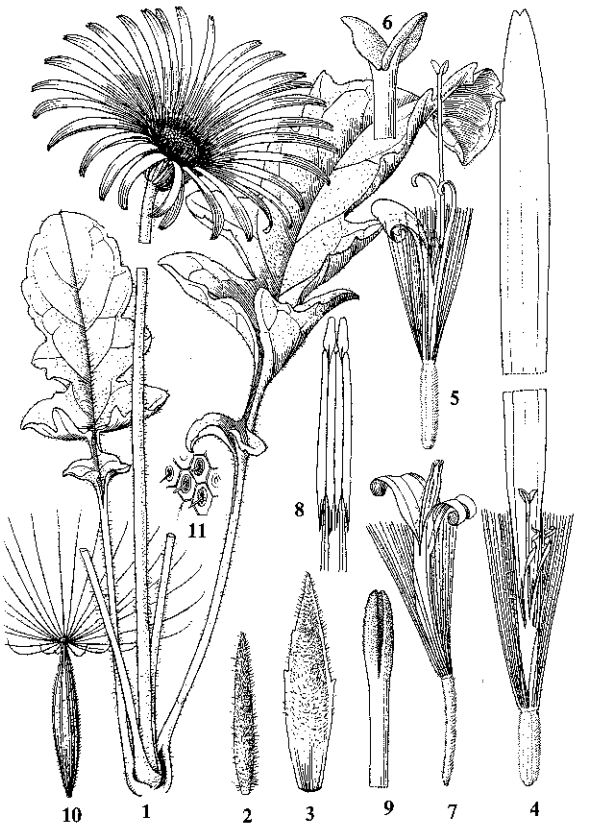


Figure 247. *Gerbera jamesonii* Bolus

1. flowering plant; *2.* outer phyllary; *3.* middle phyllary; *4.* marginal floret; *5.* inner female floret; *6.* stylar branches of inner female floret; *7.* disk floret; *8.* stamens; *9.* stylar branches of disk floret; *10.* cypsela; *11.* portion of receptacle. (drawn by X. L. Zeng)

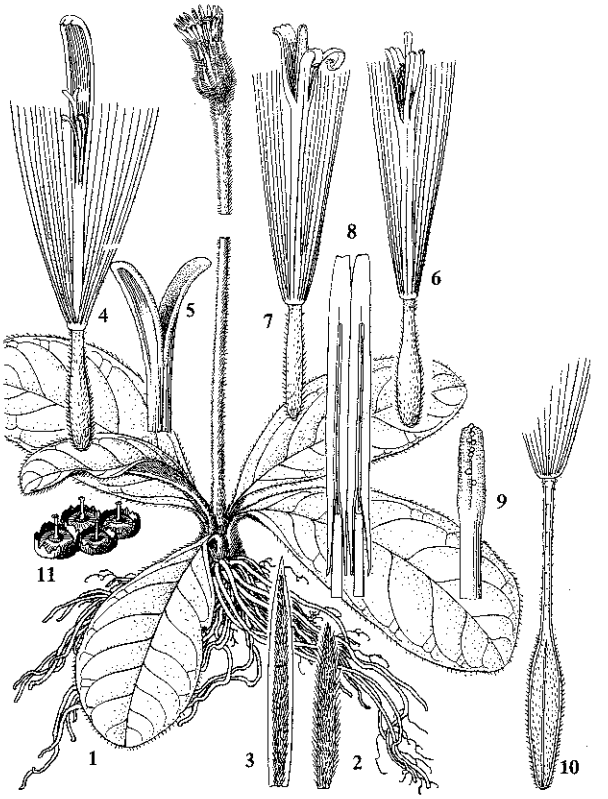


Figure 248. *Gerbera piloselloides* (L.) Cass.

1. flowering plant; *2.* outer phyllary; *3.* inner phyllary; *4.* marginal female floret; *5.* stylar branches of marginal female floret; *6.* inner female floret; *7.* inner disk floret; *8.* stamens; *9.* stylar branches of disk floret; *10.* cypsela; *11.* portion of receptacle. (drawn by X. L. Zeng)

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Hubei, Hunan, Jiangxi, Jiangsu, Zhejiang, Fujian; Japan, Vietnam, Thailand, Myanmar, India, Nepal, Indonesia, Australia.

Ecology: Grassy hillslopes, thickets. Flowering: Mar.–May.

Uses: Medicinal (folklore).

32. Calendula L. 金盏花属

Annual or perennial herbs; stem glandular pubescent. Leaves alternate, entire or undulate. Capitula heterogamous and radiate, solitary to stem and branch terminal. Involucres campanulate or hemispherical; phyllaries herbaceous, 1–2-seriate, lanceolate to linear-lanceolate, apex acuminate. Receptacle flat or convex, naked. Peripheral florets pistillate and fertile, in 2–3 rows, corolla ligulate, apex 3-toothed; stylar branches linear. Central florets bisexual but functionally staminate, infertile, corolla tubular with apex 5-lobed; anther bases sagittate; style undivided or slightly branched, swollen at apex. Cypselae incurved.

About 20 species native to the Mediterranean areas, W Europe and W Asia; one species cultivated in Hong Kong.

1. Calendula officinalis L. 金盏花 **(Fig. 249)**

Sp. Pl. 921. 1753; S. Y. Hu, Quart. J. Taiwan Mus. 19(1–2): 10. 1966; FRPS 77(1): 327. 1999; FGD 8: 232, fig. 142. 2007.

Annual herbs 20–70 cm tall; stem branched, covered with glandular pubescent hair. Basal leaves spatulate to oblanceolate, 4.5–16.5 × 1–4 cm, apex obtuse-rounded, margin entire. Middle cauline leaves oblanceolate-oblong, sessile and amplexicaul, 4–10 × 1–3.5 cm, apex obtuse, margin undulate, loosely and minutely toothed, both surfaces puberulous to pubescent, hair denser along margin and midvein. Upper leaves smaller in size, lanceolate-oblong. Capitula heterogamous and radiate, solitary to stem and branch terminals, 4–8 cm across. Involucres hemispherical; phyllaries herbaceous, 2-seriate, lanceolate-oblong, outer layer slightly longer than the inner ones, 10–13 × 1.5–2 mm, apex long acuminate-caudate, abaxially hirsute, hair multicellular. Marginal ligulate florets in 2–3 series, colour yellow or orange-yellow, ligule linear oblong, 1.5–3 × 0.4–0.8 cm, tube short and hairy, female and fertile. Disk tubular florets about 5 mm, apex with 5 lanceolate lobes, functionally staminate and infertile. Cypselae pale yellow or pale brown, incurved, abaxial side densely tuberculate and wrinkled, glandular hairy, adaxial side longitudinally striate. Pappus absent.

Locality: Cultivated. *HK sheet 15995; S. Y. Hu 9311A* (CUHK); *H. Y. Yeung 182* (CUHK).

Distribution: S Europe and N Africa, cultivated elsewhere.

Ecology: Flowering: Feb.–Oct.

Uses: Ornamental.

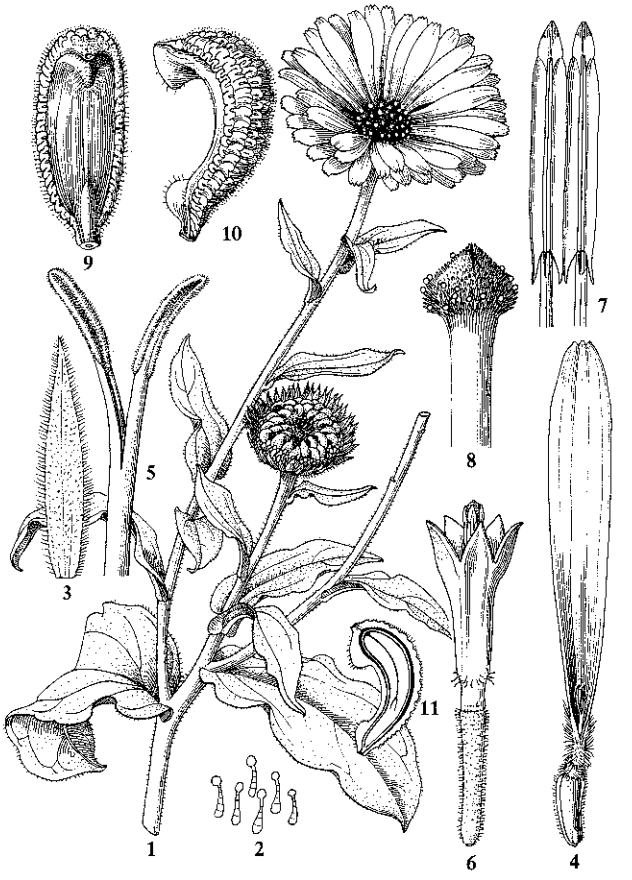


Figure 249. *Calendula officinalis* L.

1. flowering and fruiting branch; *2.* glandular hair on stem; *3.* phyllary; *4.* marginal floret; *5.* stylar branches of marginal floret; *6.* disk floret; *7.* stamens; *8.* stylar branches of disk floret; *9.* adaxial view of cypsela; *10.* abaxial view of cypsela; *11.* vertical section of cypsela. (drawn by X. L. Zeng)

33. Anisopappus Hook. & Arn. 山黄菊属

Annual erect herb. Leaves alternate and dentate. Capitula heterogamous, radiate. Involucres hemispherical; phyllaries herbaceous, imbricate. Receptacle slightly convex, paleate, the paleae deciduous. Marginal florets pistillate and fertile, in 1–2 series, corolla ligulate with the ligules spreading and apically 3-dentate, yellow. Disk florets hermaphrodite and usually fertile, corolla tubular-campanulate, limb 5-lobed; anther base sagittate, lobes caudate, apical appendage ovate-oblong; stylar branches with apex broad and obtuse-rounded. Cypselae subterete or those of pistillate florets slightly flattened, striate-costate, glabrous or loosely hairy. Pappus scarious in coroniform and with 4–5 bristles.

About three species native to warm areas of Asia and tropical Africa; one species in China and in Hong Kong.

1. Anisopappus chinensis (L.) Hook. & Arn. 山黄菊 **(Fig. 250; Photo 493)**

Bot. Beech. Voy. 196. 1836; FHK 180. 1861; FKH 144. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 18(1–2): 116. 1965; FRPS 75: 317. 1979; FGD 8: 151, fig. 84. 2007.

Verbesina chinensis L., Sp. Pl. 901. 1753.

Annual herbs; stem erect, 25–110 cm tall, striate, glandular, pubescent with hair multicellular, lower portion less hairy or subglabrous, base woody. Leaves on lower part withered at anthesis; those on middle part lanceolate to lanceolate-oblong, 3–5 × 0.7–2 cm, both surfaces pubescent and glandular, denser beneath, base broadly cuneate or truncate, apex obtuse-rounded, margin irregularly dentate

with the teeth obtuse, trinerved or triplinerved, with reticulate veinlets, prominent on lower leaf surfaces; petiole 0.5–2.5 cm. Upper leaves smaller in size and shorter-petiolate. Capitula terminal to main stem or branches, several arranged as loose corymbs; peduncle 4–7 cm, densely pubescent. Involucres hemispherical, 6–9 mm; phyllaries 3-seriate, lanceolate to linear-oblong, 3–6 mm with outer ones shorter, densely pubescent and glandular on abaxial surfaces. Receptacle slightly convex, the center of areoles elevated; palea carinate, about 5 mm, enveloped the cypselae of disk florets, deciduous. Marginal ligulate florets female, corolla yellow, 6 mm, apex truncate and 3-toothed, glandular. Disk tubular florets bisexual, corolla tubular-campanulate, 3–3.5 mm, apex 5 ovate and glandular lobes. Cypselae subcylindric, loosely puberulent, truncate apically, narrowed at base; those of ligulate florets 2 mm, about 10-striate-costate; the disk ones 2.5 mm, 4–5-angulate. Pappus scarious, coroniform and 2–3 mm together with 4–5 bristles of 0.5–1 mm.

Locality: Common in Hong Kong. *P. S. Choi 383; S. Y. Hu 12405* (CUHK); *N. H. Li 245* (CUHK).

Distribution: Guangdong, Guangxi, Yunnan, Fujian.

Ecology: Margins of forests, wastelands. Flowering: Aug.–Nov.

34. Carpesium L. 天名精屬

Perennial herbs; stem erect, branches many. Leaves alternate. Capitula heterogamous, disciform, usually pendulous. Involucres campanulate, hemispherical or subglobose; phyllaries 3–4-seriate, outer layers herbaceous or with tips foliaceous, inner ones scarious. Receptacle plain and nude. All florets yellow, fertile; marginal ones female, 1–many-seriate, corolla tubular with apex 3–5-lobed. Disk florets many, bisexual, corolla tubular with upper limb dilated, 4–5-dentate; anther bases sagittate, caudate; stylar branches of disk florets linear, subcomplanate, obtuse to rounded at apex. Cypselae ribbed and grooved, apex narrowed as short glandular beak with a cartilaginous ring. Without pappus.

About 20 species native to C Asia and Europe; 17 species in China; one species in Hong Kong.

1. Carpesium abrotanoides L. 天名精 (Fig. 251)

Sp. Pl. 860. 1753; FKH 144. 1912; FRPS 75: 313. 1979; FTW ed. 2, 4: 893. 1998; FGD 8: 149, fig. 82. 2007.

Perennial herbs; stem 50–100 cm tall, striate, branches many, lower portion woody and subglabrous, upper part pubescent. Basal leaves withered at anthesis, median and upper ones 4–11.5 × 0.8–5.5 cm, base cuneate, apex obtuse to acute, margin irregularly dentate, adaxial surface puberulent, abaxial surface pubescent and glandular, petiole 5–15 mm; leaves on upper portion smaller in size, apex acute to acuminate, petioles much shorter or almost absent. Capitula axillary, subsessile or shortly pedunculate, arranged as spicate form, sometimes subtended by several elliptic or lanceolate leaves of 4–15 mm. Involucres depressed-globose, 6–10 mm across; phyllaries 3-seriate; outer ones ovate and shortest, about 3.5 mm, apex obtuse, basally scarious and apically foliaceous, margin of upper half ciliate, abaxial side pubescent; middle phyllaries lanceolate-oblong, 4.5–5 mm; while inner ones oblong, 5–6 mm, both scarious, with rounded apex, margin ciliate and shallowly serrulate near the tip, not entire. Receptacle plane, nude, the centre of areoles elevated. Florets yellow, glandular near the limb apex, marginal ones female, corolla narrowly tubular,

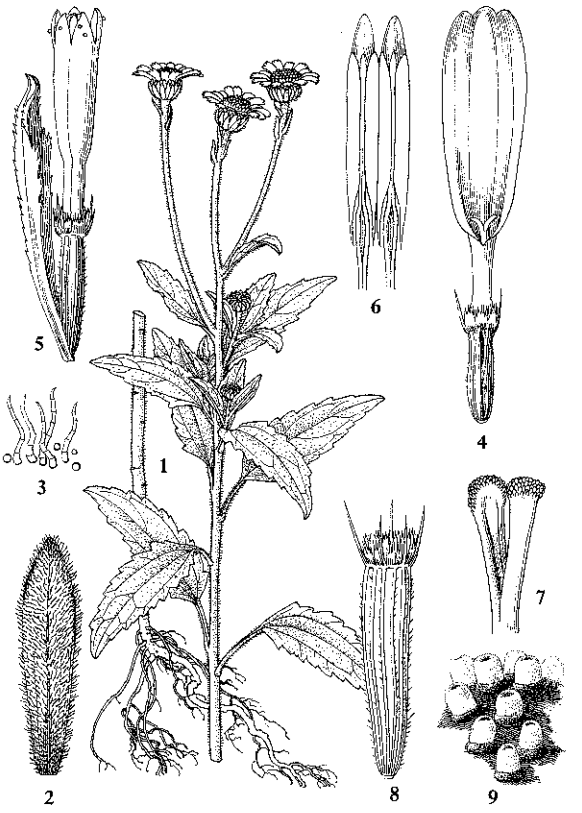


Figure 250. *Anisopappus chinensis* (L.) Hook. & Arn.
1. flowering plant; *2.* phyllary; *3.* hairs and glands on phyllary; *4.* marginal ligulate floret; *5.* tubular paleate floret; *6.* stamens; *7.* stylar branches of tubular paleate floret; *8.* cypsela; *9.* portion of receptacle. (drawn by X. L. Zeng)

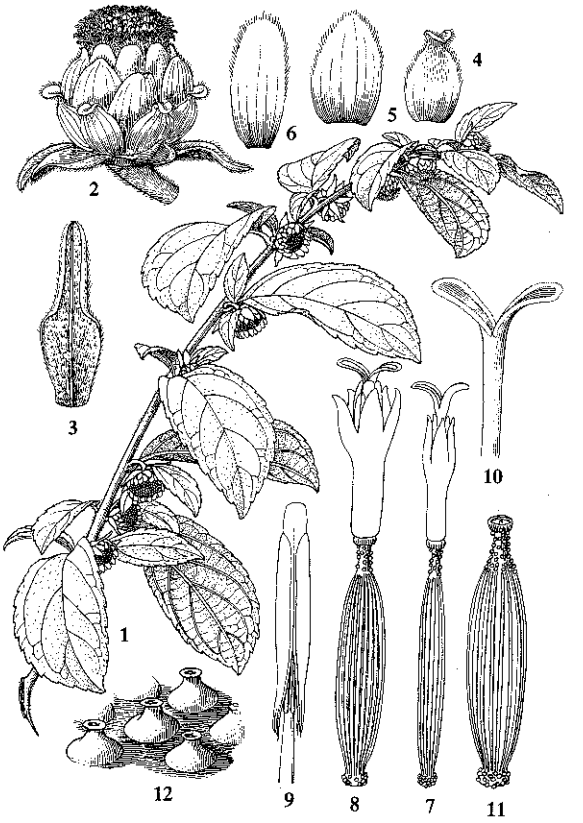


Figure 251. *Carpesium abrotanoides* L.
1. flowering branch; *2.* capitulum; *3.* leaf subtending capitulum; *4.* outer phyllary; *5.* middle phyllary; *6.* innermost phyllary; *7.* marginal tubular floret; *8.* central hermaphrodite floret; *9.* stamen of central floret; *10.* stylar branches; *11.* cypsela; *12.* portion of receptacle. (drawn by X. L. Zeng)

1–1.5 mm, apex 5-lobed; central florets hermaphrodite, corolla similar in shape but larger, 2–2.5 mm; anther sagittate at base with caudate and split lobes, the apical appendages oblong and truncate at tip; stylar branches subcomplanate, apex rounded. Cypselae oblong-cylindric, 3–3.5 mm, striate-costate, narrowed at base, apex rostrate and with an annular cartilaginous crown, glandular at the base and on the rostrum. Pappus absent.

Locality: Sha Tin, Wu Kai Sha. *W. J. Tutcher 11229; HK sheet 32940; N. H. Li 12* (CUHK).

Distribution: Widely distributed in China; also in Japan, Korea, Myanmar, Sikkim.

Ecology: Wastelands, roadsides. Flowering: Jun.–Mar. of the following year.

Uses: Medicinal (folklore).

35. Epaltes Cass. 球菊屬

Herbs erect or prostrate. Leaves alternate, entire or toothed. Capitula disciform, heterogamous. Involucres hemispherical to globose; phyllaries in several series, inner layers longer and narrower, imbricate. Receptacle naked. Marginal florets female and fertile, many-seriate, corolla tubular with apex 2–3-lobed; stylar branches exserted. Disk florets bisexual and sterile, fewer in numbers, corolla tubular, apically 4–5-lobed; style subulate, entire or shortly bifid; stamens 4–5, anther base sagittate, caudate. Cypselae obovoid-oblong, 5–10-ribbed, hairy at base. Pappus absent.

About 17 species in Africa, America, Australia and SE Asia; two species in China; one species in Hong Kong.

1. Epaltes australis Less. 球菊(鵝不食草) **(Fig. 252)**

Linnaea 5: 148. 1831; FKH 143. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 245. 1966; FRPS 75: 56. 1979; FTW ed. 2, 4: 942. 1998; FGD 8: 166, fig. 92. 2007.

Sphaeromorphaea australis (Less.) Kitam., Acta Phytotax. Geobot. 6(2): 80. 1937.

Annual herbs; stem 7–30 cm, prostrate, branched at base, shallowly striate, loosely pilose. Leaves sessile, obovate to oblanceolate, 1–4 × 0.3–1.5 cm, base attenuate, apex obtuse to rounded, margin irregularly dentate, both surfaces sparsely pilose and pitted. Capitula many, growing laterally, subsessile or shortly pedunculate, globose first and then become broader. Involucres hemispherical, 4–5 mm across; phyllaries 4-seriate, green, scarious; outer 2 layers ovate to obovate, 1–2 mm, apex rounded; inner 2 layers obovate-oblong, 2–2.5 mm, obtuse. Receptacle slightly convex, glabrous. Outer pistillate florets numerous, fertile, corolla tubular, 1 mm, distally narrowed and with apex minutely 3-lobed, bottom inflated, loosely glandular; stylar branches blunt and exserted. Central bisexual florets fewer, functionally staminate, corolla tubular, campanulate, 1.2 mm, apex 4 triangular and obtuse lobes, pale purple to pink in colour, slightly glandular; stamens 4. Cypselae of outer female florets obovoid-oblong, 1 mm, 10-ribbed, apex truncate, base narrowed and hairy, glandular. Those of disk florets similar but empty. Pappus absent.

Locality: Fanling, Sha Tin, Tsim Bei Tsui, Pak Shek Kok, Ho Pui, Lantau Island. *Y. W. Lam 670; S. Y. Hu 11888, 12521* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian, Taiwan; India, Thailand, Indochina, Malaysia, Australia.

Ecology: Moist places of abandoned lands. Flowering: Mar.–Jun.

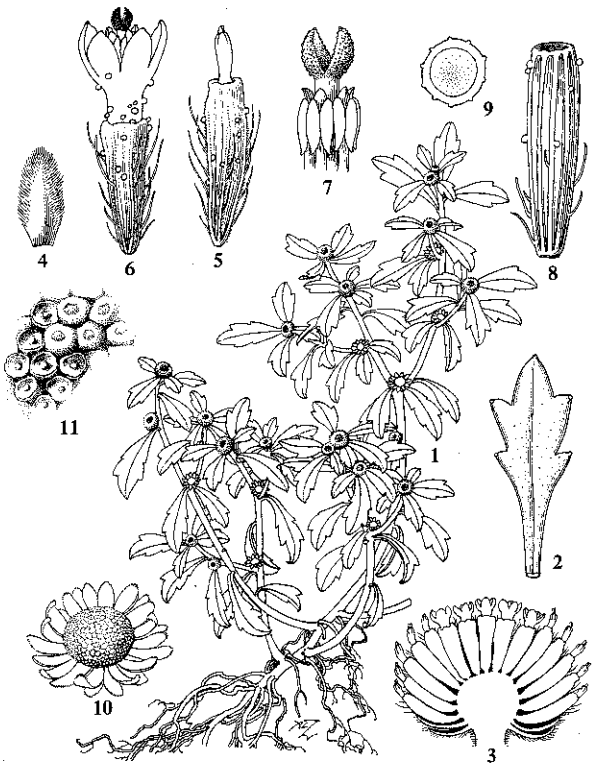


Figure 252. *Epaltes australis* Less.
1. whole plant with adventitious roots; *2.* leaf showing numerous glandular pits on both surfaces; *3.* vertical section of capitulum; *4.* outer phyllary; *5.* marginal female floret; *6.* disk floret; *7.* stamens and style of disk floret; *8.* cypsela; *9.* cross section of cypsela; *10.* receptacle after fruit dispersal; *11.* portion of receptacle. (drawn by X. L. Zeng)

36. Laggera Sch.-Bip. ex Benth. 六棱菊屬

Annual or perennial herbs, or with basal part woody. Stem erect, tomentose, pubescent or glabrous. Leaves alternate, sessile, margin entire or toothed, base often decurrent and forming wings on the stem. Capitula many, heterogamous, disciform, in racemes on axillary branches. Involucres campanulate or subhemispherical; phyllaries many-seriate, imbricate, outer layers shorter and herbaceous, often recurved, inner ones longer and scarious. Receptacle plain, nude. Florets yellow to purple. Marginal ones many, female and fertile, corolla filiform-tubular, usually 4-lobed, or sometimes 3- or 5-lobed; stylar branches obtuse. Disk florets few, hermaphrodite and fertile, corolla tubular, apex with 5 lobes; anther base sagittate or shortly 2-cleft, lobes obtuse or acute, often unequal in length; stylar branches linear-subulate, papillose. Cypselae elliptic-oblong, 10-ribbed, glabrous or hairy. Pappus bristles 1-seriate, white, deciduous.

About 20 species, native to tropical Africa and SE Asia; three species in China; one species in Hong Kong.

1. Laggera alata (D. Don) Sch.-Bip. ex Oliv.
六棱菊 **(Fig. 253)**

Trans. Linn. Soc. London 29: 94. 1873; FKH 143. 1912; S. Y. Hu, Quart. J. Taiwan. Mus. 20(1–2): 33. 1967; FRPS 75: 47. 1979; FTW ed. 2, 4: 1006. 1998; FGD 8: 163, fig. 89. 2007.

Erigeron alatum D. Don, Prodr. Fl. Nepal. 171. 1825.

Blumea alata DC., Prodr. 5: 448. 1836; FHK 177. 1861.

Perennial erect herbs; stem base woody, 50–100 cm tall, densely covered with glandular pubescent to tomentose hair, with wings 1–2 mm broad and entire. Cauline leaves oblong, 3–8 × 0.5–1.5 cm, base decurrent, apex obtuse to rounded, margin mucronulate or sometimes entire, densely glandular-hairy and with strong midvein protruded on both surfaces. Upper leaves gradually smaller in size, especially those on branches, 1.5–3.5 × 3–6 mm, narrowly oblong to linear. Capitula many, drooping, growing as raceme on axillary winged branches, and branches grouped together as large racemose-panicle. Peduncles 0.5–2 cm, glandularly pubescent, without wings. Involucres ovoid to campanulate, 7–10 mm; phyllaries 6-seriate, shape changing inward from obovate, to ovate, lanceolate and linear-oblong, length increases from outermost 2.5 mm to innermost 8 mm, apex acute; outer several layers herbaceous, green or apically green, some tinged purple near the tip, glandular and hairy on abaxial surfaces and along margins, usually recurved; inner series scarious, sparsely puberulent to glabrous. Receptacle plain and nude, areoles with elevated centers. Florets purple; marginal ones many-seriate, pistillate, corolla filiform-tubular, 5–6 mm, minutely 3–4-lobed; disk ones few, hermaphrodite, 5–6 mm, bearing 5 lobes ovate and papillose, loosely hairy; anther bases sagittate and acute, apical appendages oblong and rounded; style reddish, papillose. Cypselae elliptic-oblong, 0.8 mm, 10-ribbed. Pappus bristles white, 5 mm, deciduous.

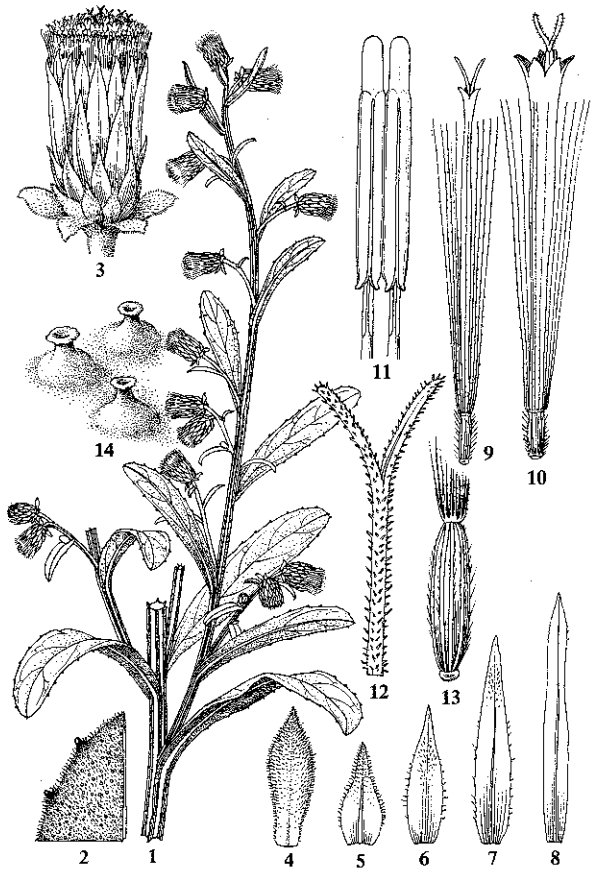


Figure 253. *Laggera alata* (D. Don) Sch.-Bip. ex Oliv.
1. flowering branch; *2.* portion of leaf showing hairs and glands; *3.* capitulum; *4–8.* outermost phyllary to innermost phyllary; *9.* marginal floret; *10.* disk floret; *11.* anthers; *12.* stylar branches of disk floret; *13.* cypsela; *14.* portion of receptacle. (drawn by X. L. Zeng)

Locality: Hong Kong Island, Bride's Pool, High Island, Yung Shue O, Lantau Island. *Y. W. Lam 1291; S. L. Thrower 1408b* (CUHK); *S. Y. Hu 8590* (CUHK).

Distribution: S to SW and E China; Indochina, Malaysia, India, E Africa.

Ecology: Banks of paddy fields, grassy hillslopes. Flowering: Oct.–Feb. of the following year.

37. Gnaphalium L. 鼠麴草屬

Annual or rarely perennial herbs. Stem erect or diffusely branched, woolly or villous. Leaves alternate, entire or subentire, sessile or shortly petiolate. Capitula heterogamous, disciform, arranged as terminal or axillary corymbs, spikes or compacted fascicles. Involucres urceolate or campanulate; phyllaries in 2–5 series, imbricate, totally or margin broadly membranous, becoming smaller gradually outward, the outermost lanate. Receptacle flat, convex or concave, pitted or not. All florets fertile, corolla yellow or pale yellow in colour. Peripheral florets numerous, pistillate, corolla filiform with apex minutely 2–4-dentate. Central florets few, hermaphrodite, corolla tubular, limb dilated, apex 5-lobed; anther acute or obtuse at apex, sagittate at base; stylar branches cylindric, papillose, distal end truncate or capitate. Cypselae oblong, glabrous or rarely loosely hairy and glandular. Pappus in 1 series, united at base or not, deciduous, white or dirty white.

About 200 species distributed worldwide; 19 species in China; four species in Hong Kong.

1a. Capitula in corymbose arrangement; phyllaries with shinny golden- or lemon-yellow colour.
2a. Leaves linear-spathulate, white tomentose on both surfaces; style shorter than corolla ..... 1. *G. affine*
2b. Leaves linear, glabrous adaxially; style longer than corolla ..... 2. *G. hypoleucum*
1b. Capitula in spike form; phyllaries straw- or greyish-yellow, or brown in colour.
3a. Pappus united at base and shed off as a ring ..... 3. *G. pensylvanicum*
3b. Pappus not united at base and deciduous separately ..... 4. *G. polycaulon*

1. Gnaphalium affine D. Don 鼠麴草

Prodr. Fl. Nepal. 173. 1825; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 272. 1966; FRPS 75: 225. 1979: FGD 8: 170. 2007.

Gnaphalium multiceps DC., Prodr. 6: 222. 1837; FHK 188. 1861; FKH 144. 1912.

Gnaphalium luteoalbum subsp. *affine* (D. Don) Koster, Blumea 4: 484. 1941; FTW ed. 2, 4: 977. 1998.

Annual herbs; stem (4–)15–30 cm tall, striate, densely lanate, usually with creeping or ascending branches at base. Leaves sessile, oblanceolate-spatulate, 1.5–6 cm × 2–10 mm, base attenuate and decurrent, apex rounded and mucronulate, margin entire, both surfaces tomemtose, woolly hair appearing much denser on lower surface. Capitula subsessile, compacted tightly into terminal corymbs. Involucres globose-campanulate, 2–3 mm across; phyllaries 2–3-seriate, membranous, shinny golden or lemon-yellow, outer ones elliptic-ovate, 2 mm, base densely woolly, apex rounded; middle and inner ones oblanceolate-spatulate to long-spatulate, 3 mm, subglabrous or slightly woolly, apex obtuse. Receptacle concave, naked. Florets yellow or pale yellow. Outer female florets numerous, corolla filiform-tubular, 2 mm, apex minutely 3-toothed. Central bisexual florets few, corolla tubular, 2–2.2 mm, apex shortly 5-lobed. Cypselae obovate-oblong, 0.5 mm, papillose. Pappus setae rough, 2 mm, yellowish white, deciduous separately or with several setae connate at base.

Locality: Common in Hong Kong. *Y. S. Lau 2676, 2697; S. Y. Hu 6940* (CUHK).

Distribution: Widely distributed in China; also found in Japan, Philippines, Vietnam, Indochina, Indonesia.

Ecology: Wastelands near villages, weed in gardens. Flowering: Jan.–Apr., Aug.–Nov.

Uses: Medicinal (folklore).

2. Gnaphalium hypoleucum DC. 秋鼠麴草

Contr. Bot. India 21. 1834; FHK 187. 1861; FKH 144. 1912; FRPS 75: 226. 1979; FTW ed. 2, 4: 975. 1998; FGD 8: 172. 2007.

Annual herbs; stem 30–80 cm tall, striate, densely white-lanate and with short glandular hairs, usually branched on the upper portion. Leaves sessile; basal leaves withering before anthesis; lower stem leaves narrowly lanceolate to linear, 6–13 cm × 3–10 mm, base attenuate and decurrent, apex acuminate or acute, margin entire, adaxial surfaces green, densely covered with short glandular hairs, and with sparsely lanate on the midvein, abaxial surface densely white woolly. Capitula numerous, sessile or shortly pedunculate, in terminal congested corymbs. Involucres globose-campanulate, 3–5 mm across; phyllaries 4-seriate, membranous, shinny golden-yellow, subequal, 3–5 mm, outer ones obovate, apex rounded, abaxially white woolly at base; middle ones obovate-oblong, apex obtuse, slightly white woolly at base abaxially; inner ones narrowly oblong to linear, apex acute, glabrous. Receptacle pitted. Florets yellow or pale yellow. Outer female florets numerous, corolla filiform-tubular, 3 mm, apex minutely 3–4-toothed. Central bisexual florets few, corolla tubular, ca. 4 mm, apex shortly 5-lobed, style exserted. Cypselae oblong, 0.5 mm. Pappus white, ca. 3 mm, deciduous.

Locality: Common in Hong Kong. *HK sheet 2592.*

Distribution: Widely distributed in E, S, C, SW & NW China; Korea, Japan, Philippines, Indochina, India, Indonesia.

Ecology: Open fields and wastelands near villages, roadsides. Flowering: Aug.–Dec.

Uses: Medicinal (folklore).

3. Gnaphalium pensylvanicum Willd.

匙葉鼠麴草 **(Fig. 254; Photo 494)**

Enum. Pl. Hort. Berol. 867. 1809; FRPS 75: 238. 1979; FTW ed. 2, 4: 979. 1998; FGD 8: 172. 2007.

Gnaphalium purpureum auct. non L.: FHK 188. 1861; FKH 144. 1912.

Annual herbs, 10–35 cm tall; stem erect, striate, white woolly, with or without ascending branches at base. Leaves sessile, oblanceolate or spatulate, 2–8 × 0.5–2 cm, base attenuate and decurrent, apex rounded, and some mucronulate, margin entire, both surfaces tomentose, woolly hair much denser on lower side, leaf smaller gradually upward. Capitula many, tightly compacted into terminal or axillary spike about 1–5 cm, together with some small leaves included inside. Involucres ovate-urceolate, 2–3 mm across; phyllaries 2–3-seriate; outer ones ovate-oblong, 2–2.5 mm, densely woolly near base, centre green and herbaceous, apex brownish yellow, margin broadly membranous, acuminate; middle ones lanceolate, membranous, straw to brownish yellow in colour, slightly green-veined at the middle, loosely woolly, apex acuminate; inner ones linear-oblong, 3 mm, totally membranous, subglabrous, apex acute to obtuse. Receptacle deeply concave at centre, protruded at the periphery, naked. Marginal female florets numerous, corolla filiform-tubular, about 2 mm, apex minutely 3-toothed. Disk bisexual florets few, corolla tubular, about 2 mm, apex 5 triangular lobes, obtuse to rounded, glabrous. Cypselae elliptic-oblong, 0.5 mm, finely glandular. Pappus 2 mm, white, connate at base and deciduous as a ring.

Locality: Common in Hong Kong. *Y. S. Lau 1189; S. Y. Hu 6788, 7184* (CUHK).

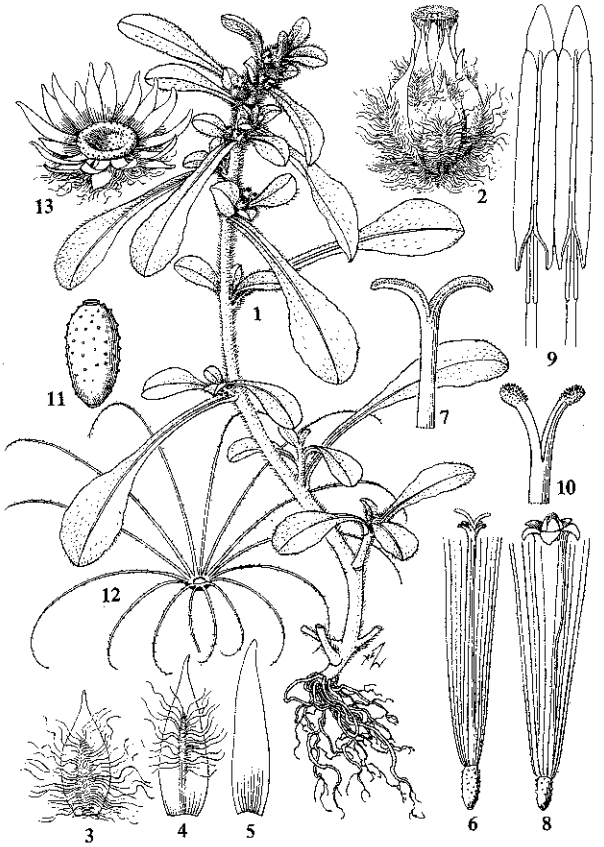


Figure 254. *Gnaphalium pensylvanicum* Willd.

1. flowering plant showing adventitious roots; *2.* capitulum; *3–5.* outermost phyllary to innermost phyllary; *6.* marginal female floret; *7.* stylar branches of marginal floret; *8.* hermaphrodite central floret; *9.* stamens; *10.* stylar branches of central floret; *11.* cypsela; *12.* pappus after fruit dispersal; *13.* capitulum after fruit dispersal. (drawn by X. L. Zeng)

Distribution: Guangdong, Guangxi, Yunnan, Sichuan, Hunan, Jiangxi, Zhejiang, Taiwan; tropical Asia, S America, S Africa, Australia.

Ecology: Wastelands. Flowering: Dec.–Apr. of the following year.

4. Gnaphalium polycaulon Pers. 多莖鼠麴草

Syn. Pl. 2: 421. 1807; FRPS 75: 239. 1979; FGD 8: 172. 2007.

Gnaphalium indicum auct. non L.: FHK 188. 1861; FKH 144. 1912.

Annual herbs, 8–10 cm tall; stems basally creeping or ascending, densely white woolly, many-branched. Leaves sessile, oblanceolate, 5–25 × 2–4 mm, base decurrent, apex obtuse and mucronulate, margin entire, both surfaces white woolly and with abaxial surface more hairy. Capitula many, tightly arranged as terminal spike about 5–15 mm, together with some small leaves included inside. Involucres ovate-urceolate, 2 mm across; phyllaries 2-seriate, membranous, greyish or straw yellow, tinged purple at base, apex acute; outer series oblong-lanceolate, 1.2–1.5 mm long, lanate; inner ones 2 mm, loosely hairy or subglabrous. Receptacle shallowly concave, naked. Marginal female florets numerous, corolla filiform-tubular, 1–1.2 mm, apex finely 3-toothed. Central bisexual florets few, corolla tubular, 1.2 mm, apex shortly 5-lobed, acute, glabrous. Cypselae cylindric-oblong, 0.5 mm long, minutely glandular. Pappus 1.2 mm, white, deciduous separately.

Locality: Common in Hong Kong. *Y. S. Lau 831.*

Distribution: Guangdong, Yunnan, Guizhou, Fujian, Zhejiang; India, Thailand, Australia, tropical Africa.

Ecology: Wastelands and paddy fields. Flowering: Jan.–Apr.

38. Duhaldea DC. 羊耳菊屬

Perennial, rarely annual or biennial herbs, or subshrubs; stem usually hairy and glandular. Leaves alternate. Capitula heterogamous, radiate or disciform, usually in corymbs or paniculate corymbose arrangement. Involucres campanulate, hemispherical or obovoid; phyllaries many-seriate, imbricate. Receptacle plane or slightly convex, naked. Marginal florets few, pistillate, corolla ligulate or narrowly tubular with 2–3 short teeth apically, yellow or rarely white in colour, stylar branches rounded at apex. Central florets hermaphrodite, corolla tubular, funnelform with limb 5-lobed, yellow; anther bases sagittate and tailed, apical appendages rounded, obtuse or truncate; stylar branches obtuse or truncate at apex. Cypselae subterete, ribbed, hairy or not. Pappus capillary, in 1–2 series with outer ones shorter.

This genus is technically distinguished from *Inula* by polarized (vs. radial) endothecial tissue in the anthers, ridged (vs. smooth) receptacles, and truncate to rarely acute (vs. acute) anther appendages, and many species tend to have marginal pistillate florets with tubular corollas with small or very reduced limbs.

About 13 species distributed from Iran to E Africa and E Asia; eight species in China; one species in Hong Kong.

1. Duhaldea cappa (Buch.-Ham. ex D. Don) Pruski & Anderb 羊耳菊(白牛膽) **(Fig. 255; Photos 495–496)**

Comp. Newsl. 40: 44. 2003.

Inula cappa (Buch.-Ham. ex D. Don) DC., Prodr. 5: 469, 1836; FHK 180. 1861; FKH 144. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 296. 1966; FRPS 75: 271. 1979; FGD 8: 146. 2007; Check List HK Plants 283. 2002; 97. 2004.

Conyza cappa Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 176. 1825.

Perennial herbs or subshrubs; stem erect, 50–100(–200) cm high, densely covered with brownish sericeous hair throughout. Lower leaves withered at anthesis, remaining the axillary buds; middle and upper leaves elliptic-oblong, 3–11 cm long, 1.5–4 cm wide, with upper ones smaller in size, base rounded to subcuneate, apex acute to obtuse, margin with small curved teeth, scabrous above, with dense and thick layer of greyish white silky hair beneath, pinnately veined with those on lower surfaces prominent, subsessile or shortly petiolate, not longer than 5 mm. Capitula in terminal corymbose panicle. Involucres 5–7(–8) mm long, 4–5 mm across, campanulate; phyllaries 5-seriate, apex acute, outer ones ovate-lanceolate, 1.5–2 mm long, herbaceous, densely brownish hairy throughout the abaxial side; changing gradually inward in shape, sizes, texture with the innermost being linear-lanceolate, 5–6 mm long, scarious, hairy only at base and along the midvein. Florets yellow, marginal ones female, corolla

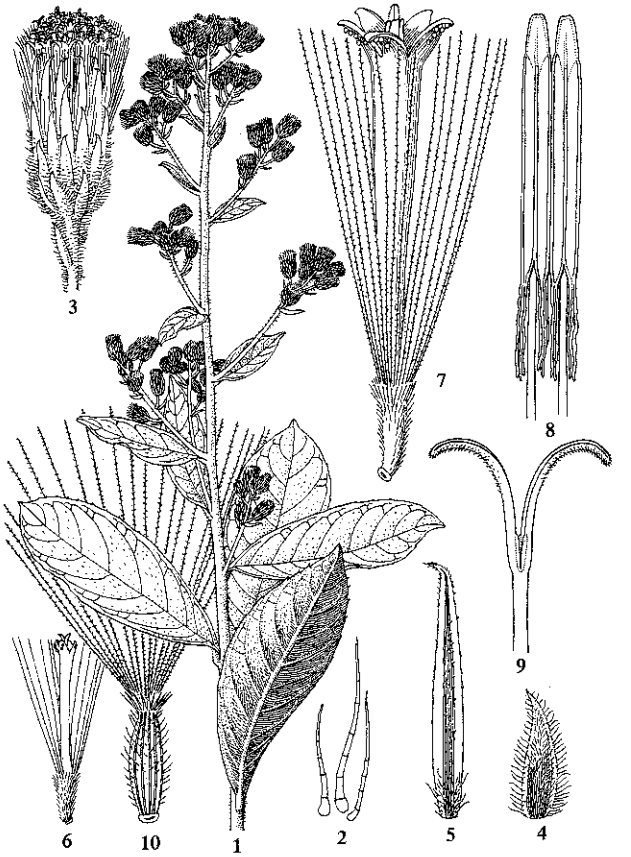


Figure 255. *Duhaldea cappa* (Buch.-Ham.) DC.

1. flowering branch; *2.* multicellular straight hairs; *3.* capitulum; *4.* outer phyllary; *5.* inner phyllary; *6.* marginal female floret; *7.* disk hermaphrodite floret; *8.* stamens; *9.* stylar branches; *10.* cypsela. (drawn by X. L. Zeng)

narrowly tubular, 3–4 mm long, apex 3–4-lobed and glandular. Disk florets hermaphrodite, corolla tubular, 4.5–6 mm long, apex 5 triangular lobes and glandular. Cypselae cylindric, 1.5–1.8 mm long, silky hairy and about 10-ribbed. Pappus 4–5 mm long, persistent.

Locality: Common in Hong Kong. *H. C. Tang 1815; H. Y. Yueng 150* (CUHK); *S. Y. Hu 12406* (CUHK).

Distribution: Widely distributed in E to S & SW China; Vietnam, Thailand, Myanmar, India, Malaysia.

Ecology: Wastelands and thickets. Flowering: Aug.–Dec.

Uses: Medicinal (folklore).

39. Pluchea Cass. 闊苞菊屬

Shrubs, subshrubs or perennial herbs. Stems erect or decumbent-ascending. Leaves alternate, dentate. Capitula solitary or arranged as corymbs, heterogamous, disciform. Involucres ovoid, broadly campanulate or subhemispherical; phyllaries many-seriate, imbricate, outer ones usually broadly ovate, inner ones narrower and longer. Receptacles plain, naked or fimbriate. Outer florets many-seriate, female and fertile, corolla white, yellow or pale purple, filiform-tubular, apex shallowly 3-lobed, minutely denticulate or truncate; cypselae 4–5-angulate, grooved. Central florets few, hermaphrodite but functionally staminate, sterile, corolla tubular, throat dilated, limb 5-lobed; anther base tailed, acuminate, apical appendages obtuse; style unbranched or sometimes bifid, papillose; hypanthium often indistinct and vestigial. Pappus setose, in 1 series, free or connate at base, persistent.

About 80 species distributed in Asia, N & S America, Africa and Australia; three species in China; two species in Hong Kong.

1a. Plant erect; stems, leaves and peduncles puberulent to tomentulose; phyllaries hairy along margin; involucres cylindric to campanulate, 3–5 mm across ..... 1. *P. indica*

1b. Plant decumbent-ascending; stems, leaves and peduncles almost glabrous or only sparsely puberulent; phyllaries without hair along margin; involucres broadly campanulate to hemispherical, about 9 mm across ..... 2. *P. pteropoda*

1. Pluchea indica (L.) Less. 闊苞菊 (Fig. 256; Photos 497–498)

Linnaea 6: 150. 1831; FHK 179. 1861; FKH 143. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 20(3–4): 301. 1967; FRPS 75: 51. 1979; FTW ed. 2, 4: 1036. 1998; FGD 8: 162, fig. 88. 2007.

Baccharis indica L., Sp. Pl. 861. 1753.

Upright shrubs, (0.3–)1–2 m tall; stem striate-sulcate, sparsely puberulent to tomentulose in younger parts, older parts nearly glabrous. Leaves sessile or shortly petiolate, obovate, 3–7 × 0.8–3 cm, with upper leaves gradually smaller, base attenuate-cuneate, apex rounded or obtuse, margin irregularly dentate, but entire near the base, puberulent on both surfaces, midvein prominent on both sides. Capitula arranged in terminal or axillary corymbs; peduncles 3–10 mm, tomentulose hair relatively denser. Involucres cylindric when fresh, campanulate when dried, 4–6 mm; phyllaries in 5–6 series, ciliate along margin; outermost ones broadly ovate, 2.5 × 2 mm, apex obtuse; middle layers changed from ovate-lanceolate to lanceolate, length increased from 3 to 4 mm, width decreased from 2 to 1 mm, apex obtuse to acute; innermost 5 × 0.7 mm, apex attenuate. Receptacle flat, fimbriate. Florets purple. Outer florets numerous, pistillate, corolla filiform-tubular, 4–5 mm, limb finely 3–4-lobed; style exserted, shortly branched, papillose; cypselae cylindric, ribbed, 0.5–0.8 mm, nearly glabrous; pappus uniseriate, white or greyish white, 4–5 mm. Disk hermaphrodite florets few, functionally staminate, corolla tubular, 5–6 mm, apex with 5 triangular lobes glandular outside; anther tubes greatly exserted; cypsela vestigial; pappus white or greyish white, 5 mm.

Locality: Common in Hong Kong. *S. Y. Hu 12248* (CUHK); *K. Y. Chan 1344* (CUHK); *Y. S. Lau 746.*

Distribution: Hainan, Guangdong, Guangxi, Fujian, Taiwan; India, Myanmar, Indochina, Malaysia.

Ecology: Marshes near seaside, tidal flats, and sandy beaches, adapted to saline habitats. Flowering: Nearly all year round.

Uses: Food (young leaves).

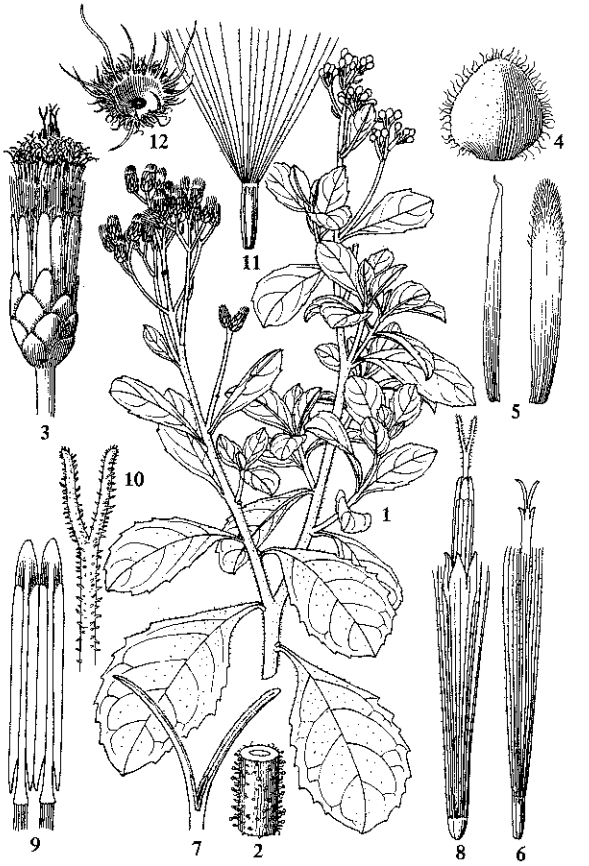


Figure 256. *Pluchea indica* (L.) Less.

1. flowering shoot; *2.* portion of stem showing glandular hair; *3.* capitulum; *4.* outer phyllary; *5.* innermost phyllary (left) and inner phyllary (right); *6.* marginal floret; *7.* stylar branches of marginal floret; *8.* central floret; *9.* stamens; *10.* stylar branches of central floret; *11.* cypsela; *12.* fimbriate areole of receptacle. (drawn by X. L. Zeng)

2. Pluchea pteropoda Hemsl. 光梗闊苞菊(翅煙青)

J. Linn. Soc. Bot. 23: 422. 1888; FKH 143. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 20(3–4): 302. 1967; FRPS 75: 51. 1979; FTW ed. 2, 4: 1036. 1998; FGD 8: 161. 2007.

Subshrubs or herbs 20–30 cm tall; stems procumbent to ascending, striate-sulcate, subglabrous to sparsely puberulent, woody at base. Leaves slightly succulent, obovate, oblanceolate or somewhat obovate-spatulate, 2–5 × 0.4–3 cm, base sessile, attenuate, apex obtuse or rounded, margin irregularly dentate, both surfaces glabrous; upper leaves appeared smaller in size. Capitula arranged into tight corymbs, peduncle 0.5–2 cm or subsessile. Involucres ovoid-hemispherical, or broadly campanulate; phyllaries glabrous, in 5–6 series, outer ones broadly ovate, 2 mm across, apex obtuse to rounded; middle layers about 3–4 mm, lanceolate-oblong, apex acute or obtuse; inner ones 4.5–5 × 0.5–1 mm, linear-oblong, apex acute-attenuate. Receptacle flat. Florets purple, outer female ones numerous, corolla filiform-tubular, 4–5 mm, minutely 3–4-dentate or truncate apically, glandular near apex. Central florets few, hermaphrodite, corolla tubular, 5 mm, apex bear 5 short triangular lobes with glands outside. Cypselae 0.8–1 mm, oblong, 4–5-angulate, slightly hairy. Pappus uniseriate, white, 4–5 mm, persistent, those of marginal female florets free; those on central bisexual florets united at base.

Locality: Cape D' Aguilar, Mai Po, Po Toi Islands. *HK sheet 40465; S. Y. Hu 11523, 11967* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Fujian, Taiwan; Indochina.

Ecology: Coastal areas and tidal flats. Flowering: May–Jan. of the following year.

40. Blumea DC. 艾納香屬

LAU Kai-man* 劉啟文

Annual or perennial herbs, sometimes subclimbing. Leaves alternate. Capitula heterogamous, disciform, in terminal pyramidal or oblong panicles, sometimes contracted, spike-like or clustered. Involucres campanulate-globose; phyllaries 3–5 seriate, imbricate, outer series shortest, pilose abaxially. Receptacles varying from species to species, hairy or glabrous, smooth or scabrous. Florets all tubular, the outer ones very numerous, in several rows, female and filiform, corolla minutely 2–3-toothed; central florets usually few, hermaphrodite and broader, corollas tubular, with the upper portion slightly widening and shallowly 5-toothed. Anthers 5, connate, sagittate at base, tails caudate-acuminate. Stylar branches slender, tips obtuse or slightly pointed. Cypselae small, cylindric or subfusiform, with longitudinal ribs. Pappus of numerous capillary bristles, in a single series.

About 100 species widespread in the tropical and subtropical regions of the world; 30 species in China; ten species in Hong Kong.

1a. Plants scandent; flower heads 10–15 mm in diam. ..... 1. *B. megacephala*
1b. Plants erect; flower heads not exceeding 8 mm in diam.
  2a. Leaves woolly, covered thickly with white tomentose hairs on both surfaces ..... 2. *B. balsamifera*
  2b. Leaves papery, hairless or hairy; if hairy, never thickly tomentose as above.
    3a. Lower leaves lyrately lobed.
      4a. Lower leaves with narrowly winged petioles; flower heads stalked, arranged in panicles; receptacles hairy ..... 3. *B. laciniata*
      4b. Lower leaves sessile, decurrent; flower heads sessile or nearly so (except the terminal ones), either singly or several clustered, forming spikes, which in turn arranged into a large panicle; receptacles glabrous..... 4. *B. sessiliflora*
    3b. Lower leaves not lobed.
      5a. Corolla purplish red; lower leaf stalks slender (ca. 1 mm across), covered with fine, spreading, white hairs ..... 5. *B. mollis*
      5b. Corolla yellow; lower leaf stalks not slender as above.
        6a. Pappus yellowish ..... 6. *B. lanceolaria*
        6b. Pappus white.
          7a. Inflorescence a fasciculate panicle, flower heads sessile or very shortly pedunclate .... 7. *B. hieracifolia*
          7b. Inflorescence ± a spreading panicle, not fasciculate, flower heads not sessile.
            8a. Receptacles glabrous. ..... 8. *B. lacera*
            8b. Receptacles hairy.
              9a. Flower head peduncles not exceeding 2–3 mm; inflorescence in clusters; innermost involucral bracts 1 mm wide, apices mucronate..... 9. *B. clarkei*
              9b. Flower head peduncles reaching 2 cm; inflorescence loose; innermost involucral bracts 0.5 mm wide, apices caudate..... 10. *B. oblongifolia*

1. Blumea megacephala (Randeria) C. C. Chang & Y. Q. Tseng 東風草(大頭艾納香) **(Photos 499–500)**

Acta Phytotax. Sin. 12(3): 310. 1974; FRPS 75: 11, pl. 2: 1–7. 1979; FGD 8: 153, fig. 85. 2007.

Blumea riparia DC. var. *megacephala* Randeria, Blumea 10(1): 215. 1960; FTW ed. 2, 4: 888, pl. 417, photo 430. 1998.

Blumea chinensis auct. non DC.: Benth., FHK 177. 1861.

* Acknowledgements: The author wishes to express his heartfelt thanks to Professor HU Shiu-Ying for kindling his interest in *Blumea* and for her subsequent guidance and kindness in his pursuit of this study. He is grateful to Professor LI Ning-Hon and colleagues at the Hong Kong Chinese Medical Research Institute for their invaluable help and congenial companionship in his effort to locate uncommon species of the genus *Blumea*; he is also grateful to the Hong Kong Herbarium for allowing him access to their specimens.

Scandent perennial herb, branches elongate and scandent. Stems cylindric, striate, growing to 1–3 m or longer. Leaves ovate to oblong, 7–10 × 2.5–4 cm, base rounded, apex acuminate, margins mucronulate or mucronulate-denticulate, both surfaces sparsely hairy, becoming glabrous later; petioles 2–5 mm. Capitula relatively large, 10–15 mm in diam., arranged in axillary panicles or subcorymbose inflorescences. Peduncles 1–3 cm. Involucres hemispherical; phyllaries 5–6 seriate, the outermost series shortest. Receptacle flat, with long white hairs. Outer pistillate florets many, corolla slender tubular, 2–4-lobed, puberulent; the central bisexual florets tubular, corollas 5-lobed, with white multi-cellular hairs. Cypselae cylindric, ribbed, 0.7 mm long. Pappus white, 5 mm.

Locality: Common in Hong Kong. *H. C. Tang 1458; Y. W. Lam 1147; S. Y. Hu 9200* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Guizhou, Sichuan, Hunan, Jiangxi, Fujian, Taiwan.

Ecology: Margins of forests, thickets. Flowering: Oct.–Feb. of the following year.

2. Blumea balsamifera (L.) DC. 艾納香 **(Photos 501–502)**

Prodr. 5: 447. 1836; Randeria, Blumea 10: 237. 1960; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 321. 1965; FRPS 75: 19. 1979; FTW ed. 2, 4: 875, pl. 407, photo 424. 1998.

Conyza balsamifera L., Sp. Pl. ed. 2, 2: 1280. 1763.

Erect perennial herb or subshrub, 0.5–3 m tall, usually unbranched, whole plant tomentose with brownish white hairs, thinning out on older parts. Leaves oblong, thick papery when fresh, much thinner when old or dried, lower ones 25 × 7 cm, decreasing to ca. 11 × 4 cm towards the top; margins with sharp, forward-pointing teeth. Petioles varying between 5–30 mm, bearing narrow auricles on both sides; auricles occurring opposite or sub-opposite to one another on the petiole, 3–5 pairs on the lower petioles, 2–3 pairs on the upper ones. Capitula pedunculate, 5–8 mm across, forming a large, woolly panicle. Phyllaries 4–5-seriate, the innermost longest, successively decreasing in length outward. Receptacles 2–3 mm across, glabrous; outer pistillate florets 6 mm, 2–4-lobed; hermaphrodite ones in the centre, 6–7 mm in length, 5-lobed, much less in number than the pistillate ones. Cypselae cylindric, 1 mm, densely hirsute; pappus reddish brown, 4–6 mm.

Locality: Lantau Island. *S. Y. Hu & P. P. H. But 23124* (CUHK); *Y. S. Lau 3218; E. M. Gibbs 5162.*

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Fujian, Taiwan; Pakistan, India, Thailand, Myanmar, Indochina, Malaysia.

Ecology: Margins of forests, grassy hillslopes. Flowering: Mar.–Apr.

Uses: Medicinal (folklore).

3. Blumea laciniata (Roxb.) DC.

六耳鈴 **(Fig. 257; Photos 503–506)**

Prodr. 5: 436. 1836; Randeria, Blumea 10: 258. 1960; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 325. 1965; Kitam, Acta Phytotax. Geobot. 23: 68. 1968; FRPS 75: 38, pl. 6: 7–12. 1979; FGD 8: 159. 2007; FTW ed. 2, 4: 882, pl. 412. 1998.

Conyza laciniata Roxb., Fl. Ind. ed. 1832, 3: 427. 1832.

Blumea glandulosa auct. non DC.: Benth., FHK 177. 1861.

Perennial herbs, to 1.8 m tall. Stems hairy, with fine, slightly raised ribs. Leaves obovate, papery, lower ones 12–30 × 6–15 cm, base attenuate into narrowly winged petioles, apex obtuse, margins often runcinate-lyrate and distantly dentate, possessing sharp, irregular teeth; upper leaves decreasing to 3 × 1 cm, petioles also decreasing to almost sessile. Capitula forming panicles which in turn forming a spreading inflorescence reaching 40 cm. Peduncles pubescent; involucres campanulate with bracts spreading and reflexed at maturity. Receptacles 2.5–3.5 mm in diam., convex, areas surrounding the attachment points of the cypselae covered sparsely with short, coarse hairs. Corolla yellow; pistillate florets slender tubular, 4.5 mm, with 2–3 glabrous teeth on the limb; hermaphrodite florets tubular, 4.5 mm, limb opening wider towards apex, with 5 pubescent teeth. Cypselae cylindric to subfusiform, 0.7–1 mm, ribbed. Pappus white, 5 mm.

Locality: Common in Hong Kong. *K. M. Lau 547* (CUHK); *L. T. Lo 25; S. Y. Hu 13700* (CUHK).

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Fujian, Taiwan; India, Pakistan, Indochina, Malaysia.

Ecology: Margins of cultivated fields, grassy banks. Flowering: Oct.–Mar. of the following year.

Notes: *Blumea* species do not have ligulate (or ray florets) but they have two types of disk florets (Photo 504, × 30). Those on the outside rims of the receptacle (Photos 506, 508, 515) are slender

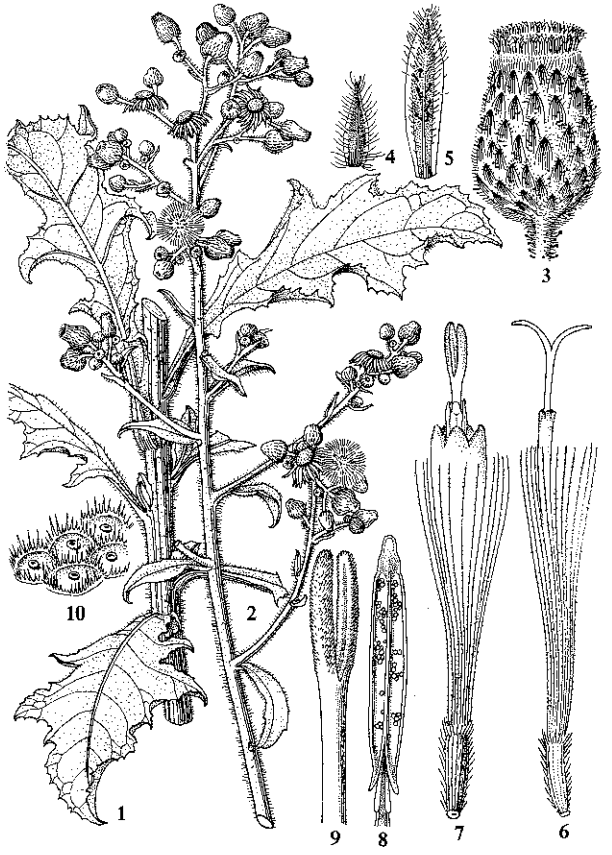


Figure 257. *Blumea laciniata* (Roxb.) DC.

1. middle portion of plant; *2.* apical portion of flowering stem; *3.* capitulum; *4.* outer phyllary; *5.* inner phyllary; *6.* marginal female floret; *7.* central floret; *8.* stamen; *9.* stylar branches of central floret; *10.* portion of receptacle. (drawn by X. L. Zeng)

and all female (pistillate) and possess no anthers inside their corolla. Those in the centre are broader, possess both male and female parts (hermaphrodite or bisexual, Photo 505, × 25), and are less numerous. In Photo 505, both the outside corolla tube (light yellow) and the anther tube (bright yellow) are slit open and the central pistil is separated out. The anthers can just be seen attached to the base of the corolla by 5 column-like appendages.

4. Blumea sessiliflora Decne. 無梗艾納香 **(Photos 507–508)**

Nouv. Ann. Mus. Hist. Nat. 3: 140. 1834; Randeria, Blumea 10: 257. 1960; FRPS 75: 35. 1979.

Annual herbs, to 1.3 m tall; stems erect, usually unbranched, with slightly raised longitudinal ribs, covered sparsely with short, coarse hairs. Lower leaves sessile, oblanceolate to obovate-oblong, 10–16 × 4–6 cm, base attenuate and decurrent, apex acute, margins runcinate-lyrate, with irregular teeth, pilose on both surfaces; upper leaves decreasing gradually, sessile, oblanceolate to oblong, 3–6 × 0.5–1.5 cm; the uppermost leaves linear, bract-like, entire or with a few sharp teeth. Capitula 3–4 mm across, 3 or more clustered, sessile or on a very short peduncle (2 mm), forming axillary panicles varying from 9 cm at the very bottom axils to 22 cm on mid-stem, and gradually decreasing to 4–5 cm at apex. Involucre cylindric or subcampanulate, 4–6 mm; phyllaries 4–5-seriate, straw-coloured or green, outer and middle ones lanceolate or linear-lanceolate, 2–4 mm, apex acuminate, margin scarious, densely pubescent abaxially, inner ones linear, 4–6 mm, glabrous or sparsely pubescent abaxially. Receptacle slightly convex, foveolate, glabrous, scabrous, about 2 mm across. Flowers yellow; outer pistillate florets numerous; corolla slender tubular, 3.5–4 mm, limb 3-lobed; bisexual florets fewer, corolla tubular, 4–5 mm, slightly enlarged at the 5-lobed limb. Cypselae cylindric or subfusiform, 0.5 mm, ribbed. Pappus white, 3 mm.

Locality: The Peak, Kowloon Peak, Sha Tin, Tai Lam Chung, Lamma Island. *S. Y. Hu & P. P. H. But 22903* (CUHK); *S. L. Thrower 1487* (CUHK); *N. H. Li & K. M. Lau 544* (CUHK).

Distribution: Guangdong, Jiangxi; India, Myanmar, Thailand, Indochina, Indonesia.

Ecology: Grassy hillslopes, prefering sheltered, damp locations. Flowering: Feb.–Mar.

Notes: Despite its production of numerous fruits, it is not common in Hong Kong.

5. Blumea mollis (D. Don) Merr. 柔毛艾納香 **(Photos 509–510)**

Philipp. J. Sci. Bot. 5(5): 395. 1910; Randeria, Blumea 10: 261. 1960; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 328. 1965; FRPS 75: 32. 1979; FGD 8: 158. 2007; FTW ed. 2, 4: 884, pl. 415, photo 429. 1998.

Erigeron molle D. Don, Prodr. Fl. Nepal. 172. 1825.

Blumea wightiana DC., Contr. Bot. India 14. 1834; Benth., FHK 178. 1861.

Annual erect herbs, to 60 cm tall. Stems slender, with soft, glandular, somewhat viscid hairs. Lower leaves obovate, 7–9 × 3–4 cm, base cuneate-attenuate, apex broadly obtuse, margin irregularly serrulate, sericeous pilose with glandular hair on both surfaces; petioles 1–2 cm. Upper leaves subsessile, gradually decreasing, 1–2 × 0.3–0.8 cm. Capitula numerous, sessile or on a very short peduncle, 3–5 mm in diam., usually 3–5 clustered, forming a narrow and short panicle. Involucres campanulate, ca. 5 mm; phyllaries in 4 series, purplish, outer ones linear, ca. 3 mm, apex acuminate, densely soft-villous and with multicellular hairs and glands abaxially, innear ones linear, 5–6 mm, margin scarious, ciliate. Receptacles convex, glabrous. Outer pistillate florets filiform, 4–5 mm, limbs 3-toothed; central bisexual florets about 10; corolla tubular, purplish, 4–5 mm, limb 5-toothed. Cypselae fusiform, ribbed, pubescent, ca. 0.7 mm. Pappus ca. 3 mm.

Locality: Hong Kong Island, Sha Tin, Tai Po, Fanling. *K. M. Lau 545* (CUHK); *H. C. Tang 1199*; *Y. S. Lau 2623*.

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Zhejiang, Taiwan; S Asia, Indonesia to N Australia, Africa.

Ecology: Open grassy hillslopes, preferring sunny locations. Flowering: Feb.–Mar.

6. Blumea lanceolaria (Roxb.) Druce 千頭艾納香 **(Photo 511)**

Rep. Bot. Soc. Exch. Club Brit. Isles 4: 609. 1917; Kitam., Acta Phytotax. Geobot. 4: 155. 1935; Randeria, Blumea 10: 218. 1960; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 326. 1965; FRPS 75: 17. 1979; FTW ed. 2, 4: 884, pl. 413. 1998.

Conyza lanceolaria Roxb., Fl. Ind. ed. 1832, 3: 432. 1832.

Blumea myriocephala DC., Prodr. 5: 445. 1836; FKH 142. 1912.

Erect perennial herbs, 1–2 m tall. Stems striate, woody at base. Leaves subleathery; petioles 2–3 cm; leaf blade narrow obovate to oblanceolate, 15–23 × 4–5 cm, base attenuate, decurrent, sometimes with auricular appendages, apex acuminate, margins with coarse teeth; dark green adaxially, lighter abaxially; glabrous or sometimes slightly hairy on abaxial surface. Capitula many, 3 mm in diam., usually 3–4 clustered, subsessile or with a short peduncle (5–10 mm), forming a terminal pyramidal panicle. Involucre cylindric or subcampanulate, 6–8 mm; phyllaries 5–6-seriate, green or purplish, outer ones ovate-lanceolate, ca. 2 mm, apex obtuse or ± acute, pubescent abaxially, middle ones narrowly lanceolate or linear-lanceolate, 3–4 mm, apex acute, margin scarious, inner ones linear, ca. 8 mm, apex acute, sparsely pubescent. Receptacle flat, foveolate, densely white pubescent. Flowers yellow; outer pistillate florets numerous, slender tubular, ca. 7 mm, limb 3-lobed, glabrous; central bisexual florets tubular, limb 5-toothed. Cypselae ca. 1.5 mm, 5-ribbed; pappus yellowish.

Locality: Aberdeen, Fung Yuen, Sai Kung. *Y. S. Lau 3093*; *W. J. Tutcher 11416*.

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Guizhou, Taiwan; India, Pakistan, Myanmar, Thailand, Indochina, Philippines, Indonesia.

Ecology: Margins of forests, grassy hillslopes. Flowering: Jan.–Apr.

7. Blumea hieracifolia (D. Don) DC. 毛甕草 **(Photo 512)**

Contr. Bot. India 15. 1834; FHK 178. 1861 (incl. varieties); FKH 143. 1912; Randeria, Blumea 10: 246. 1960; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 324. 1965; FRPS 75: 24, pl. 4: 1–7. 1979; FGD 8: 157. 2007; FTW ed. 2, 4: 878, pl. 410, photo 427. 1998.

Erigeron hieracifolium D. Don, Prodr. Fl. Nepal. 172. 1825.

Perennial erect herbs, to 1 m tall, whole plant covered with short, fine, viscid, glandular hairs. Leaves papery, subsessile; leaf blade obovate or oblanceolate, 7–13 × 2–4 cm, base attenuate, decurrent, apex acute or mucronate, margins serrate with mucronate teeth. Inflorescence terminal and axillary, length relatively short, the whole appearing fasciculate. Capitula ca. 5–8 mm across, 2–7 clustered, forming spicate-panicles. Involucre cylindric or campanulate; phyllaries 4–5-seriate, upper part purplish, outer ones linear-lanceolate, 2–3 mm, apex acuminate, abaxially white-tomentose, middle ones linear-oblong, 4–6 mm, apex acute, margin scarious, sparsely pubescent abaxially or only on the upper part, inner ones filiform, scarious, glabrous, ca. 6 mm. Receptacles convex, glabrous. Flowers yellow; outer pistillate florets numerous, slender tubular, limb 3-toothed; central bisexual florets tubular, about as long as the pistillate flowers, limb 5(–6)-toothed. Cypselae cylindric, 1–1.2 mm; pappus white, 5–6 mm long. On flowering the basal leaves wither, turning dark brown to black, but stay on the plant.

Locality: Sai Kung, Shing Mun, Tai Po, Lantau Island. *W. J. Tutcher 9160; Y. S. Lau 2663; S. Y. Hu 23231* (CUHK).

Distribution: Guangdong, Guangxi, Yunnan, Guizhou, Fujian, Taiwan; Pakistan, India, Myanmar, Indochina, Malaysia.

Ecology: Margins of cultivated fields and grassy banks. Flowering: Oct.–Apr. of the following year.

8. Blumea lacera (Burm. f.) DC. 見霜黃 **(Photo 513)**

Contr. Bot. India 14. 1834; FHK 178. 1861; FKH 142. 1912; Randeria, Blumea 10: 264. 1960; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 325. 1965; FRPS 75: 33. 1979; FGD 8: 158, fig. 86. 2007; FTW ed. 2, 4: 878, pl. 411, photo 428. 1998.

Conyza lacera Burm. f., Fl. Indica 180. 1768.

Perennial herbs, to 60 cm tall; stems simple or branched on the upper part, striate, tomentose to densely velutinous with silky whitish hairs. Lower leaves usually petiolate; petioles 1–3 cm; leaf blade elliptic-oblong to obovate-oblong, 7–15 × 4–5 cm, base cuneate or long attenuate, apex obtuse to rounded, margin irregularly and coarsely toothed, sometimes lyrately lobed on the lower half, tomentose to velutinous adaxially, tomentose to woolly abaxially; upper leaves sessile or very shortly petiolate, leaf blade obovate to oblong-elliptic, 2.5–4 × 1.5–2 cm, base attenuate, apex rounded or apiculate, irregularly toothed on upper half, sometimes entire, sericeous tomentose on both surfaces. Capitula 5–6.5 mm in diam., arranged in axillary and terminal, dense to lax panicles; peduncles 0–10 mm. Phyllaries ca. 4-seriate, herbaceous, linear, apex long-acuminate, entirely reflexed at maturity, outer ones white-pilose abaxially, densely ciliate. Receptacles convex, alveolate, glabrous, yellow; outer pistillate florets tubular, ca. 4 mm, limb 3-toothed; central hermaphrodite florets tubular, ca. 5 mm, limb 5-toothed. Cypselae 1–2 mm, sparsely hirsute, ribbed; pappus 4 mm, white.

Locality: Tai Tam, Tai Po, Sha Tin, Sai Kung, Castle Peak, Ping Chau. *K. M. Lau 546* (CUHK); *S. Y. Hu 10099* (CUHK); *W. J. Tutcher 8591*.

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Guizhou, Jiangxi, Fujian, Taiwan; SE Asia, SE Africa, N Australia.

Ecology: Margins of cultivated fields and grassy banks. Flowering: Oct.–Mar. of the following year.

9. Blumea clarkei Hook. f. 七里明

Fl. Brit. India 3(8): 267. 1881; Randeria, Blumea 10: 252. 1960; Kitam., Acta Phytotax. Geobot. 23: 66. 1968; FRPS 75: 29, pl. 5: 1–6. 1979; FGD 8: 156. 2007.

Blumea hongkongensis H. Lév. & Vaniot, Bull. Acad. Int. Geogr. Bot. 12(158): 22. 1903; FKH 143. 1912.

Perennial herbs, 0.5–1.5 m tall; stems unbranched, young parts velutinous. Leaves subsessile or with a petiole up to 5 mm; leaf blade oblong-lanceolate to linear-oblong, 8–14 × 3–5 cm, base cuneate, apex acute, margins distantly serrate or dentate with mucronate teeth, glabrous or sometimes velutinous with prominent-based hairs on adaxial surface, tomentellous abaxially; upper leaves sessile, oblong, 3–5 × 1–2 cm, margin denticulate, rarely subentire. Capitula numerous, 8–12 in diam., usually 3–5 clustered, sessile or shortly pedunculate, forming narrow, terminal, compact panicles. Involucres ovoid-cylindric, ca. 12 mm; phyllaries 4-seriate, apex purplish red, outer ones lanceolate, 3–5 mm, apex acute or acuminate, densely pubescent abaxially, ciliate, middle and inner ones lanceolate or linear, ca. 11 mm, margin scarious, sparsely pubescent abaxially. Receptacles slightly convex, alveolate, sparsely pubescent. Flowers yellow; outer pistillate florets slender tubular, 6–7 mm, limb 3–5-toothed; central hermaphrodite florets tubular, about the same length of the pistillate florets, limb 5-toothed. Cypselae cylindric, ca. 1.2 mm, ribbed. Pappus white, ca. 7 mm.

Locality: Common in Hong Kong. *W. J. Tutcher 8589; Y. S. Lau 1369; S. C. Ng 3218.*

Distribution: Hainan, Guangdong, Guangxi, Fujian; Indochina, India, Malaysia, Indonesia, Philippines.

Ecology: Grassy hillslopes, roadsides. Flowering: Oct.–Mar. of the following year.

10. Blumea oblongifolia Kitam. 長圓葉艾納香 **(Fig. 258; Photos 514–515)**

Acta Phytotax. Geobot. 2(1): 37. 1933; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 328. 1965; FRPS 75: 30, pl. 5: 7–12. 1979; FGD 8: 156. 2007; FTW ed. 2, 4: 888, pl. 416. 1998.

Perennial herbs; stems erect, to 1.5 m tall, striate, velutinous particularly on young parts. Leaves subsessile or short petiolate, oblong to narrowly elliptic-oblong, 9–14 × 3.5–5.5 cm, base cuneate-attenuate, apex acute or obtuse, margin distantly serrate with mucronate teeth, pubescent adaxially, ± villous abaxially. Capitula numerous, 8–12 mm in diam., forming terminal and axillary panicles; peduncles up to 2 cm, densely villous. Involucres globose-campanulate; phyllaries 4-seriate, green, outer ones lanceolate, 4–5 mm, apex

caudate-acuminate, densely villous abaxially, middle and inner ones linear or linear-lanceolate, 7–7.5 mm, apex caudate, margin scarious, pubescent abaxially. Receptacle slightly convex, alveolate, hairy. Flowers yellow; outer pistillate florets numerous, slender tubular, 5–5.5 mm, limb 3–4-toothed; central hermaphrodite florets less numerous, tubular, 6 mm, limb 5-toothed. Cypselae cylindric, ca. 1 mm, ribbed, sparsely hirsute. Pappus white, 5–6 mm.

Locality: Common in Hong Kong. *Y. S. Lau 2278, 2425; S. Y. Hu 22816A* (CUHK).

Distribution: Guangdong, Jiangxi, Zhejiang, Fujian, Taiwan.

Ecology: Moist places in ravines. Flowering: Oct.–Mar. of the following year.

Notes: At first glance, and without the help of flowers, this species can be confused with *B. lacera*. Their leaf shapes are similar, and in some locations they grow close to each other. However, the leaves of this species are more oblong, with a firmer papery texture, both in the fresh and in the dried state. The present species does not usually branch, and can be over 1 m tall; *B. lacera* often branches, never reaches 1 m tall even at maturity.

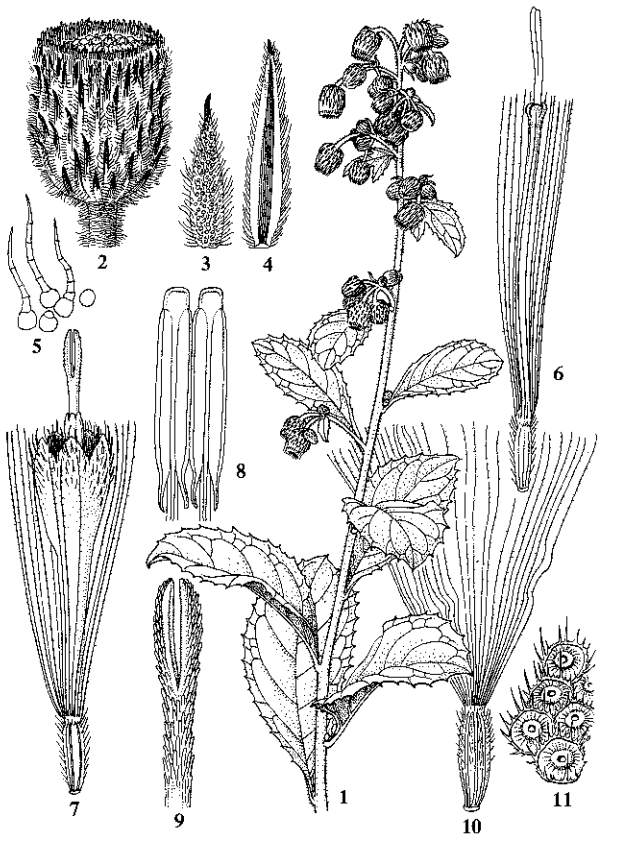


Figure 258. *Blumea oblongifolia* Kitam.
1. flowering branch; *2.* capitulum; *3.* abaxial surface of outer phyllary; *4.* adaxial surface of inner phyllary; *5.* multicellular hairs on the outside of phyllary; *6.* marginal floret; *7.* central hermaphrodite floret; *8.* anthers; *9.* stylar branches of central floret; *10.* cypsela; *11.* portion of receptacle. (drawn by X. L. Zeng)

41. Erechtites Raf. 菊芹屬

Annual or perennial herbs; stem stout and erect, branched. Leaves alternate, subentire, toothed or pinnatisect. Capitula heterogamous and disciform, calyculate, arranged as paniculate corymbs at terminal. Involucres cylindric and swollen at base, phyllaries in 1 row, linear or lanceolate, herbaceous with margin scarious. Receptacle flat or slightly concave, naked. All florets fertile. Peripheral florets pistillate, corolla filiform-tubular, 2-seriate, apex 2–5-lobed at apex. Central florets hermaphrodite, narrow and long funnelform-tubular, 4–5-toothed; anther bases obtuse; stylar branches elongate with apices truncate or obtuse, pubescent. Cypselae linear-oblong, pale brown, ribbed. Pappus bristles soft capillary, many-seriate.

About 15 species mainly distributed in America and Australia; two species naturalized in China; one species in Hong Kong.

Erechtites hieracifolius (L.) Raf. ex DC. (梁子菜) was recorded previously.

1. Erechtites valerianifolius (Link ex Spreng.) DC. 裂葉芹菊(菊芹) **(Photos 516–517)**

Prodr. 6: 295. 1838; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 247. 1966; FTW ed. 2, 4: 944, photo 447. 1998; FRPS 77(1): 307. 1999; FGD 8: 231. 2007.

Senecio valerianifolius Link ex Spreng., Syst. Veg. 3: 565. 1826.

Annual herbs; stem stout and erect, 50–150 cm tall, striate, branched in upper portion or not branched, glabrous. Leaves oblong or elliptic, 3.5–13 × 1.5–10 cm, base narrowed down to form winged petiole 1.5–9 cm, pinnately lobed, the terminal portion pinnatifid with lobes large, ovate-elliptic, lower portion pinnatisect with 5–8 pairs of lanceolate-oblong lateral lobes, smaller and narrower than the terminal ones, apex acuminate, margin double serrate or irregularly lobed; leaves pinnately-veined, glabrous above and beneath. Upper leaves similar but smaller in size. Capitula erect or nodding, arranged as paniculate corymbs at stem terminal. Involucres cylindric-campanulate with base swollen, 7–8 mm high, 3–4 mm across middle, 4–5 mm across base, calyculate; phyllaries 12–14 in one series, linear, 7–8 × 0.8–1 mm, acute or acuminate, herbaceous with margin scarious, abaxial side glabrous or loosely puberulent. Receptacle flat or slightly concave, alveolate with areoles elevated at centre. Florets many, pale yellowish purple in colour. Marginal ones 1–2 rows, female and fertile, corolla filiform-tubular, 7–9 mm, apex 5-toothed. Disk florets hermaphrodite and fertile, corolla narrow and long tubular, 9 mm, with distal 1–1.5 mm as funnelform, apex 5-lobed and papillose. Cypselae cylindric, 3–4 mm, 10–12-ribbed, grooves brown and puberulent, ribs pale brown. Pappus bristles copious, fine and slender, white at base and tinged purplish red on upper part, subequal in length with the florets.

Locality: Naturalized. *H. Y. Yeung 550* (CUHK); *Y. W. Lam 559; P. S. Choi 479.*

Distribution: Native to Brazil; widely distributed in the tropics.

Ecology: Margins of forests, wastelands. Flowering: May–Jun.

Notes: The species was reported as *Erechtites valerianaefolia* (Wolf) DC. previously (Check List HK Plants 96. 2004).

42. Senecio L. 千里光屬

Annual or perennial herbs, subshrubs or shrubs; stem erect, stoloniferous, decumbent or scandent. Basal leaves usually petiolate, without auricles, shape triangular, lyrate or pinnately parted. Cauline leaves usually sessile, but sometimes petiolate, auriculate at base, lyrately or pinnately lobed, margin toothed, with pinnate venations. Capitula erect or nodding, pedunculate, mostly in corymbose or thyrsoid arrangement at terminal, rarely solitary and axillary, heterogamous with both ligulate and tubular florets, or homogamous with tubular florets only. Involucres hemispherical, bell-shaped or cylindric; phyllaries in 1 series, free or coherent at base, herbaceous or coriaceous, margin scarious, base calyculate. Receptacle plain, naked. Marginal ligulate florets 1-seriate, female and fertile, corolla yellow in colour, 2–3-lobed apically; or ray florets absent. Disk tubular florets many, bisexual and fertile, corolla yellow, funnelform or cylindric, apex 4–5-lobed; anther bases shortly obtuse-auriculate, apical appendages ovate, acute or obtuse, filament dilated at distal end; stylar branches recurved, truncate at apex, papillose hairy. Cypselae terete, ribbed, glabrous or pubescent. Pappus capillary, uniform or sometimes dimorphous, colour white, pale brown or tinged red, sometimes absent from ligulate florets or rarely absent from all florets.

A cosmopolitan genus with about 1000 species in the world; about 63 species in China; two species in Hong Kong.

1a. Leaves petiolate, base usually broadly cuneate or truncate; inflorescence branches and peduncles spreading widely apart..... 1. *S. scandens*

1b. Leaves sessile, base auriculate and semi-amplexicaul; inflorescence branches and peduncles ascending.....2. *S. stauntonii*

1. Senecio scandens Buch.-Ham. ex D. Don 千里光 **(Fig. 259; Photo 518)**

Prodr. Fl. Nepal. 178. 1825; FKH 148. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 21(1–2): 143. 1968; FTW ed. 2, 4: 1056. 1998; FRPS 77(1): 294. 1999; FGD 8: 218, fig. 130. 2007.

Senecio chinensis (Spreng.) DC., Prodr. 6: 363. 1838; FHK 190. 1861.

Cineraria chinensis Spreng., Syst. Veg. 3: 549. 1826.

Perennial herbs with rhizomes; stem elongate and reclining, from 0.5–5 m, striate, branches many, pubescent or glabrescent, turning woody when old. Leaf petioles 0.5–2 cm, pubescent or subglabrous; leaf blade ovate lanceolate to elongate-deltoid in shape, 4.5–8 × 1.5–4.5 cm, base broadly cuneate or truncate, apex acuminate, margin irregularly dentate, pinnately-veined, adaxial surfaces subglabrous or puberulous, abaxial surfaces puberulous especially along veins. Leaves in upper stem portion appeared smaller in size, lanceolate to linear-lanceolate, apex attenuate. Capitula heterogamous and radiate, 2–2.2 cm across, arranged as compound thyrse form; peduncles 0.7–2.5 cm, puberulous. Involucres cylindric campanulate, 6–7 × 3 mm, base with about 8 linear-subulate bracteoles as calyculus of 2–3 mm; phyllaries 12–13, herbaceous, linear-lanceolate, acuminate, margin scarious and ciliate near the apex, abaxially puberulous or glabrous, 3-veined. Marginal ligulate florets 7–10, tube 4 mm, ligule oblong with length 9–10 mm, width 2 mm, apex obtuse and minutely 3-lobed, colour yellow, with 4 veins. Disk tubular florets 5–6 mm, funnelform with apical half broaden and lower half narrowed, 5-lobed at apex, yellow. Cypselae cylindric, 3 × 0.7–0.8 mm, ribbed, brown, puberulous. Pappus white, 5–6 mm.

Locality: Common in Hong Kong. *S. Y. Hu 12410* (CUHK); *Y. Wong 084* (CUHK); *Y. S. Lau 1370.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Shaanxi, Hubei, Hunan, Jiangxi, Anhui, Zhejiang, Fujian, Taiwan; India, Bhutan, Nepal, Japan, Indochina, Philippines.

Ecology: Margins of forests, thickets. Flowering: Nov.–Feb. of the following year.

Uses: Medicinal (folklore).

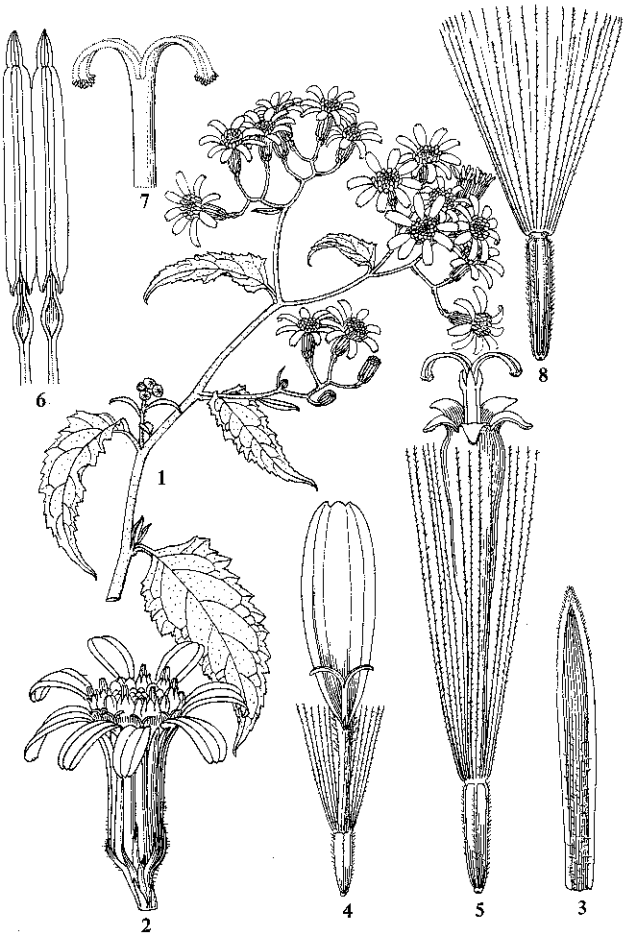


Figure 259. *Senecio scandens* Buch.-Ham. ex D. Don

1. flowering branch; *2.* capitulum; *3.* phyllary; *4.* female marginal floret; *5.* hermaphrodite disk floret; *6.* stamens; *7.* stylar branches of disk floret; *8.* cypsela. (drawn by X. L. Zeng)

2. Senecio stauntonii DC. 闊粵千里光 **(Photo 519)**

Prodr. 6: 363. 1838; FHK 190. 1861; FKH 148. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 21(1–2): 146. 1968; FRPS 77(1): 293. 1999; FGD 8: 219. 2007.

Perennial rhizomatous herbs; stem ascending and subscandent, 30–100 cm tall, angular, branched, glabrous. Basal leaves withered at flowering stage. Cauline leaves sessile, narrowly oblong-lanceolate, 4–14.5 × 0.6–2.5 cm, base auriculate and semi-amplexicaul, apex acuminate to attenuate, margin toothed,

pinnately-veined, pubescent or pilose on adaxial surfaces, and along veins and margins on abaxial sides, sometimes glabrous beneath. Upper leaves smaller and narrower. Capitula heterogamous and radiate, in loose corymbose arrangement; peduncle 1.5–3 cm, glabrous or loosely puberulous. Involucres campanulate; phyllaries 13 in 1 series, herbaceous, linear-lanceolate, 6–8 × 1–1.5 mm, apex acute or acuminate, margin scarious and ciliate near apex, abaxial surface glabrous, base with 6–8 linear-subulate bracteoles 2–3 mm. Marginal ray florets female, ligule oblong, 7–8 × 2.5–3 mm, tube 3.5 mm, apex obtuse and minutely 3-lobed, 4-veined, colour yellow. Disk tubular florets bisexual, funnelform, 6–6.5 mm, apical half broaden, lower half narrowed, apex 5-lobed and papillose hairy, yellow. Cypselae brown, cylindric, 3 mm, ribbed and puberulent. Pappus white, 5–5.5 mm.

Locality: Hong Kong Island, Kowloon Peak, Fo Tan, Shing Mun, High Island, Po Toi Islands, Lantau Island. *Y. S. Lau 778*; *S. Y. Hu 6318, 8878* (CUHK).

Distribution: Guangdong, Fujian.

Ecology: Wastelands, margins of forests. Flowering: Sep.–Dec.

43. Farfugium Lindl. 大吳風草屬

Evergreen perennial herbs; stem scapose. Leaves radical and rosulate, rolling inward as first when in young stage, leaf blade reniform, cordate or fan-shaped, palmately-veined, densely hairy when young; petioles long and swollen at base. Cauline leaves absent or appeared as bracts. Capitula heterogamous and radiate, arranged as loose corymbs. Involucres campanulate to turbinate, calyculate at base; phyllaries 1-seriate, with scarious margin. Receptacle plain, alveolate, shallowly pitted, denticulate along areole margin. Peripheral florets in 1 row, female, corolla ligulate. Disk florets many, hermaphrodite, corolla tubular and 5-lobed at apex; anther bases sagittate, apical appendages obtuse, oblong; stylar branches rounded or truncate at distal ends, penicillate hairy. Cypselae cylindric, ribbed and hairy. Pappus setae copious, white.

A genus consisting of one species native to E Asia; it also occurs in Hong Kong.

1. Farfugium japonicum (L.) Kitam. 大吳風草 **(Fig. 260; Photo 520)**

Acta Phytotax. Geobot. 8(4): 268. 1939; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 262. 1966; FRPS 77(2): 1, pl. 1. 1989; FTW ed. 2, 4: 964, pl. 457, photo 453. 1998.

Tussilago japonica L., Mant. Pl. 1: 113. 1767.

Perennial herbs, the scapes, leaves, petioles, peduncles and phyllaries slightly to densely covered with greyish brown woolly hair especially when in young stage, later glabrescent; stem scapose, 25–70 cm tall, lanate hair much denser at base. Leaves mainly radical and in rosette, reniform, 3–10 × 4–20 cm, margin mucronulate-dentate to broadly sinuate-dentate, base cordate, apex rounded; petiole 6–28 cm with base dilated. Cauline leaves absent, or with few appeared as bracts, oblong or linear-lanceolate, 1–2(–6) cm. Capitula heterogamous and radiate, 2–7 arranged as corymbs; peduncle 3–12 cm. Involucres broadly campanulate to turbinate; phyllaries 12–14 in 1 series, oblong, 10–15 × 2–2.5 mm, apex acuminate, abaxial side puberulent to lanate, margin scarious. Bracteoles narrowly lanceolate, 4–7 mm. Marginal pistillate florets 8–12, corolla ligulate, yellow, ligule oblong, 1.5–1.8 × 0.3–0.4 cm, 2-lobed at apex, tube 7–10 mm. Disk bisexual florets many, corolla tubular, 11–12 mm, lower half narrow, upper half broaden as campanulate form, apex with 5 acute and lanceolate-oblong lobes about 1.5–2 mm; anther tubes conspicuously exserted, base sagittate, apical appendages lanceolate-oblong; stylar branches roughened on abaxial side, truncate and penicillate at distal ends. Cypselae cylindric, 3–6 mm, ribbed and villous, brown. Pappus white, unequal in length, 8–13 mm.

Locality: Pok Fu Lam, Tai Mo Shan, Sai Kung, Sunset Peak and Lantau Peak. *H. Y. Yeung 160* (CUHK); *S. Y. Hu 8295* (CUHK); *L. T. Lo 326*.

Distribution: Guangdong, Guangxi, Hunan, Hubei, Fujian, Taiwan; Japan.

Ecology: Forests, ravines. Flowering: Aug.–Dec.

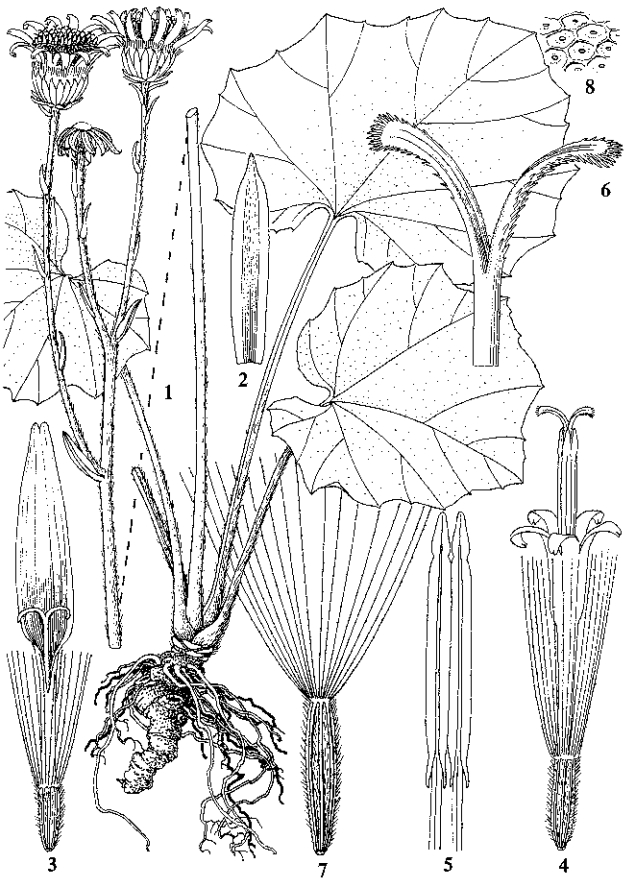


Figure 260. *Farfugium japonicum* (L.) Kitam.

1. flowering plant; *2.* phyllary; *3.* marginal ligulate floret; *4.* disk tubular floret; *5.* stamens; *6.* stylar branches of disk floret; *7.* cypsela; *8.* portion of receptacle. (drawn by X. L. Zeng)

44. Ligularia Cass. 橐吾屬

Perennial herbs; stem erect, usually solitary. Leaves mostly radical and rosulate, or concentrated in the lower stem portion, rolling backward when in young stage, leaf blade cordate, reniform, sagittate or ovate-oblong, palmately- or pinnately-veined; petioles long with the base broaden as sheath. Cauline leaves few, alternate, smaller in size when growing upward, base sheathed or not. Uppermost leaves appeared as bracts. Capitula nodding or deflexed, arranged as corymbs, compound corymbs, racemes, panicle-racemes, or solitary, base subtended with bracteoles or not; pedunculate. Involucres broadly campanulate, hemispherical or turbinate; phyllaries in 1 row, margin scarious. Marginal florets pistillate, corolla ligulate, rarely absent or as tubular form, colour yellow. Disk florets bisexual, corolla tubular, apex 5-lobed; anther bases obtuse, apical appendages ovate or deltoid, acute; stylar branches obtuse or rounded at distal ends. Cypselae cylindric, ribbed, glabrous. Pappus copious, long or short, rarely absent.

About 140 species mainly distributed in Asia and Europe; 111 species in China; one species in Hong Kong.

1. Ligularia japonica (Thunb.) Less. 大頭橐吾 **(Photo 521)**

Syn. Gen. Comp. 390. 1832; S. Y. Hu, Quart. J. Taiwan Mus. 20(1–2): 61. 1967; FRPS 77(2): 14, pl. 2: 4–6. 1989; FTW ed. 2, 4: 1012, photo 472. 1998.

Arnica japonica Thunb., Fl. Jap. 319. 1784.

Senecio japonicus (Thunb.) Sch. Bip., Flora 28: 50. 1845; FKH 148. 1912.

Perennial herbs; stem erect, 50–100 cm tall, puberulous or glabrous, tinged purple. Radical and lower leaves revolute in young stage, leaf blade reniform, 5–15 × 7–22 cm, palmately lobed and veined, margin serrate, abaxial surface puberulous or glabrescent; petiole 4–27 cm. Cauline leaves few; shortly petiolate, sheath amplexicaul. Uppermost leaves much smaller and without sheath. Capitula heterogamous and radiate, 2–8 arranged as corymbs, without subtending bracteoles at base; peduncles 2–26 cm, tomentulose-puberulous. Involucres hemispherical, abaxial side puberulous; phyllaries 9–12, oblong, 1.5–2 × 4–5 mm, acute or acuminate, margin scarious. Marginal female florets 1-seriate, corolla ligulate, yellow, ligule oblong, 4–5 × 0.5–1 cm, tube 7–10 mm. Disk bisexual florets many, corolla tubular, about 1.5 cm, apex 5 linear-lanceolate lobes about 5 mm. Cypselae cylindric, 0.7–1 cm, ribbed and glabrous. Pappus reddish brown, 1–1.4 cm.

Locality: Sunset Peak, Lautau Peak. *HK sheet 15868, 15869, 35601.*

Distribution: Guangdong, Guangxi, Hunan, Hubei, Jiangxi, Zhejiang, Fujian, Taiwan; Korea, Japan, India.

Ecology: Thin forests and thickets. Flowering: Feb.–Aug.

Uses: Ornamental.

45. Emilia Cass. 一點紅屬

Annual or perennial herbs, usually somewhat glaucous. Leaves alternate, mainly clustered at base, lobed or not, cauline leaves few, entire, toothed to pinnatifid, base amplexicaul. Capitula homogamous and discoid, solitary or several arranged as loose corymbs with long peduncles, head pendulous before flowering stage. Involucres cylindric and swollen at base, without calycules; phyllaries 8–10 in one series, linear-oblong, coherent but separate later when aged or upon dried, length elongate after anthesis. Receptacle flat and naked, alveolate. Florets many, all bisexual and fertile, corolla filiform-tubular, gradually and slightly dilated at summit, apex 5-lobed, colour yellow, pink, purple or red; anther bases obtuse, with narrow apical appendages, stylar branches long, apices truncate and penicillate. Cypselae subterete, truncate at both distal ends, 5-angulate or ribbed. Pappus capillary and slender, copious, white.

About 100 species native to Asia and tropical Africa primarily, few in America; three species (one cultivated) in China; two species in Hong Kong.

1a. Lower leaves not lobed; capitula 10–15 mm across; involucres enclosing lower 1/2 to 2/3 of the inside florets; cypselae many-ribbed, glabrous; pappus 4–5 mm long ..... 1. *E. prenanthoidea*

1b. Lower leaves lyrately lobed; capitula 3–5 mm across; involucres as long as the inside florets, or covering more than 5/6 of the florets; cypselae 5-angular, puberulous; pappus 7–8 mm long ..... 2. *E. sonchifolia*

1. Emilia prenanthoidea DC. 小一點紅 **(Photo 522)**

Prodr. 6: 302. 1838; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 243. 1966; FRPS 77(1): 325. 1999.

Annual herbs; stem erect or ascending, 20–80 cm tall, somewhat glaucous, glabrous or loosely pubescent. Basal leaves small, obovate or obovate-oblong, 3–8 × 1–3 cm, base attenuate into long winged petiole, apex obtuse to rounded, margin entire or loosely toothed. Middle cauline leaves oblong to linear-oblong, 2.5–8 × 0.5–1.2 cm, sessile and amplexicaul, base sagittate or auriculate, apex obtuse or acute, margin slightly sinuate toothed, adaxial surface green, abaxial surface purplish, both glabrous or sparsely crisped hairy. Upper leaves linear-lanceolate, smaller in size. Capitula homogamous and discoid, 1–1.5 cm across, loosely corymbose; peduncles (0.5–)2–10.5 cm. Involucres cylindric or narrowly campanulate, shorter than florets, which only enclosing lower 1/2 to 2/3 of the florets, base without calyculus; phyllaries about 10 in 1 row, linear-oblong, 6–8 × 1–2 mm, apex acute or obtuse, margin scarious, abaxial side glabrous. All florets hermaphrodite and fertile, corolla tubular, 8–11 mm, lower half filiform, upper half gradually widen, apex with 5 linear-lanceolate lobes about 2 mm in length, colour red, pink or purple-pink. Cypselae brown, cylindric, 3 × 0.5 mm, ribbed, glabrous. Pappus copious, capillary and slender, white, 4–5 mm.

Locality: Pat Sin Leng, Ma On Shan, Sha Tau Kok, Wu Kau Tang, Lantau Island. *H. C. Tang 1251; S. Y. Hu 11808* (CUHK); *S. Y. Hu & P. P. H. But 22134* (CUHK).

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Zhejiang, Fujian; Indochina to India.

Ecology: Wastelands, margins of cultivated lands. Flowering: Apr.–Nov.

2. Emilia sonchifolia (L.) DC. 一點紅 **(Fig. 261; Photo 523)**

Contr. Bot. India 24. 1834; Prodr. 6: 302. 1838; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 244. 1966; FRPS 77(1): 324, pl. 68: 1–2. 1999; FGD 8: 230, fig. 140. 2007.

Senecio sonchifolia (L.) Moench., Suppl. Meth. 231. 1802; FHK 189. 1861.

Cacalia sonchifolia L., Sp. Pl. 2: 835. 1753.

Annual herbs; stem erect or ascending, 15–40 cm tall, branched near base, glaucous, glabrous or loosely pilose. Leaves mainly clustered at base and lower stem portion, adaxial surfaces green, abaxial surfaces purplish, both subglabrous or sparsely crisped hairy. Basal and lower leaves lyrately pinnati-lobed, 4.5–11 × 2–6 cm, terminal lobes large, broadly ovate-deltoid to ovate-cordate, base semi- or totally amplexicaul, for the leaves growing near the middle stem portion having base hastately amplexicaul, apex broadly obtuse or nearly rounded, margin irregularly dentate, midvein below thinly to broadly winged, lateral lobes usually in 1 pair, small triangular, oblong to lanceolate-oblong, obtuse or acute, sometimes the lateral lobes inconspicuous and even absent in the lowermost leaves, resembling as long winged petiole. Uppermost leaves linear-lanceolate or lanceolate, 3.5–6 cm, base sessile and amplexicaul, apex acute, margin subentire to irregularly toothed. Capitula homogamous and discoid, 3–5 mm across, pendulous before flowering, erect later, non-calyculate, usually with 2–5 heads arranged as loose corymbs, pedunculate with length of peduncles 2–14 cm. Involucres cylindric with base swollen, 10–13 × 3–3.5 mm, length subequal to florets or enclosing 5/6 of the florets; phyllaries about 8 in 1 series, linear, apex acute, herbaceous green, margin narrowly scarious, glabrous abaxially. Florets pink or pale purple, 8–11 mm, corolla filiform-tubular with limb gradually and slightly widen, apex 5 linear-oblong lobes about 2 mm. Cypselae brown, subterete, 3–3.5 × 0.5 mm, 5-angulate, puberulent along ribs. Pappus copious, white, capillary and slender, 7–8 mm.

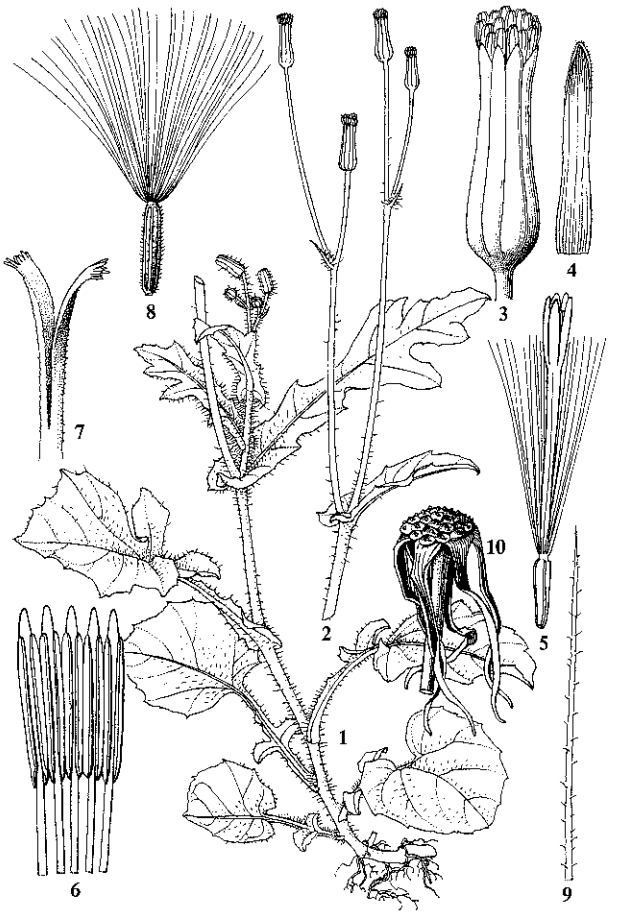


Figure 261. *Emilia sonchifolia* (L.) DC.
1–2. flowering plant; *3.* capitulum; *4.* phyllary; *5.* floret; *6.* stamens; *7.* stylar branches; *8.* cypsela; *9.* pappus bristle; *10.* capitulum after fruit dispersal. (drawn by X. L. Zeng)

Locality: Common in Hong Kong. *H. C. Tang 2253; Y. Wong 011* (CUHK); *S. Y. Hu & P. P. H. But 22274* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; tropical Asia and Africa.

Ecology: Wastelands, margins of cultivated lands. Flowering: Nearly all year round.

Uses: Medicinal (folklore).

46. Crassocephalum Moench 野茼蒿屬

Annual or perennial herbs, erect or climbing. Leaves alternate, toothed to lyrately pinnatifid. Capitula homogamous and discoid, nodding in flowering stage, solitary or in corymbose arrangement at terminal. Involucres cylindric with base swollen, calyculate; phyllaries uniseriate, linear-lanceolate, coherent and united into a cylindric tube at anthesis, later splitted and reflexed, herbaceous with margin scarious. Receptacle flat, alveolate with margin of areoles scarious. All florets tubular, corolla tube narrow, gradually and slightly widened at summit, apex 5-lobed, hermaphrodite and fertile; anther bases entire or shortly auriculate; stylar branches long, linear, papillose hairy. Cypselae cylindric, 8–10-ribbed, puberulent. Pappus bristles copious, capillary and silky, white in colour, easily shed off.

About 21 species native to tropical Africa, widely naturalized in tropical and subtropical regions; one species in China and in Hong Kong.

1. Crassocephalum crepidioides (Benth.) S. Moore
野茼蒿 **(Fig. 262; Photo 524)**

J. Bot. 50: 211. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 205. 1966; FTW ed. 2, 4: 922, pl. 434. 1998; FRPS 77(1): 304, pl. 67: 1–2. 1999; FGD 8: 228, fig. 139. 2007.

Gynura crepidioides Benth., Niger Fl. 438. 1849.

Annual erect herbs; stem 30–100 cm tall, striate, glabrous or pubescent. Leaves elliptic or elliptic-oblong, 7–13 × 3–5 cm, petiole 1–2(–5.5) cm long, base narrowed to petiole, apex acute or acuminate, margin irregularly serrate or double-serrate, some lyrately pinnatifid with terminal lobe large ovate-elliptic, and 1–3 pairs of lateral lobes near base, smaller and elliptic-oblong, both surfaces glabrous or subglabrous. Capitula homogamous and discoid, several arranged as corymbs at terminal. Involucres cylindric with base swollen, about 9–11 mm long, 5 mm across middle, 6–8 mm across base, calyculate with several linear bracteoles 2–3 mm; phyllaries linear-lanceolate, 9–11 × 0.7–1.5 mm, abaxial side puberulous, margin scarious, apex acute and with tuft of minute hair. Receptacle flat, alveolate with margin of areoles shortly scarious, areoles elevated at centre. All florets tubular, bisexual and fertile, corolla yellow with limb purplish or reddish brown, or appeared as orange-red, 8–11 mm long, tube filiform and slender, gradually and slightly dilated at summit, apex 5-lobed; anthers included, base shortly sagittate, apical appendages elongate-lanceolate; stylar branches exserted, acute apically, papillose hairy. Cypselae cylindric, 2–2.5 mm long, reddish brown to brown, ribbed, puberulent. Pappus bristles copious, capillary and silky, white in colour, 9–10 mm long, easily shed off.

Locality: Naturalized and widely distributed in Hong Kong. *H. C. Tang 1549; S. Y. Pang & S. L. Wong 302* (CUHK); *S. Y. Hu 5453* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Hubei, Hunan, Jiangxi, Fujian; India, Indochina, Africa.

Ecology: Roadsides, wastelands. Flowering: Nearly all year round.

Uses: Food (vegetable), medicinal (folklore).

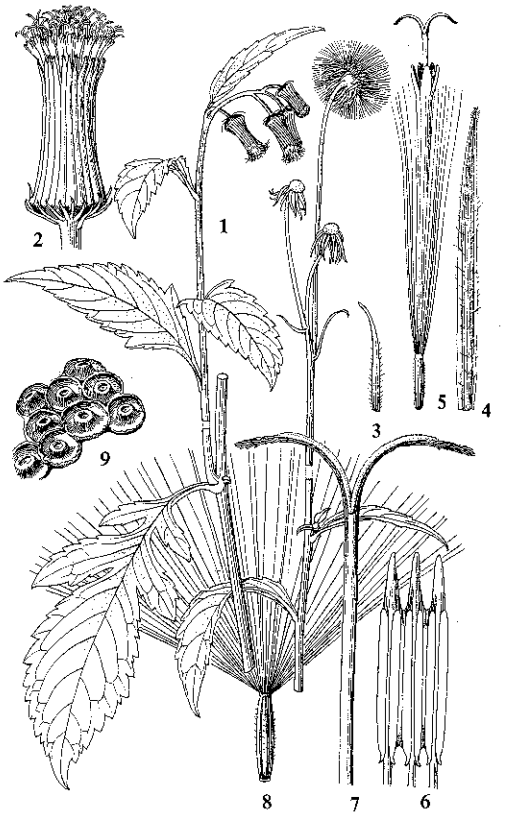


Figure 262. *Crassocephalum crepidioides* (Benth.) S. Moore
1. flowering branch (left) and fruiting branch (right); *2.* capitulum; *3.* segment of calyculus; *4.* phyllary; *5.* floret; *6.* stamens; *7.* stylar branches ; *8.* cypsela; *9.* portion of receptacle. (drawn by X. L. Zeng)

47. Gynura Cass. 三七草屬

Perennial herbs, sometimes succulent, rarely subshrubs; stem glabrous, pubescent or hispid. Leaves alternate, toothed or pinnatisect, seldom entire. Capitula homogamous and discoid, solitary or in corymbose arrangement. Involucres campanulate or cylindric, calyculate; phyllaries uniseriate, lanceolate, herbaceous with scarious margin. Receptacle plain, pitted or shortly fimbriate. All florets hermaphrodite and fertile, corolla tubular, with lower part narrow and upper limb abruptly broadened, apex 5-lobed, yellow or orange-yellow, rarely purple; anther bases entire or shortly auriculate; stylar branches papillose hairy. Cypselae cylindric, 10-ribbed, truncate at both ends, glabrous or puberulent. Pappus numerous, capillary, white silky.

About 40 species distributed in Asia, Africa and Australia; ten species in China; one species growing wild in Hong Kong.

Gynura aurantiaca DC. (紫絨草), *Gynura bicolor* (Roxb. ex Willd.) DC. (風鳳菜), and *Gynura japonica* (L. f.) Juel [三七草; *Gynura segetum* (Lour.) Merr.] were recorded previously.

1. Gynura divaricata (L.) DC. 白子菜 **(Fig. 263; Photo 525)**

Prodr. 6: 301. 1838; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 280. 1966; FRPS 77(1): 317, pl. 71: 5–8. 1999; FGD 8: 227, fig. 138. 2007.

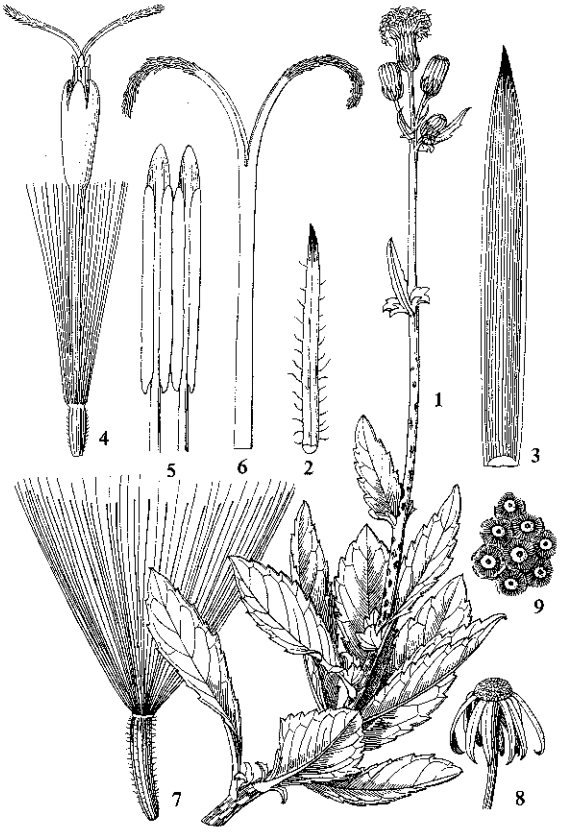


Figure 263. *Gynura divaricata* (L.) DC.
1. flowering shoot; *2.* calyculate bract; *3.* phyllary; *4.* floret; *5.* stamens; *6.* stylar branches; *7.* cypsela; *8.* capitulum after fruit dispersal; *9.* portion of receptacle. (drawn by X. L. Zeng)

Gynura ovalis (Ker Gawl.) DC., Prodr. 6: 300. 1837.
Cacalia ovalis Ker Gawl., Bot. Reg. 2: pl. 101. 1816.
Senecio divaricatus L., Sp. Pl. 866. 1753.
Gynura pseudochina auct. non DC.: FHK 189. 1861.

Perennial herbs, odorous like bad egg smell; stem erect or decumbent, about 0.3–1(–2) m tall, branched in upper inflorescence portion, glabrous or pubescent. Leaves fleshy, mainly growing at lower portion, petiole 0.5–4.5 cm, pubescent, base usually with pseudo-stipules, leaf blade ovate, elliptic to oblanceolate, 3.5–13(–23) × 1.2–5(–6.5) cm, base cuneate and narrowed down to petiole, apex obtuse or acute, margin coarsely dentate, adaxial surfaces green, abaxial surfaces pale green, both densely pubescent with hair multicellular, venation appeared as numerous black lines after dried. Median leaves smaller in size, subsessile to sessile, elliptic-oblong, dentate. Upper leaves few, sessile, linear-lanceolate to linear, 0.5–2 cm. Capitula 1.5–2 cm across, with 3–5 heads arranged as loose corymbs at terminal; peduncle 1–6.5(–9) cm, pubescent. Involucres campanulate, length 8–10 mm, base calyculate with several linear bracteoles 3–5.5 mm; phyllaries 11–14 in 1 series, linear-lanceolate, 8–10 × 1–2 mm, apex acuminate, margin scarious, 3-veined, subglabrous or puberulous abaxially. Receptacle flat, pitted with areoles elevated at centre. All florets hermaphrodite and fertile, corolla tubular, total 10–14 mm, lower portion filiform 7–10 mm, upper portion abruptly broaden as cylindric or campanulate form, 3–4 mm, apex with 5 acute ovate-oblong lobes, floret colour brilliant orange-yellow, some tinged red near apex; anther bases obtuse or shortly sagittate; stylar branches papillose hairy. Cypselae cylindric, 3–4 × 0.8 mm, 10-ribbed, truncate at both ends, brown, puberulent. Pappus capillary, silky, white, 8–9 mm, easily shed off individually.

Locality: Common in Hong Kong. *Y. S. Lau 1425; S. Y. Hu 10072* (CUHK); *T. W. Lau 0072* (CUHK).

Distribution: Hainan, Guangdong, Yunnan; N Vietnam.

Ecology: Margins of forests, streamsides. Flowering & fruiting: Nearly all year round.

Uses: Medicinal (folklore).

48. Vernonia Schreb. 斑鳩菊屬

Herbs, shrubs or subshrubs, erect, ascending or scandent. Capitula discoid, in corymbose, paniculate or racemose form. Involucres subcylindric, campanulate or subglobose; phyllaries in many series, imbricate, length shorter outside, apex obtuse, acute to acuminate, some with awn-tip. Receptacle alveolate and toothed at anthesis, some fimbriate. All florets tubular, bisexual and fertile, corolla usually pink or purple in colour, lower portion slender, upper part broaden as funnel-shape or campanulate, apex regularly 5-cleft; anther bases sagittate or obtuse, apical appendages acute; stylar branches linear, subacute, hairy. Cypselae cylindric, ribbed or angulate, apex truncate, callose at base, glabrous or puberulous, sometimes glandular. Pappus in 1 or 2 series with outer ones shorter.

About 1000 species distributed in both hemispheres; 27 species in China; eight species in Hong Kong.

1a. Stem erect or ascending; phyllaries spinulose at apex.
  2a. Cypsela 10-ribbed ..... 1. *V. saligna*
  2b. Cypsela 4–5-angulate or without ribs.
    3a. Involucres campanulate, 2–3 mm across; florets about 20 per capitulum; cypsela without ribs, densely hairy; pappus 2-seriate, the inner longer ones deciduous but the outer short ones persistent ..... 2. *V. cinerea*
    3b. Involucres hemispherical to subglobose, 6–10 mm across; florets 40–100 in each capitulum; cypsela 4–5-angulate, glabrous or sparsely hairy; pappus 1-seriate, delicate and deciduous.
      4a. Annual herbs, up to 1 m tall; capitula usually 2–3 terminal to leafy branches, 8–10 mm in diam.; leaves laxly and evenly distributed on stems, ovate to ovate-oblong, abaxially greyish woolly ..... 3. *V. patula*
      4b. Small subshrubs, ca. 10 cm tall; capitula several, laxly corymbose, 6–7 mm in diam.; leaves confert towards upper part of stem, spathulate, densely white hispidulous ..... 4. *V. maritima*
1b. Stem scandent and climbing; phyllaries not spinulose at apex.
  5a. Areoles of receptacle fimbriate; cypsela 10–12-ribbed; pappus reddish brown or brownish.
    6a. Florets 18–21 per capitulum ..... 5. *V. cumingiana*
    6b. Florets about 10 per capitulum ..... 6. *V. gratiosa*
  5b. Areoles of receptacle not fimbriate; cypsela 4–5-angulate; pappus greyish, yellowish or brownish.
    7a. Leaves subglabrous adaxially, densely covered with silky and silvery hair abaxially; capitula subsessile, 4–5-flowered; involucres subcylindric, 1.5–2 mm across ..... 7. *V. elliptica*
    7b. Leaves pilose adaxially, densely covered with yellowish or brownish woolly hair abaxially; capitula pedunculate, 10–12-flowered; involucres hemispherical, 4–6 mm across ..... 8. *V. solanifolia*

1. Vernonia saligna DC. 柳葉斑鳩菊

Prodr. 5: 33. 1836; FRPS 74: 25, pl. 10: 1–7. 1985; FGD 8: 235. 2007.

Perennial erect herbs, 60–100 cm tall; stem woody at base, branches terete, striate, puberulent to subglabrous. Leaves subsessile or shortly petiolate, leaf blade elliptic-oblong to oblanceolate, 5–12 × 1.5–4 cm, base cuneate, apex acuminate or acute, margin serrate to double serrate, both surfaces scabrous, abaxial side with denser hair and have glands. Capitula many, forming terminal or axillary corymb; peduncles 5–10 mm, densely pubescent and glandular. Involucres campanulate, 7–9 × 5–8 mm; phyllaries 4–5-seriate, scarious, purple throughout or apically, margin ciliate; outermost ovate, ca. 2 mm, apex acuminate-spinulose; middle and inner layers

ovate-oblong to oblong, length increases inward, innermost 8 mm, apex rounded- or obtuse-spinulose. Florets 6–12 per capitulum, pale purple, tubular corolla 7–8 mm, glandular, trumpet-shaped with apex divided into 5 lanceolate lobes. Cypselae oblong, 2.5–3 mm, 10-ribbed, hairy and glandular. Pappus white, in 1 series, 7 mm, delicate and deciduous.

Locality: Mount Parker, Tai Mo Shan, Lantau Island. *W. J. Tutcher 4822; L. T. Lo 421; HK sheet 14629.*

Distribution: Guangdong, Guangxi, Yunnan, Guizhou, Fujian; India, Nepal, Myanmar, Thailand, Vietnam.

Ecology: Forests or thickets. Flowering: Sep.–Feb. of the following year.

Uses: Medicinal (folklore).

2. Vernonia cinerea (L.) Less. 夜香牛 **(Fig. 264; Photo 526)**

Linnaea 4(3): 291. 1829; FHK 169. 1861; S. Y. Hu, Quart. J. Taiwan Mus. 22: 18. 1969; FRPS 74: 38. 1985; FGD 8: 236, fig. 144. 2007; FTW ed. 2, 4: 1086, pl. 518, photo 494. 1998.

Conyza cinerea L., Sp. Pl. 2: 862. 1753.

Erect annual or biennial herbs, 12–100 cm tall, greyish pubescent throughout, trichomes simple, mixed with T-shaped and rarely stellate hairs. Stem cylindric, 2–4 mm in diam., glandular, striate-sulcate, branching only after the formation of terminal capitulum. Middle and lower leaves ovate-rhombic or ovate, 2–8 × 1.5–5 cm, base cuneate, apex acute to obtuse, margin undulate-serrulate, subglabrous-puberulent and greenish adaxially, densely covered with greyish matted hairs abaxially, gradually attenuate to form winged petiole 0.5–3 cm, sometimes mucronate; upper cauline leaves subsessile, gradually decreasing in size, becoming lanceolate-linear. Capitula in corymbose panicle; pedunculate at anthesis, peduncles densely pubescent, 0.2–1.5 cm, bearing 1–3 small linear prophylls. Involucres campanulate, 4–5 × 2–3 mm; phyllaries green changing upward to purple, glandular and densely pubescent, apex acuminate to acicular, 4-seriate; outer ones linear, 1–1.5 mm; middle and inner ones linear-lanceolate; the innermost ones 4 mm. Receptacles flat, alveolate at anthesis and areolate after fruit dispersal. Florets 20–21 per capitulum, 4 mm, the tube slender, white, the distal enlarged portion and the lobes purple and hairy; stylar branches exserted, purple; anther bases sagittate, apical appendages ovate-acute. Cypselae terete, apex truncate, slightly cuneate towards the corky ring at the base, 1.5–2 mm, pubescent and glandular. Pappus white, biseriate, outer ones numerous and minute, persistent; inner ones 4 mm, delicate and deciduous.

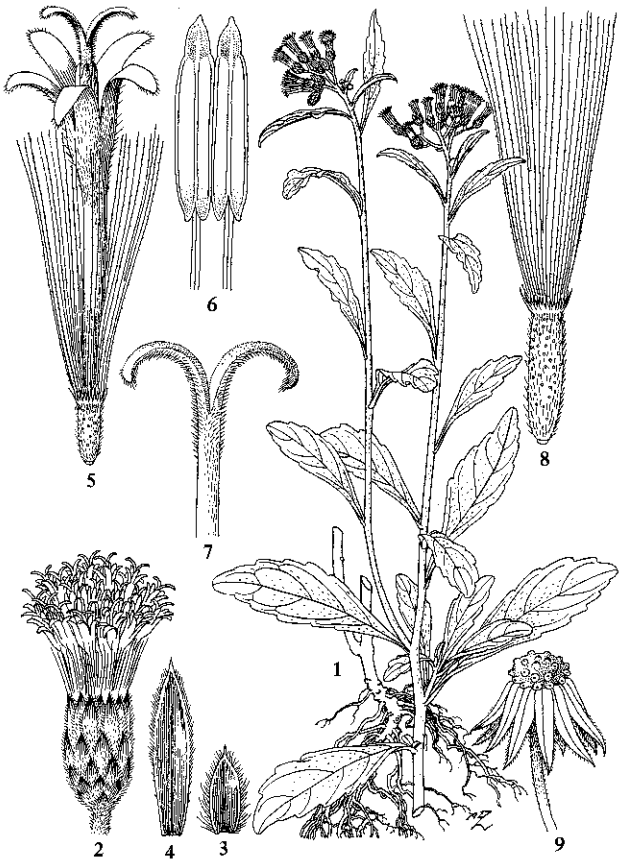


Figure 264. *Vernonia cinerea* (L.) Less.

1. whole plant; *2.* homogamous discoid capitulum; *3.* outer phyllary; *4.* inner phyllary; *5.* floret; *6.* stamens; *7.* stylar branches; *8.* hairy and glandular cypsela; *9.* receptacle after fruit dispersal. (drawn by X. L. Zeng)

Locality: Common in Hong Kong. *S. Y. Hu & P. P. H. But 23987* (CUHK); *S. Y. Hu 6974* (CUHK); *P. S. Choi 397.*

Distribution: S, SW to C & E China; Japan, India, Indochina, Malaysia, Africa.

Ecology: Wastelands, roadsides near villages. Flowering: Nearly all year round.

Uses: Medicinal (folklore).

3. Vernonia patula (Dryand.) Merr. 鹹蝦花 **(Photo 527)**

Philipp. J. Sci. 3(6): 439. 1908; S. Y. Hu, Quart. J. Taiwan Mus. 22(1–2): 21. 1969; FRPS 74: 41, pl. 12: 8–15. 1985; FGD 8: 233, fig. 143. 2007; FTW ed. 2, 4: 1091, pl. 521, photo 497. 1998.

Vernonia chinensis (L.) Less., Linnaea 6: 105, 674. 1831; FHK 169. 1861; FKH 138. 1912.

Conyza patula Dryand., Hort. Kew 3: 184. 1789.

Erect annual herbs 40–60 cm tall; stem terete, striate-sulcate, glandular and greyish pubescent, the lower portion 3–6 mm in diam. Leaves ovate or ovate-oblong, the lower cauline ones usually withered at anthesis; the middle ones 3–4.5 × 1.5–3 cm, base cuneate and attenuate as wings of the upper portion of the petiole, apex obtuse, margin subentire with 2–6 small callous teeth, sparsely pilose above, glandular and greyish woolly beneath; petioles 2–10 mm; upper cauline leaves smaller, subsessile. Capitula 2–3 terminal to leafy branchlets; peduncles 0.4–2.8 cm, tomentose, with or without prophylls. Involucres hemispherical or depressed globose, 5–6 × 6–10 mm; phyllaries 4–5-seriate, apex acuminate-acicular, hairy and glandular; outermost ones lanceolate, 3–4 mm, greenish or sometimes tinged purple; middle and inner layers lanceolate-oblong, 5–6 mm. Receptacle slightly convex, shortly scarious along margin of areoles. Florets 75–100 in each capitulum; corolla purple, 4–4.5 mm, apical lobes lanceolate; anther tube 1.5 mm; stylar branches exserted, 0.8 mm. Cypselae subcylindric, obtuse at the basal end, truncate at the apex, 2 mm, unequally pentagonous, glabrous, glandular. Pappus white, in 1 series, 2.5–3 mm, delicate and deciduous.

Locality: Common in Hong Kong. *P. S. Choi 233; Y. S. Lau 2214; Y. W. Lam 483.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Guizhou, Fujian, Taiwan; India, Indochina, Malaysia.

Ecology: Wastelands. Flowering: Nearly all year round.

Uses: Medicinal (folklore).

4. Vernonia maritima Merr. 濱海斑鳩菊

Philipp. J. Bot. 3(6): 404. 1908; FRPS 74: 39, pl. 15: 1–8. 1985; FGD 8: 236. 2007.

Vernonia maritima Hayata, J. Coll. Sci. Imp. Univ. Tokyo 22: 202. 1906, *nom. nud.*

Vernonia kawakami Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 149. 1911.

Dwarf subshrubs, usually 7–10 cm tall. Stems often procumbent at base, obliquely ascending in upper part, many-branched, striate, grey-white hispidulous. Leaves numerous, ± confert upwards, spathulate, 1.5–2.5 × 0.4–0.7 cm, base gradually attenuate into slender petioles, apex rounded or obtuse, margin entire or repand, densely grey-white hispidulous. Capitula few, usually 3–5 corymbose, 5–7 mm in diam.; peduncles 5–12 mm, with 1–2 subulate bracteoles, densely hispidulous. Involucres ca. 4 × 5–7 mm; phyllaries 5-seriate, imbricate, outer ones subsubulate 1.5–2 mm, spinescent, puberulous, median ones ovate, ca. 3 mm, acute and mucronulate, inner ones oblong, sparsely puberulous, with scarious margins. Receptacle flat, foveolate. Florets more than 40 per capitulum; corolla tubular, 2.5 mm, with campanulate limb; lobes lanceolate, apically glandular. Cypselae subcylindric, 1–1.2 mm, 5-angled, truncate at apex, glandular between the ribs or sometimes sparsely puberulous. Pappus simple, white, ca. 1 mm, deciduous.

Locality: Lantau Island, Cheung Chau. *W. J. Tutcher 11923; H. C. Tang 1252.*

Distribution: Taiwan; Philippines.

Ecology: Wastelands near seashores. Flowering: Jun.–Oct.

5. Vernonia cumingiana Benth.

毒根斑鳩菊 **(Fig. 265; Photo 528)**

Hooker's J. Bot. Kew Gard. Misc. 4: 232. 1852; FHK 170. 1861; FRPS 74: 21, pl. 9: 7–13. 1985; FGD 8: 234. 2007.

Vernonia andersonii auct. non C. B. Clarke, FKH 139. 1912.

Scandent shrubs or liana, current years' flower-bearing growth 60–80 cm, 4–5 cm in diam. near the base, branched off leafy shoots 6–7 mm across. Stem terete, striate, pubescent to densely tomentose, some hair stellate. Leaves ovate-oblong, elliptic-oblong or lanceolate-oblong, 5–14 × 2–6 cm, base rounded or obtuse, apex acute or shortly acuminate, margin entire, major lateral veins 5–6 on each side of midvein, arcuate, reticulations on both surfaces, glabrous adaxially except the midvein and veins appearing puberulent, abaxial surfaces glandular and densely pilose or tomentose with rusty-coloured hairs; leaf petiole densely pubescent, 0.5–1 cm. Capitula numerous, in terminal or axillary panicles; peduncles 0.5–2 cm, rusty hirsute, the distal half with 1–3 linear prophylls, gradually merging with the involucral bracts. Involucres campanulate to hemispherical, 6–7 × 6–12 mm when dry, apex acute or obtuse, 5-seriate; outermost ones ovate, 3 mm, densely covered with yellowish hair on whole abaxial surfaces and along margin; middle and inner layers ranging from ovate-oblong to oblong, 4–7 mm, hairy near the apex. Receptacle plain, fimbriate and with each areole elevated at centre. Florets 18–21 per capitulum, corolla 9–12 mm, twice the length of the innermost phyllaries, trumpet-shaped with distal half enlarged, lobes 3–4 mm, colour pink to reddish purple; anther tubes 4 mm, slightly exserted, with long-deltoid apical appendages and sagittate bases; stylar branches 2–3 mm, spinulose. Cypselae subcylindric, 3 mm, 10–12-ribbed, sparsely puberulent, basal end truncate with a corky ring. Pappus 2-seriate, outer ones shorter and few; inner ones 1 cm, reddish brown.

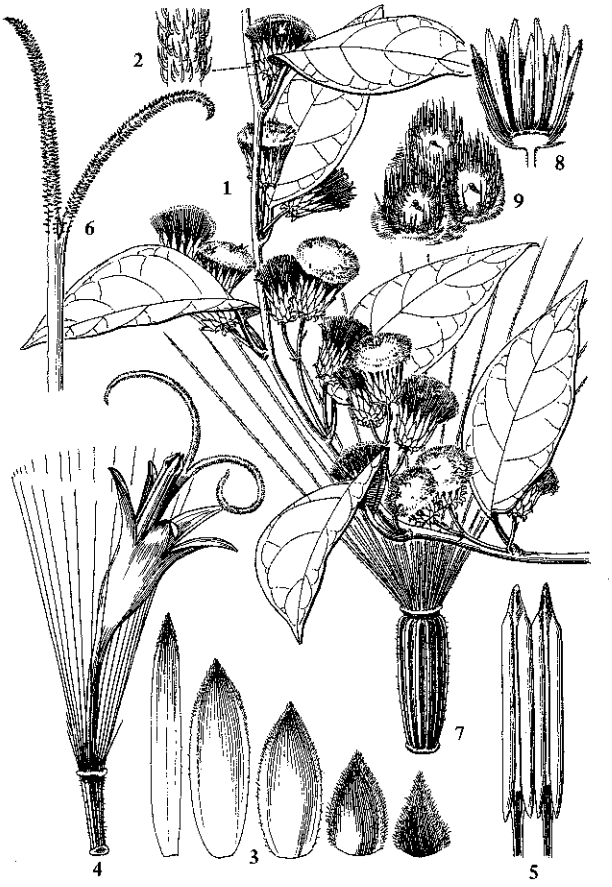


Figure 265. *Vernonia cumingiana* Benth.

1. flowering and fruiting branch; *2.* portion of the stem showing the strigose hair; *3.* phyllaries; *4.* floret; *5.* stamens; *6.* stylar branches; *7.* cypsela; *8.* vertical section of a receptacle; *9.* portion of the receptacle after fruit dispersal. (drawn by P. Ma)

Locality: Shek O, Wong Nai Chung, The Peak, Nam Fung Rd., Tai Mo Shan, Luk Keng, Castle Peak. *P. S. Choi 497; W. Y. Chun 5054* (CUHK); *S. Y. Hu 11831* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Sichuan, Fujian, Taiwan; Thailand, Indochina.

Ecology: Margins of forests, thickets along streams. Flowering: Oct.–Apr. of the following year.

Uses: Medicinal (folklore).

Notes: A syntype specimen of this species was collected by J. G. Champion from Victoria Peak between 1847 and 1850.

6. Vernonia gratiosa Hance 台灣斑鳩菊

J. Bot. 20(238): 290. 1882; FRPS 74: 24, pl. 9: 1–6. 1985; FGD 8: 234. 2007; FTW ed. 2, 4: 1088, pl. 520, photo 495. 1998.

Scandent subshrubs up to 3 m tall; branches many, pubescent to tomentose. Leaves elliptic-oblong, 6.5–11 × 1.8–4 cm, petiole densely pubescent, 0.4–1 cm, base cuneate, apex shortly acuminate, margin entire or loosely mucronulate, subglabrous or loosely pubescent adaxially, more hairy on the midvein, densely brownish tomentose abaxially. Capitula many, arranged as terminal or axillary panicles; peduncles much densely brownish tomentose. Involucres campanulate, 6 mm; phyllaries in 4 series, apex acute, brownish long hairs growing throughout or mainly distributed near apex and along margin; outer layers ovate, 2 mm; median and inner layers lanceolate to oblong, gradually increases in length inward, 2.5–7 mm. Receptacle slightly convex, areoles fimbriate. Florets about 10 per capitulum, tubular corolla purple, 1 cm, lower portion puberulent, apex divided into 5 linear-lanceolate lobes about 2 mm, glabrous. Cypselae terete, 10-ribbed, 3–3.5 mm, brown in colour, puberulent, truncate at apex, narrowed at base with corky ring. Pappus in 2 series, outer ones short, usually deciduous; inner ones 1 cm, brown to reddish brown, persistent.

Locality: Tai Mo Shan, Tai Shing Stream. *C. P. Lau 188; P. S. Choi 528.*

Distribution: Fujian, Taiwan.

Ecology: Margins of forests, thin forests. Flowering: Aug.–Apr. of the following year.

7. Vernonia elliptica DC. in Wight 光耀藤 **(Fig. 266)**

Contrib. Bot. India 5. 1834; FTW ed. 2, 4: 1088, pl. 519. 1998.

Large sprawling woody lianas climbing over fences and trees up to 4–5 m high; branchlets, lower leaf-surfaces and inflorescences silvery hairy. Leaves on flowering shoots petiolate, petioles curved, 2–5 mm, densely silky, leaf blade oblong-elliptic, 2.5–9.5 × 1–6 cm, base and apex rounded or obtuse, glabrous or bearing little sericeous hair adaxially, densely covered with appressed silky hair abaxially, reticulate veins and midvein elevated on both surfaces. Capitulum subsessile, with 4–5 florets each, 3–6 capitula forming a stalked cluster, subtended by a diminutive leaf (prophyll). Involucres subcylindric, 3–4 × 1.5–2 mm; phyllaries herbaceous, imbricate, 4-seriate, ciliate along margin; the outermost ones ovate, 1.5 × 1 mm, glandular and puberulent on abaxial surfaces, apex obtuse; length and width increases gradually inward; innermost ones obovate-oblong, apex obtuse to rounded, 3 × 1.5 mm, glandular and hairy near apex. Florets white, tinged pink in bud or when first open, corolla 5–6, narrowly funnelform with upper half broaden, 1/3 divided into 5 lanceolate lobes and glandular outside; anther tube honey-coloured, base sagittate, apical appendage ovate-lanceolate; style white, base globose, attached to a brown glandular disk, distal end branched and recurved, the abaxial side of the branches bristly, apex acute-acuminate. Cypsela glossy brown, 2.5 mm, 4–5-ribbed, densely glandular. Pappus greyish to brownish white, persistent, unequal, the outer ones shorter, the inner ones equal to the corolla tube in length, radiating with diam. 0.8–1 cm.

Locality: Cultivated. *S. L. Thrower 1577* (CUHK); *S. Y. Hu & P. P. H. But 22143, 22182, 23942* (CUHK).

Distribution: Native to India and SE Asia, naturalized in Taiwan.

Ecology: Flowering: Feb.–May.

Uses: Ornamental.

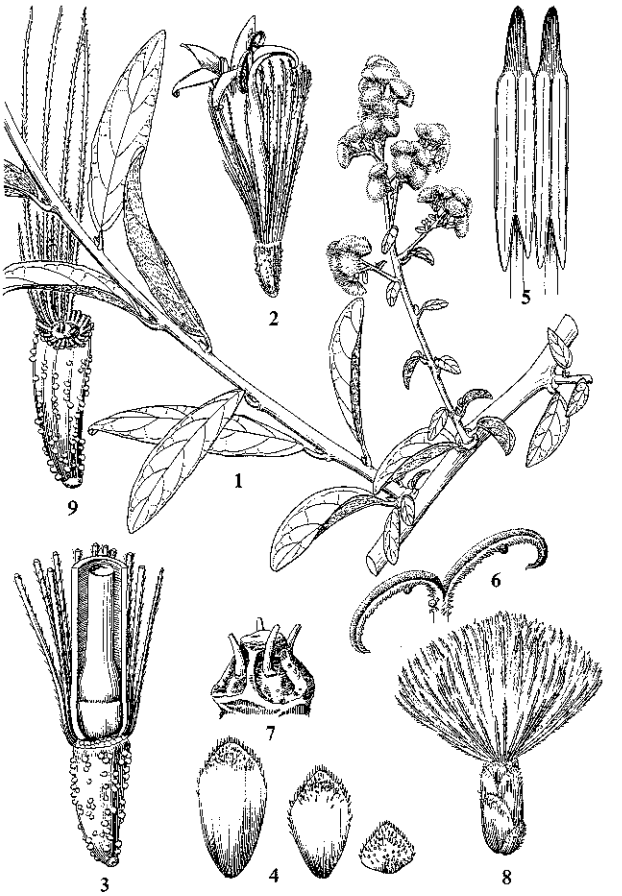


Figure 266. *Vernonia elliptica* DC. in Wight

1. fruiting branch; *2.* floret; *3.* vertical section of the lower portion of a floret; *4.* phyllaries; *5.* stamens; *6.* stylar branches; *7.* naked receptacle showing a central sterile torus and four areoles for the florets; *8.* capitulum ready for fruit dispersal; *9.* cypsela. (drawn by P. Ma)

8. Vernonia solanifolia Benth. 茄葉斑鳩菊(斑鳩菊)

London J. Bot. 1: 486. 1842; FHK 169. 1861; FKH 138. 1912; FGD 8: 234. 2007; FRPS 74: 12, pl. 1: 8–14. 1985

Densely woolly shrubby lianas, 1–4 m tall, with arching branches. Leaves ovate or ovate-oblong, 4–14 × 3–7 cm, rounded or subcordate at the base, acuminate or obtuse at the apex, margin entire, undulate or loosely obtuse-toothed, the adaxial surfaces pilose and glandular, and densely hirsute with simple and stellate hair along the midvein, the abaxial surfaces glandular and densely covered with yellowish or brownish matted hairs; petioles strong, 0.7–2 cm, tomentose. Capitula numerous, in axillary and terminal corymbose-panicles; peduncles 0.7–1.2 cm, densely woolly. Involucres hemispherical, 4–5 × 4–6 mm; phyllaries 4–5-seriate, ranging from ovate, ovate-oblong to oblong, 2.5–5 mm, apex obtuse, outer ones woolly throughout the abaxial surface, inner ones woolly at apical region and slightly scarious along margin. Receptacle plain and alveolate. Florets 10–12, fragrant, corolla pink or pale purple, sparsely glandular, funnelform about 6 mm, 1/3 divided into 5 lanceolate lobes; stylar branches 2 mm, exserted. Cypselae brown,

glabrous, 4–5-angulate, 2–2.5 mm. Pappus yellowish white, 2-seriate, outer ones shorter, inner ones 6 mm.

Locality: Common in Hong Kong. *S. Y. Hu 5044* (CUHK); *Y. W. Lam 1313; P. S. Choi 498.*

Distribution: Hainan, Guangdong, Guangxi, Yunnan, Fujian; India, Myanmar, Indochina.

Ecology: Forests of valleys. Flowering: Dec.–Apr. of the following year.

Uses: Medicinal (folklore).

49. Elephantopus L. 地膽草屬

Perennial herbs, rigid, hairy throughout. Leaves rosulate at base or alternate above, sessile or shortly petiolate, with pinnate veins. Capitula sessile, aggregated into glomerules surrounded by few foliaceous bracts and subtended by rigid stalk. Involucres oblong to cylindric, slightly compressed; phyllaries in 2 series with 4 involucral bracts in each layer, outer layer shorter and alternate to the inner one, oblong, apex acuminate or with spine. Receptacle small and glabrous. Florets 2–5 per capitulum, all tubular, hermaphrodite and fertile, corolla 5-lobed apically with one side usually more deeply cleft; anther shortly sagittate at base, apical appendages obtuse; style hirsute, branches subulate. Cypselae oblong-cylindric, 10-costate, truncate at apex, puberulent. Pappus 5 stiff setaceous scales, dilated at base.

About 30 species mainly found in S America; two species growing as weeds in S China and in Hong Kong.

1a. Stems 15–50 cm tall; flowers purple; basal rosulate leaves persistent at anthesis, oblanceolate to spatulate; middle cauline leaves few, some with only 1–2 scattered on stem, oblanceolate to oblong ..... 1. *E. scaber*

1b. Stems 70–100 cm tall; flowers white; basal rosulate leaves usually deteriorate at anthesis; middle cauline leaves many, alternate, obovate-oblong ..... 2. *E. tomentosus*

1. Elephantopus scaber L. 地膽草 **(Fig. 267; Photo 529)**

Sp. Pl. 814. 1753; FHK 170. 1861; FKH 139. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 242. 1966; FRPS 74: 43. 1985; FTW ed. 2, 4: 938. 1998; FGD 8: 237, fig. 145. 2007.

Erect perennial herbs 15–50 cm tall; stem terete, branched dichotomously at upper portion, strigose and glandular throughout. Radical leaves remained at anthesis, rosulate in arrangement, oblanceolate to spatulate in shape, 5.5–20 × 1.5–3 cm, base attenuate, apex obtuse or rounded, with a mucro, margin shallowly and irregularly crenate-serrulate, strigose on both surfaces, and glandular abaxially, lateral pinnate veins 16–17 on each side of the midvein; cauline leaves few, scattered, oblanceolate to oblong, smaller in size, about 1–10 × 0.4–1.2 cm, sessile, strigose on both surfaces, glandular abaxially. Glomerules all stalked, the stalks 2–10 mm; each surrounded by 3 broadly ovate bracts, foliaceous, 6–10 × 10–12 mm, acute and mucronate at apex, shallowly serrulate along margin, densely hairy, glandular, strongly reticulate. Involucres cylindric-oblong, phyllaries coriaceous, basal white, apical green or tinged purple, hairy and glandular, 2-seriate; outer 4 involucral bracts lanceolate-oblong, 4–5 mm, apex long-acuminate; inner 4 elliptic-oblong, 8–9 mm, twice longer than the outer ones, apex spinulose. Florets 4 per capitulum, 7 mm; corolla lobes purple, about 2 mm. Cypselae brown, 4 mm, apex truncate, basal portion gradually narrowed, strongly 10-ribbed and grooved, puberulent and glandular. Pappus setae 5(6–8), stiff, purple, 4–5 mm, dilated and scaly at base, persistent.

Locality: Common in Hong Kong. *K. Y. Chan 1218* (CUHK); *S. Y. Hu 11033* (CUHK); *L. T. Lo 555.*

Distribution: S, SW & E China; Asia, America and tropical regions of Africa.

Ecology: Wastelands, roadsides. Flowering: Jul.–Nov.

Uses: Medicinal (folklore).

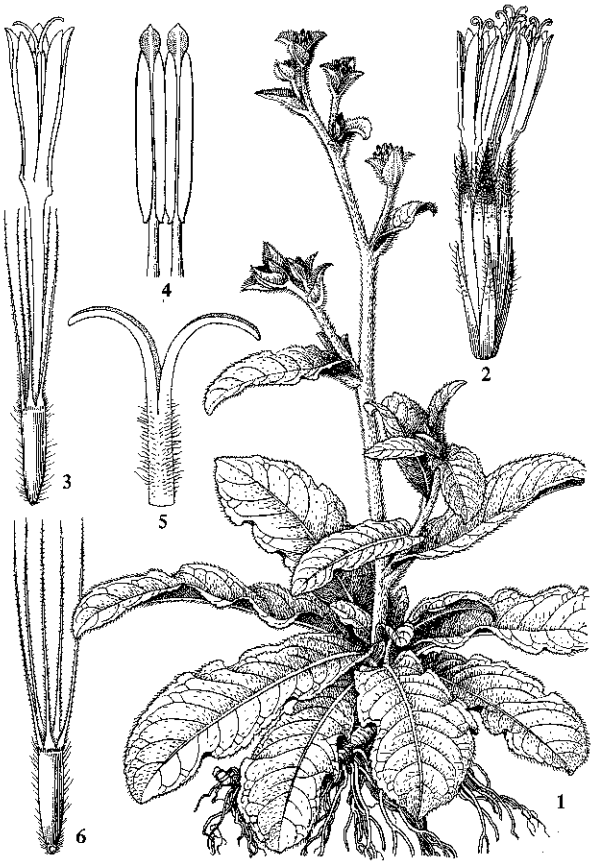


Figure 267. *Elephantopus scaber* L.

1. whole plant; *2.* homogamous sessile capitulum with four tubular florets; *3.* floret; *4.* stamens; *5.* stylar branches; *6.* cypsela. (drawn by X. L. Zeng)

2. Elephantopus tomentosus L. 白花地膽草 **(Fig. 268)**

Sp. Pl. 814. 1753; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 242. 1966; FRPS 74: 45. 1985; FGD 8: 238. 2007.

Elephantopus mollis Kunth, Nov. Gen. Sp. 4: 26. 1820; FTW ed. 2, 4: 938. 1998.

Perennial erect herbs 70–100 cm tall; stems striate; branches many on upper portion, strigose to hirsute, glandular. Basal leaves rosulate, deteriorate before anthesis; lower and middle cauline leaves numerous, obovate-oblong, 5–17 × 2.5–5.5 cm, base attenuate

to form winged petiole, subamplexicaul, apex acute, margin crenate-serrate, lateral pinnate veins 10–12, pilose and glandular on both surfaces; upper cauline leaves elliptic-oblong, 3–6 × 1–2 cm, or much smaller upward, subsessile, acute at apex. Capitula sessile and clustered into glomerules, each glomerule subtended with stalk 1–7 cm; and surrounded by 3 broadly ovate-cordate foliaceous bracts, 8–18 × 8–12 mm, acute and awned at apex, strongly reticulate, serrulate, hairy and glandular. Involucres cylindric-oblong; phyllaries scarious, hairy and glandular at distal half, in 2 series, each layer with 4 involucral bracts; outer series shorter, 3–4 mm, lanceolate-oblong, apex long-acuminate, green near the tip, 1-veined at the middle; inner ones oblong, twice longer than the outer ones, 6–7 mm, upper half green, awned-tip. Florets 4 per capitulum, corolla white, 3–4 mm, funnelform, tube slender, glabrous. Cypselae brown, linear-oblong, 2.5–3 mm, 10-ribbed, apex truncate, base gradually narrowed, puberulent. Pappus 5 stiff setae, 4 mm, dilated and scaly at base, persistent.

Locality: Common in Hong Kong. *Y. S. Lau 2224; S. L. Thrower 472* (CUHK); *S. Y. Hu 11726* (CUHK).

Distribution: Hainan, Guangdong, Fujian, Taiwan; tropical regions.

Ecology: Wastelands, roadsides. Flowering: Mar.–Sep.

Uses: Medicinal (folklore).

50. Pseudelephantopus Rohr 假地膽草屬

Perennial erect herbs, rigid. Leaves alternate, basal ones in rosulate form, subsessile, pinnately-veined. Capitula sessile, homogamous, 1–6 forming axillary aggregates without stalks; involucres consisting of 2 sets of 4 oblong phyllaries, outer series shorter. Receptacle small and naked. Florets 4 per capitulum, all bisexual and fertile, corolla tubular and 5-lobed, usually with one side more deeply cleft; anther bases shortly sagittate, obtuse; stylar branches hairy, acute. Cypselae linear-oblong, 10-ribbed, hairy. Pappus bristles few, 5–15, persistent, unequal in length, slender, usually with several apically folded as sigmoid.

Two species native to tropical America and Africa; one species in China and in Hong Kong.

1. Pseudelephantopus spicatus (Juss. ex Aublet) C. F. Baker 假地膽草 **(Fig. 269)**

Trans. Acad. Sci. St. Louis 12(5): 55. 1902; S. Y. Hu, Quart, J. Taiwan Mus. 20(3–4): 305. 1967; FRPS 74: 47. 1985; FTW ed. 2, 4: 1041. 1998.

Elephantopus spicatus Juss. ex Aublet, Hist. Pl. Guiane 2: 808. 1775; FKH 139. 1912.

Perennial herbs 45–100 cm tall; stem erect, striate, subglabrous on lower portion, pilose and glandular upward, hairs appearing denser on inflorescence branches. Leaves oblanceolate-spatulate, 7–22 × 1–6 cm, base gradually attenuate to a short sheath, subamplexicaul, apex obtuse to rounded, margin with callous teeth or entire, pinnately-veined, pilose on adaxial surfaces, along margins and midveins on abaxial surface, densely punctate abaxially. Upper leaves linear to linear-lanceolate, 1–11 × 0.1–1 cm, smaller in size especially those on branches. Capitula sessile, solitary or 2–6 clustered into axillary aggregates without stalks, arranged as spicate-panicle. Involucres oblong-ellipsoidal, 1–1.2 × 0.3–0.4 cm; phyllaries distal half or 1/3 dark green, sparsely pilose and glandular, apex acuminate-aristate, margin

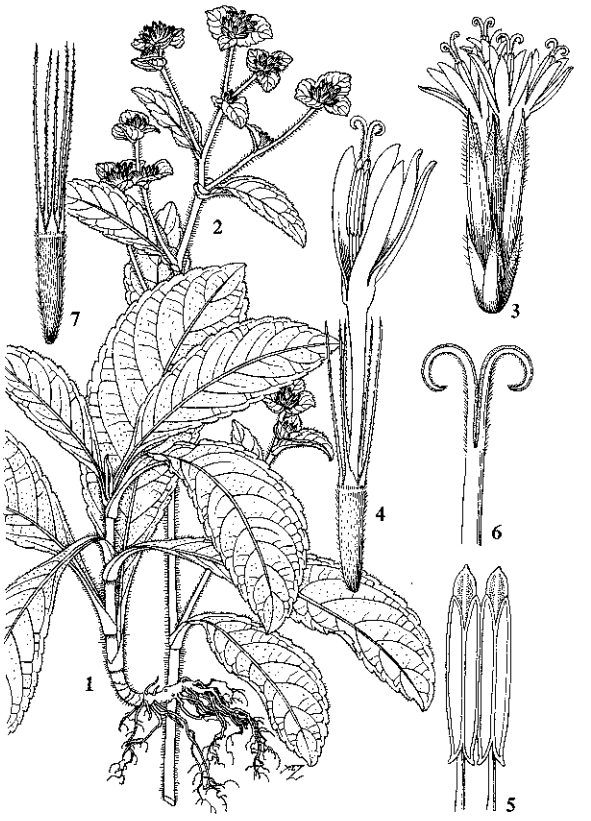


Figure 268. *Elephantopus tomentosus* L.

1. young plant with alternate cauline leaves; *2.* flowering branch with sessile leaves; *3.* homogamous capitulum with four florets; *4.* floret; *5.* stamens; *6.* stylar branches; *7.* mature hairy cypsela. (drawn by X. L. Zeng)

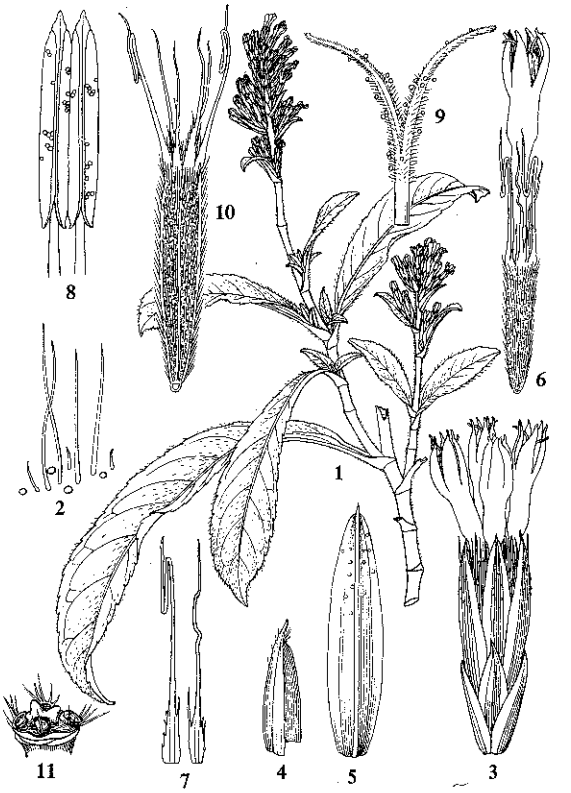


Figure 269. *Pseudelephantopus spicatus* (Juss. ex Aublet) C. F. Baker

1. flowering branch; *2.* single-celled hairs and shiny glands on the stem; *3.* capitulum with four florets; *4.* outer phyllary; *5.* inner glandular phyllary; *6.* floret; *7.* pappus scales; *8.* stamens; *9.* stylar branches; *10.* cypsela; *11.* receptacle after the removal of involucre and cypselae. (drawn by X. L. Zeng)

scarious, midvein prominent, in 2 series with 4 involucral bracts in each layer; outer ones ovate, 5–6 × 3 mm; inner ones oblong, twice longer than the outer ones, 1–1.2 mm. Florets 4 per capitulum, corolla white, 6–7 mm, 5 lanceolate apical lobes. Cypselae linear-oblong, densely hairy and glandular, 10-ribbed, 6–7 mm. Pappus few, bristle-like but slender, dilated and scarious at base, unequal in length, usually with 2 longer and folded as sigmoid near apex.

Locality: Naturalized. *S. Y. Hu & P. P. H. But 19973, 23090; L. T. Lo 480.*

Distribution: Guangdong, Taiwan (naturalized); tropical America and Africa.

Ecology: Wastelands, roadsides near villages. Flowering: Jan.–May.

51. Adenostemma J. R. Forst. & G. Forst. 下田菊屬

Anuual herbs, stem erect with opposite leaves trinerved at the base and usually serrate. Capitula homogamous, arranged in terminal corymb or corymbose panicles. Involucres campanulate or hemispherical; phyllaries herbaceous, 2-seriate, subequal in length. Receptacle plain, without palea. All florets fertile, corolla white, tubular, lobes 5; anther bases obtuse to subtruncate; stylar branches long and exserted, compressed, apex obtuse. Cypselae 3–5-costate, apex rounded, glandular or tuberculate. Pappus in clavate form, 3–5, each ending with a gland.

About 20 species distributed in tropical America; one species in Hong Kong.

1. Adenostemma lavenia (L.) Kuntze

下田菊 **(Fig. 270; Photo 530)**

Rev. Gen. Pl. 304. 1891; S. Y. Hu, Quart. J. Taiwan Mus. 18(1–2): 92. 1965; FRPS 74: 50. 1985; FTW ed. 2, 4: 816. 1998; FGD 8: 217, fig. 129. 2007.

Adenostemma viscosum Forst., Char. Gen. Pl. 45, t. 45. 1775; FHK 171. 1861; FKH 139. 1912.

Verbesina lavenia L., Sp. Pl. 902. 1753.

Annual herbs, 40–100 cm tall. Stems erect, branched on upper portion, lower part nearly glabrous, puberulent upward. Basal leaves withered or remained at anthesis, smaller in size; middle leaves ovate, 4–9 × 2.5–4.5 cm, base cuneate-attenuate, forming petiole 0.5–4 cm long with narrow wing, apex obtuse or acute, leaf margin crenate-serrate, subglabrous on both surfaces, sparsely puberulent along the midvein; upper leaves smaller in size, 0.5–2 cm. Capitula in loose terminal corymbs; peduncles 1–4 cm, densely pubescent, hair multicellular. Involucres hemispherical, 5–8 mm across, or up to 10 mm at fruiting stage; phyllaries 2-seriate, 4–5 × 1 mm, oblong, apex rounded, greenish, outer series connate at base. Florets all tubular, pinkish to maroon, 2–2.5 mm, broader at upper region, with 5 deltoid lobes at apex, glandular pilose especially at lower region; style white, branches clavate, prominently exserted; anther included, base obtuse, without apical appendages. Cypselae chestnut brown, 3–4 × 1 mm, oblanceolate, truncate distal end, glandular. Pappus 3–4 clavate projections, end up with sticky glands, base connate into a ring.

Locality: Aberdeen, Clear Water Bay, Nam Shan, Tai Mo Shan, Shing Mun Reservoir, Ta Tit Yan. *C. P. Lau 032* (CUHK); *S. Y. Hu & P. P. H. But 21201A* (CUHK); *Y. S. Lau 781.*

Distribution: S to C China; SE Asia, Japan, India, Sri Lanka, Australia.

Ecology: Banks of paddy fields and wastelands. Flowering: Sep.–Dec.

Uses: Medicinal (folklore).

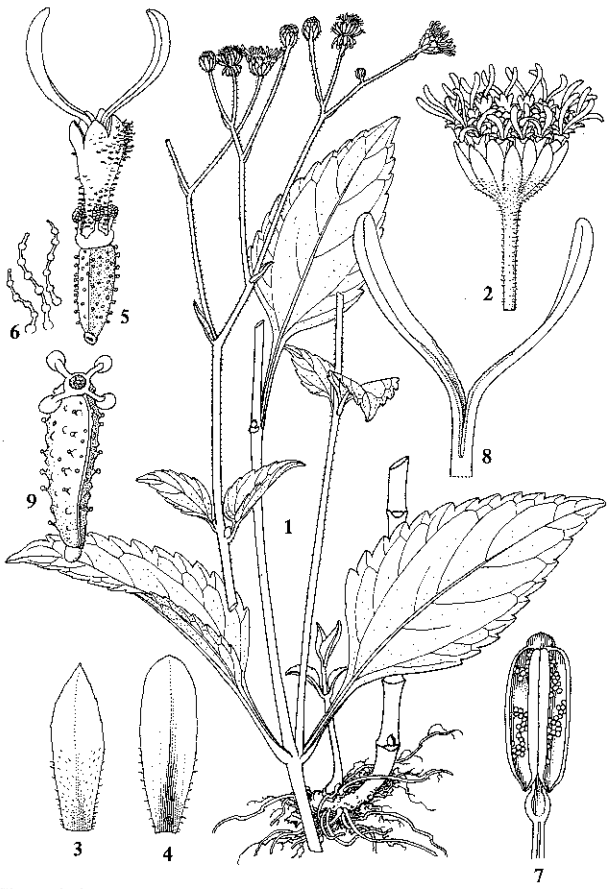


Figure 270. *Adenostemma lavenia* (L.) Kuntze

1. flowering plant; *2.* lateral view of capitulum; *3.* outer phyllary; *4.* inner phyllary; *5.* floret; *6.* hairs of the corolla lobe; *7.* stamen; *8.* stylar branches; *9.* glandular cypsela. (drawn by X. L. Zeng)

52. Mikania Willd. 假澤蘭屬

Shrubs or climbing herbs. Leaves opposite or verticillate. Capitula homogamous, discoid, 4-flowered, with variable arrangement. Involucres oblong-campanulate or cylindric; phyllaries 4, united at base. Receptacle small, no palea. Florets tubular, bisexual and fertile, corolla funnel-shaped, 5-lobed at apex; stamens 5, anther bases rounded and entire, with apical appendages; stylar branches elongate, appendages linear, papillose or finely hirsute, apex acute. Cypselae glabrous, oblong-cylindric, 4–10-ribbed, sometimes glandular or setose. Pappus of scabrid bristles, in 1–2 series.

About 430 species in tropical America; one species is becoming troublesome weed in China and in Hong Kong.

1. Mikania micrantha Kunth 微甘菊 **(Photo 531)**

Nov. Gen. Sp. (folio ed.) 4: 105. 1820.

Scandent herbs climbing over shrubs and small trees up to 5 m high; glabrous or subglabrous, slightly hairy at nodes. Leaves ovate-deltoid, those on vegetative stems 4–9 × 2.5–6 cm, cordate with prominent broad sinus at the base, apex acuminate, the acumens 1–1.4 cm, margin undulate dentate or subentire, glandular on both surfaces; petiole 1–6 cm. Capitula 5 mm, in subumbelliform-paniculate clusters terminal to lateral shoots with small leaves of 1–2.5 cm; each capitulum with 4 florets and 4 phyllaries, subtended by linear-lanceolate bract 1.5–3 mm; phyllaries oblong, 3.5–5 mm, apex acuminate or obtuse, finely ciliate along margin of tip. All florets tubular, bisexual and fertile, corolla white, funnelform, 3–5 mm, 5-lobed, the lower narrow tube glandular. Cypselae linear-oblong, 4-angled, 2–3 mm, glandular. Pappus of scabrid bristles 3–4 mm, white to reddish.

Locality: Naturalized and widely distributed in Hong Kong. *S. Y. Hu 6146, 6280* (CUHK); *Y. S. Lau 195*.

Distribution: Native to S America, widely naturalized in the tropics

Ecology: A very troublesome weed commonly growing on margins of forests, open fields and especially in wastelands. Flowering: Jun.–Dec.

53. Ageratum L. 藿香薊屬

Annual or perennial, herbs or shrubs. Leaves opposite or with some alternate on upper portion. Capitula homogamous, in terminal corymbose clusters or rarely in loose panicles. Involucres campanulate; phyllaries imbricate in 2–3 series. Receptacles plain or dome-shaped, naked or some with caducous scales. All florets tubular, corolla regular, 5-lobed; stamens obtuse and entire at base, with apical appendages; stylar branches clavate, long, apex obtuse. Cypselae 5-angulate; pappus 1-seriate, scarious and aristate.

About 30 species in tropical America; two species cultivated, with *Ageratum conyzoides* naturalized in China and in Hong Kong.

1a. Leaves cuneate or rounded at base; phyllaries broad, oblong or lanceolate-oblong, apex minutely serrulate, not entire, glabrous or sparsely hairy outside; pappus scales equal to or longer than corolla ..... 1. *A. conyzoides*

1b. Leaves cordate or truncate at base; phyllaries narrowly lanceolate, apex long-acuminate, entire, densely hairy and glandular outside; pappus scales shorter than corolla ..... 2. *A. houstonianum*

1. Ageratum conyzoides L. 藿香薊 **(Fig. 271; Photos 532–533)**

Sp. Pl. 839. 1753; FHK 171. 1861; FKH 139. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 18(1–2): 93. 1965; FRPS 74: 53. 1985; FTW ed. 2, 4: 820. 1998; FGD 8: 217, fig. 128. 2007.

Erect aromatic herbs 8–80 cm tall, with or without branches, pubescent throughout the vegetative organs, with multicellular straight trichomes. Leaves opposite, ovate or elliptic, base usually cuneate or sometimes rounded, apex acute, margin crenulate-dentate, trinerved or some inconspicuously 5-veined, usually with yellow glands on abaxial surface; middle leaves 2–8 cm × 1–6 cm, with petiole 0.5–4 cm; upper and lower leaves smaller in size. Capitula in dense terminal corymbs. Involucres campanulate; phyllaries 2-seriate, subequal, 3–4 mm, broad, oblong or lanceolate-oblong, glabrous or occasionally with few hair, apex acute or acuminate, shallowly serrulate, not entire. Receptacle dome-shaped, smoothed and pitted, with persistent phyllaries after fruit dispersal. Florets tubular, white, blue or violet, corolla 1.5–2.5 mm, 5-lobed, slightly pilose on upper portion; stylar branches 1.5–2 mm, apical part glistering densely papillose. Cypselae brownish black, linear-oblong, 1.5–1.8 mm, 5-angulate, pilose. Pappus 5, scarious and awned, 2–2.5 mm, equal or longer than the corolla.

Locality: Naturalized and widely distributed in Hong Kong. *Y. S. Lau 1935, 2196; S. Y. Hu 5296* (CUHK).

Distribution: Native to C & S America, widely cultivated and naturalized.

Ecology: Flowering: Jun.–Oct.

Uses: Ornamental.

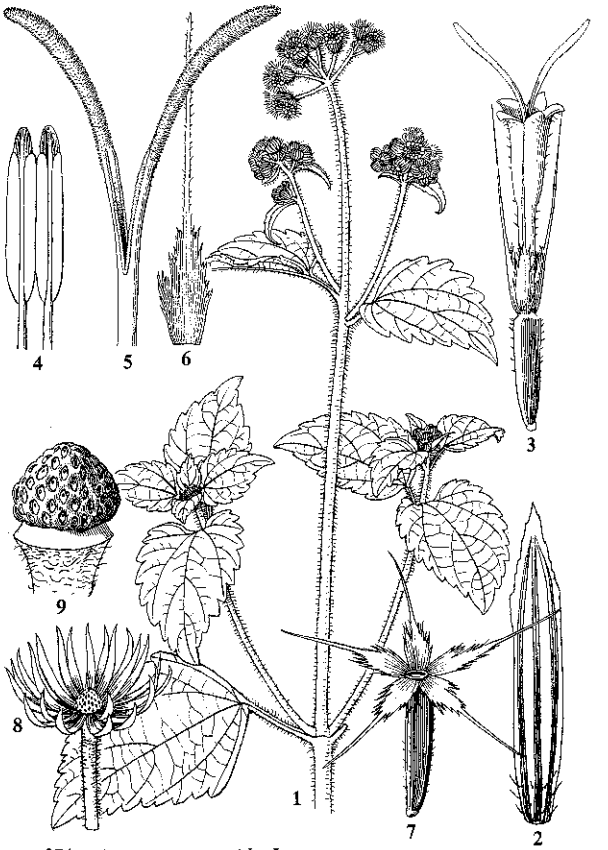


Figure 271. *Ageratum conyzoides* L.

1. flowering branch; *2*. phyllary; *3*. floret; *4*. stamens; *5*. stylar branches; *6*. pappus scale; *7*. cypsela; *8*. capitulum after fruit dispersal showing phyllaries and receptacle; *9*. receptacle. (drawn by X. L. Zeng)

2. Ageratum houstonianum Mill. 熊耳草 **(Photo 534)**

Gard. Dict. ed. 8. 1768; S. Y. Hu, Quart. J. Taiwan Mus. 18(1–2): 94. 1965; FRPS 74: 51. 1985; FTW ed. 2, 4: 820. 1998; FGD 8: 216. 2007.

Erect annual herbs 30–100 cm tall, with or without branches, pubescent throughout the vegetative organ. Leaves opposite, deltoid-cordate, base cordate or sometimes truncate, apex acute or rounded, margin crenate-dentate, pilose on both sides, trinervous or inconspicuously 5-veined; mid-cauline ones 2–6 × 1.5–3 cm, with petiole 0.7–3 cm; upper and lower ones smaller. Capitula in corymbose form; peduncles densely villose. Involucres campanulate to hemispherical, 5–6 mm across; phyllaries 2–3-seriate, narrowly lanceolate, 4–5 mm, densely hairy and glandular, apex long-acuminate, entire. Receptacle dome-shaped, with persistent phyllaries after fruit dispersal. Florets tubular, corolla 2–3.2 mm, shortly 5-lobed, white to light-violet, apex hairy; stylar branches violet, 1.5–2 mm. Cypselae black, 1.5–2 mm, 5-angulate. Pappus 5, scarious and awned, 1.2–1.5 mm, shorter than corolla.

Locality: Naturalized and widely distributed in Hong Kong. *Y. S. Lau 1937; H. C. Tang 1233; L. T. Lo 89.*

Distribution: Native to Mexico, widely naturalized in tropical and subtropical regions.

Ecology: Nature trail, farmlands and wastelands. Flowering: Nearly all year round.

54. Eupatorium L. 澤蘭屬

Annual or perennial herbs, shrubs or subshrubs. Leaves mostly opposite. Capitula homogamous, clustered in a terminal, often loose, panicle or corymb. Involucres oblong, cylindric or campanulate; phyllaries multi-seriate or in 1–2 series only, imbricate, the outer ones smaller or all with subequal length. Receptacles small, flat or slightly convex, without palea. All florets tubular, corolla usually with apical portion broaden, regularly 5-lobed, white to pink or purple; stamens 5, anther bases entire and rounded, bearing apical appendages; ovary 5-angled, stylar branches very long, linear-subcylindric, sometimes slightly enlarged at the distal end. Cypselae 5-angulate, truncate at the apex; pappus setae numerous, scabrid, 1-seriate.

More than 600 species mainly distributed in tropical and subtropical regions of C & S America; 14 species in China; four species growing wild in Hong Kong.

1a. Stem branches grow horizontally and perpendicular to the main axis; capitula 25–30-flowered; phyllaries 4–5-seriate ..... 1. *E. odoratum*

1b. Stem branches grow in an inclined plane; capitula 5-flowered; phyllaries 2–3-seriate.

2a. Leaves trinerved; phyllaries acute or acuminate at apex ..... 2. *E. lindleyanum*

2b. Leaves pinnately-veined; phyllaries obtuse or rounded at apex.

3a. Leaves ovate, margin regularly crenate-serrate, base rounded, sessile or with very short petiole 2–4 mm only ..... 3. *E. chinense*

3b. Leaves elliptic or lanceolate, margin sharply serrate or double serrate, base cuneate, conspicuously with petiole 5–20 mm long ..... 4. *E. japonicum*

1. Eupatorium odoratum L. 飛機草 (Photos 535–536)

Syst. Nat. ed. 10, 2: 1205. 1759; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 260. 1966; FRPS 74: 56. 1985; FGD 8: 211. 2007.

Chromolaena odorata (L.) R. M. King & H. Rob., Phytologia 20(3): 204. 1970.

Perennial herbs, 1–3 m tall, with sprawling rhizomes; stem erect, densely pubescent or tomentose, branches opposite, growing horizontally and perpendicular to the main axis. Leaves ovate or ovate-deltoid, 4–10 × 1.5–5 cm, base broadly cuneate or truncate, apex acuminate, densely pilose on both surfaces, glandular abaxially, prominently trinerved, margin sparsely dentate, subentire towards apex; petioles 1–2 cm. Capitula in loose corymbs. Involucres cylindric, 7–10 × 3–4 mm; phyllaries 4–5-seriate, imbricate, straw-coloured with 3 conspicuous parallel green veines and scarious margin; outer ones ovate, 1.8–2 mm, puberulent, apex obtuse; median and inner ones narrowly oblong, length increases inward, 7–8 mm, apex obtuse to acute. Receptacle flat to slightly convex. Florets 25–30 per capitulum, corolla pink or white, 4–5 mm, 5-lobed; stylar branches 5 mm. Cypselae blackish brown, 3–4 mm, 5-ribbed, pilosulose along ribs; pappus capillary, subequal to corolla in length.

Locality: Naturalized. *Y. W. Lam 2273; HK sheet 8396; C. P. Lau 064* (CUHK).

Distribution: Native to America, widely naturalized in tropical and subtropical regions.

Ecology: Wastelands. Flowering: Apr.–Dec.

2. Eupatorium lindleyanum DC. 林澤蘭 (Photo 537)

Prodr. 5: 180. 1836; FHK 172. 1861; FKH 139. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 259. 1966; FRPS 74: 59. 1985; FTW ed. 2, 4: 960. 1998; FGD 8: 212. 2007.

Perennial erect herbs 50–150 cm tall, annual flowering stem solitary, emerging from the caudex, the leafy portion 1.5–4 mm across, striate, densely pubescent or pilose, hair multicellular. Lower leaves withered at anthesis; middle ones sessile or with very short petiole (3–5 mm), trinerved, linear-lanceolate or lanceolate, 3–9 × 0.5–2 cm, base cuneate, apex acute, margin serrate or coarsely serrate, scabrid or pilose on both surfaces, densely glandular punctate abaxially; upper leaves smaller and narrower. Capitula form tight corymb at terminal, with 1–3 ovate prophylls at the distal end. Involucres 4–6 mm, cylindric-campanulate; phyllaries about 10, arranged in 2–3 series, imbricate, green at basal portion, straw-coloured at apex and along margin, glandular, apex acute or acuminate; outermost ovate, 1–2 mm; median and inner ones oblong-lanceolate to oblong, length increases inward, 5–6 mm. Receptacle small. Florets white, pink or purplish-red, 5 per capitulum, corolla 3.5–4.5 mm, glandular, apical half broadened, bearing 5 deltoid lobes; anther apical appendages triangular, acute or obtuse; stylar branches 2 mm long, papillose. Cypselae cylindric oblong, pentagonous, 2.5 mm, brownish black, glandular; pappus 4 mm, white, persistent.

Locality: Victoria Peak, Sai Kung, Ma On Shan, Pat Sin Leng, Kau To Hang, Ping Chau, Lantau Island. *Y. S. Lau 2614; P. S. Choi 455; S. Y. Hu 11024* (CUHK).

Distribution: Widely distributed in China except Xinjiang.

Ecology: Grassy hillslopes, margins of forests or in thickets. Flowering: May–Dec.

3. Eupatorium chinense L. 華澤蘭 **(Fig. 272; Photo 538)**

Sp. Pl. 837: 1753; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 255. 1966; FRPS 74: 63, pl. 21: 4–6. 1985; FGD 8: 213. 2007.

Eupatorium reevesii Wall. ex DC., Prodr. 5: 179. 1836; FHK 171. 1861; FKH 140. 1912.

Perennial herbs, 70–100 cm tall; stem herbaceous or woody at base, striate, many-branched, pubescent to tomentose. Leaves sessile or with short petiole (2–4 mm), ovate, base rounded, apex acute or acuminate, margin regularly crenate-serrate, pinnately-veined, scabrid and sparsely glandular adaxially, densely yellow glandular-punctate abaxially; lower leaves usually withered at flowering stage, those on upper portion 3.5–5.5 × 2–3 cm. Capitula arranged in a loose corymb, with 1–2 ovate prophylls. Involucres cylindric-oblong, 4.5–5 mm; phyllaries 2–3-seriate, imbricate, apex obtuse or rounded; outer shorter ones ovate to ovate-lanceolate, 1–2 mm, hairy and glandular; middle and inner longer ones lanceolate-oblong or oblong, length increases inward, 5–6 mm, loosely hairy and glandular, apex and margin white and scarious. Receptacle small. Florets 5 per capitulum, corolla white, pink or red, 3–4 mm, apical half slightly broadened, 5 deltoid lobes, glandular; anther apical appendages triangular, acute; stylar branches 2.5–3 mm, slender, papillose. Cypselae cylindric-oblong, pentagonous, 2 mm, base acute, blackish brown, slightly hairy, glandular. Pappus 3–4 mm, nearly equal to length of corolla.

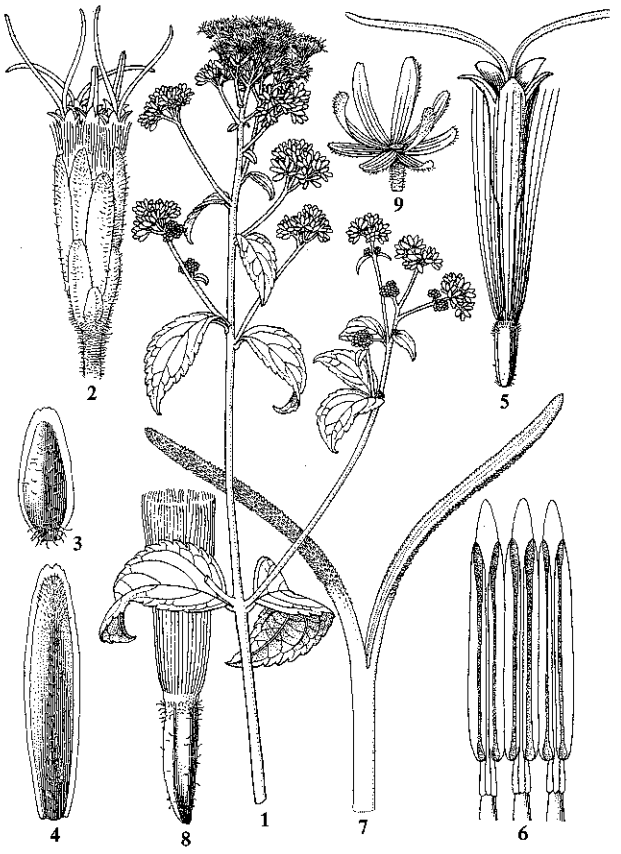


Figure 272. *Eupatorium chinense* L.
1. flowering branch; *2*. capitulum; *3*. outer phyllary; *4*. inner phyllary; *5*. floret; *6*. stamens; *7*. stylar branches; *8*. cypsela before time of dispersal; *9*. capitulum after dispersal of cypselae. (drawn by X. L. Zeng)

Locality: San Wai, Tai Mo Shan, Lai Chi Wo, Shing Mun Reservoir, Lantau Island. *K. Y. Chan 1260* (CUHK); *S. Y. Hu 12435* (CUHK); *Y. S. Lau 1321*.

Distribution: Guangdong, Guangxi, Yunnan, Guizhou, Sichuan, Hunan, Hubei, Jiangxi, Anhui, Zhejiang, Fujian.

Ecology: Thickets, grassy banks. Flowering: Jun.–Nov.

Uses: Medicinal (folklore).

4. Eupatorium japonicum Thunb. 白頭婆

Fl. Jap. 307. 1784; FKH 139. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 257. 1966; FRPS 74: 60. 1985; FGD 8: 213, fig. 125. 2007.

Eupatorium wallichii DC., Prodr. 5: 179. 1836; FHK 172. 1861.

Perennial herbs or subshrubs, 60–200 cm tall. Stem erect, few-branched, pubescent, hair multicellular and kinky, those on peduncles much denser, but appearing looser or glabrescent on lower portion of stem. Petioles 0.5–2 cm, densely pubescent. Middle leaf blade long-elliptic to lanceolate, 6–14 × 2.5–5 cm, base cuneate, apex acuminate, with 6–7 pairs of pinnate veins, both surfaces yellow punctate, pubescent or pilose, hair denser on midveins, veins and along margins, sharply serrate or double serrate; upper and lower leaves smaller in size, basal leaves withered at anthesis. Capitula arranged in tight corymb. Involucres cylindric-oblong, 5–6 mm; phyllaries 3-seriate, green or tinged red, apex obtuse or rounded; outer ones 2 mm, ovate; middle and inner layers 4–6 mm, long-elliptic to oblong. Florets 5 per capitulum, corolla white, pink or purple, 4.5–5 mm, shallowly 5-lobed, lobes about 0.5 mm; stylar branches 3–4 mm. Cypselae pale blackish brown, elliptic-oblong, 3–4 mm, 5-ribbed, glabrous, glandular. Pappus white, 4–5 mm, shorter than corolla.

Locality: Aberdeen, Mount Gough, Tai Mo Shan, Tai Po, Lantau Island. *L. T. Lo 427; Y. S. Lau 1291*.

Distribution: Area S of Huanghe; Japan, Korea.

Ecology: Thickets on hillslopes, wastelands. Flowering: Aug.–Nov.

Uses: Medicinal (folklore).

55. Praxelis Cass. 香澤蘭屬

Perennial herbs, characterized with pungent smell. Leaves opposite, petiolate, serrate. Capitula homogamous, discoid, in terminal cymose form. Involucre campanulate; phyllaries 4–5-seriate, non-persistent. Receptacle highly conical, without palea. Florets all tubular, corolla regular, apex 5-lobed; stamens slightly exserted, anther bases slightly acute, apical appendages long; ovary angular, stylar branches

cylindric, long. Cypsela ribbed; pappus capillary.

About 15 species native to S America; one species appeared in Guangdong and in Hong Kong after 1990.

1. Praxelis clematidea (Griesb.) R. M. King & H. Rob. 假臭草 **(Fig. 273; Photo 539)**

Phytologia 20: 194. 1970.

Eupatorium clematideum Griseb., Jahresber. Pollichia 22–24: 258. 1866.

Eupatorium catarium Veldkamp, Gard. Bull. Singapore 51(1): 121. 1999; FGD 8: 214. 2007; Check List HK Plants 281. 2002; 96. 2004.

Perennial erect herbs 0.3–1 m tall, malodorous, covered with soft multicellular hairs, denser on branches and peduncles. Leaves ovate, trinerved, 2.5–5.5 × 1–4 cm, base cuneate, apex acute, margin coarsely serrate with 5–8 teeth on each side, scarcely puberulent on adaxial surfaces, pilose and denser on abaxial surface, especially along margin and veins; petioles 0.3–1.5 cm. Capitula in terminal simple or compound cyme. Involucres cylindric campanulate, 7–8 × 3–4 mm; phyllaries in 4–5 series, easily shed off, scarious and translucent with several yellowish green veins, apex caudate or long-acuminate; outer smaller, ovate-lanceolate, 4 × 1 mm, slightly hairy; middle lanceolate, 5–6 × 1.5 mm, sparsely ciliate; inner linear-oblong, 6–7 × 1 mm, glabrous. Receptacle highly conical with phyllaries shed off at the fruiting stage. Florets blue or violet, corolla 3–4.5 mm, shortly 5-lobbed; stylar branches 2 mm, exserted. Cypsela oblong, 4-ribbed, 2–2.5 mm, black and slightly hairy. Pappus capillary, 4 mm, white, persistent.

Locality: Naturalized and widely distributed in Hong Kong. *Y. Wong 037* (CUHK); *S. Y. Hu 19958* (CUHK); *Y. W. Lam 1130.*

Distribution: Native to S America; naturalized in S Guangdong; SE Asia, Australia.

Ecology: Wastelands, roadsides. Flowering: Nearly all year round.

Notes: As a weed.

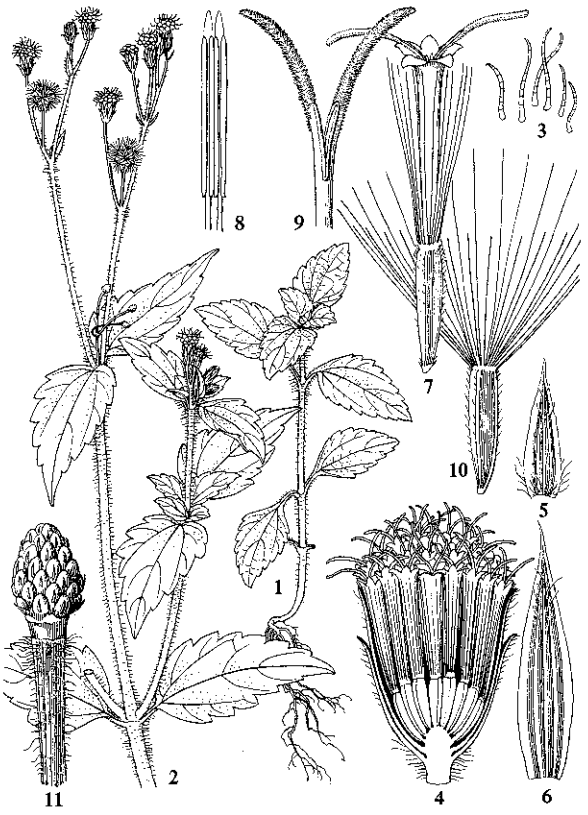


Figure 273. *Praxelis clematidea* (Griesb.) R. M. King & H. Rob.

1. young plant; *2.* portion of flowering plant; *3.* multicellular hairs on stem; *4.* vertical section of capitulum; *5.* outer phyllary; *6.* inner phyllary; *7.* floret; *8.* stamens; *9.* stylar branches; *10.* cypsela; *11.* receptacle after fruit dispersal. (drawn by X. L. Zeng)

56. Gaillardia Foug. 天人菊屬

Annual or perennial erect herbs. Leaves alternate and / or basal. Capitula large, long-pedunculate, heterogamous and radiate, with marginal florets ligulate, neutral or sometimes female and fertile; disk florets tubular, bisexual and usually fertile. Or capitula homogamous with all florets bisexual. Involucres broad; phyllaries 2–3-seriate, imbricate. Receptacle convex to hemispherical, usually setose. Corolla of ray florets, if present, 3-toothed at distal end, rarely entire; that of disk tubular florets 5-cleft and bristly at apex; anther bases shortly sagittate, apical appendages acute-ovate; stylar branches with elongate hirtelleous apical appendages. Cypselae turbinate, 5-angulate. Pappus consisting of 5–10 aristate scales.

About 20 species native to S to C America; two species cultivated in Hong Kong. One is described below.

1. Gaillardia pulchella Foug. 天人菊 **(Fig. 274)**

Mém. Acad. Sci. Paris 1786: 5, t. 1. 1788; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 265. 1966; FRPS 75: 390. 1979.

Annual herbs 20–60 cm tall, with ascending branches at upper half, pubescent. Lower leaves spatulate to oblanceolate, 5–10 × 1–2 cm, pinnatifid lobed, lobes obtuse to rounded, leaf base

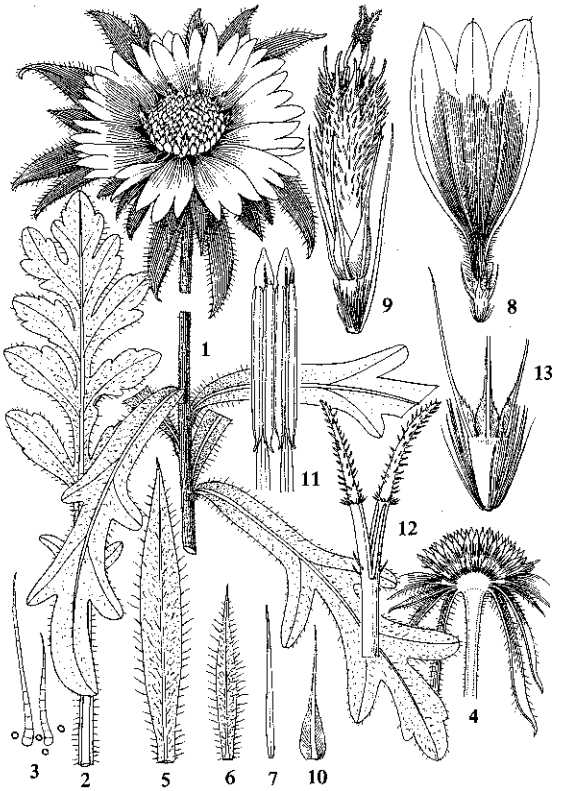


Figure 274. *Gaillardia pulchella* Foug.

1. flowering branch; *2.* basal leaf; *3.* hair and glands on leaf; *4.* vertical section of capitulum; *5.* outer phyllary; *6.* inner phyllary; *7.* receptacular bristle; *8.* marginal ray floret; *9.* disk floret; *10.* pappus scale; *11.* stamens; *12.* stylar branches of disk floret; *13.* cypsela. (drawn by X. L. Zeng)

narrowed to stem, sessile, adaxial surfaces loosely pilose, abaxial surfaces densely hispid; upper leaves narrowly oblong, oblanceolate to spatulate, 3–10 cm, entire or loosely serrate or shallowly 3-lobed, sessile or subamplexicaul. Capitula 2.5–6 cm across, terminal to branches and with long peduncles. Involucres with lanceolate phyllaries, foliaceous, acuminate at apex, ciliate along margin, densely pilose on abaxial side especially near the base, glandular. Marginal ligulate florets with ligule obovate to broad cuneate, and acutely 2–3-toothed at apex, 1–2 × 1.5 cm, yellow at tip and purple at base, or yellow-tipped and red-based, hairy on tube. Central tubular florets yellow, red to dark purple, hairy, apex 5-lobed, acuminate and caudate. Cypselae 2 mm, with long hair at base. Pappus scales stiff, ovate and long-aristate, 5 mm, straw-coloured.

Locality: Cultivated. *S. Y. Hu 7094, 13663* (CUHK).

Distribution: Native to USA, cultivated worldwide.

Ecology: Flowering & fruiting: Jun.–Sep.

Uses: Ornamental.

Notes: Another species *Gaillardia aristata* Pursh. was also recorded previously in cultivation (Check List HK Plants 96. 2004). Native to America, this perennial species differs in leaves being basal and cauline, ray florets yellow, and receptacular setae of 3–6 mm long.

57. Tagetes L. 萬壽菊屬

Annual aromatic herbs. Stem erect and branched, glabrous. Leaves opposite or alternate, mostly pinnate or pinnatifid, glandular-dotted. Capitula solitary or arranged as corymbs, heterogamous and radiate, pedunculate. Involucres with 3–10 phyllaries in 1 series and united into a cylindric-campanulate tube with triangular teeth free on top, glandular-dotted. Receptacle flat, glabrous. Florets yellow, orange to red, all fertile. Marginal ligulate florets in 1 row, or several-seriate in some cultivated form, female. Disk tubular florets bisexual, corolla 5-lobed; stylar branches hairy near the apices. Cypselae linear to linear-oblong, angulate or compressed. Pappus several unequal scales, some awned.

About 30 species native to C and S America; two to three species cultivated commonly in China and in Hong Kong.

Tagetes tenuifolia Cav. (細葉萬壽菊) was also cultivated previously.

1a. Capitula 5–8 cm across; involucres 1.5–2 × 0.7–1.5 cm; ray florets yellow to dull orange, without red patches, ligule fan-shaped obovate, tube usually equal to or longer than the pappus ..... 1. *T. erecta*

1b. Capitula 3.5–5 cm across; involucres 1.2–1.5 × 0.6–0.7 cm; ray florets bright yellow to yellowish orange, tinged with red patches, ligule suborbicular, tube usually shorter than the pappus ..... 2. *T. patula*

1. Tagetes erecta L. 萬壽菊 (Fig. 275)

Sp. Pl. 887. 1753; S. Y. Hu, Quart. J. Taiwan Mus. 21(3–4): 176. 1968; FRPS 75: 389. 1979; FGD 8: 144, fig. 78. 2007.

Stout annual erect and branched herbs, 50–100 cm tall or more; stem striate, glabrous. Leaves opposite to alternate, odd-pinnatifid, 5–15 × 4–8 cm, leaflets lanceolate-oblong, lateral segments 4–7 pairs, margin serrate, apex acute, some teeth with long awns at tips when young, glandular-dotted along the margin below the teeth. Capitula solitary and terminal to branches, 5–8 cm across; peduncle 5–10(–15) cm, the upper part cylindrically inflated. Involucres 1.5–2 × 0.7–1.5 cm, single series of phyllaries united as a cylindric-campanulate tube with triangular lobes at top, glandular-dotted. Florets yellow to dull orange in colour. Ray ones with fan-shaped obovate ligule, 1.4–1.8 × 1.2–1.4 cm, apex broadly 2-lobed, subtruncate and undulate, tube about 1 cm. Disk tubular florets 0.9–1.4 cm, apex deeply divided into 5 oblong-ovate lobes, some cultivars with the limbs modified into ligules; anthers included, base truncate, apical appendages ovate-acute; stylar branches elongate with appendages hairy on the abaxial surface. Cypselae linear-oblong, 8–11 mm, compressed-tetragonous, brownish black in colour, minutely hairy. Pappus of 1–2 lanceolate long-awned scales and 2–3 short obtuse scales, sometimes together with some small hyaline linear scales.

Locality: Cultivated. *S. Y. Hu 7094, 13663* (CUHK).

Distribution: Native to USA, cultivated worldwide.

Ecology: Flowering & fruiting: Jun.–Sep.

Uses: Ornamental.

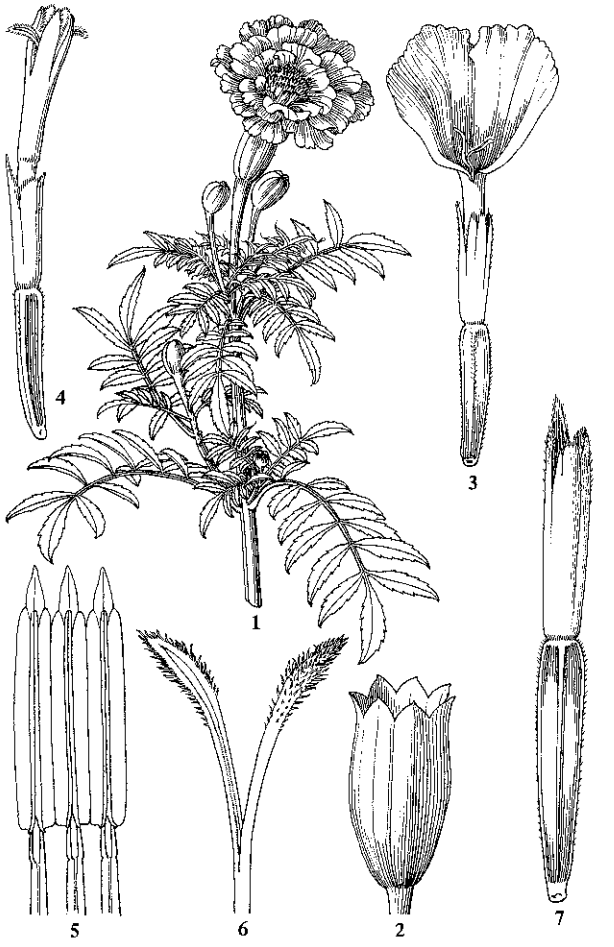


Figure 275. *Tagetes erecta* L.

1. flowering branch; *2.* involucre; *3.* marginal floret; *4.* disk floret; *5.* stamens; *6.* stylar branches of disk floret; *7.* cypsela. (drawn by X. L. Zeng)

2. Tagetes patula L. 孔雀草

Sp. Pl. 887. 1753; S. Y. Hu, Quart. J. Taiwan Mus. 21(3–4): 176. 1968; FRPS 75: 387. 1979; FGD 8: 144. 2007.

Annual herbs 30–100 cm tall; stem erect and branched. Leaves odd-pinnatifid, 2–10 × 1.5–3 cm, leaflets linear-lanceolate, margin serrate, teeth often with long awns at tips when young, glandular dotted along the margin below the teeth. Capitula solitary and terminal to branches, 3.5–5 cm across. Peduncle 5–6.5 cm, apical portion somewhat inflated. Involucres with single row of phyllaries united into a campanulate tube 1.2–1.5 × 0.6–0.7 cm, acute-triangular toothed on top, glandular-dotted. Ray florets bright yellow or orange, with maroon-red patches, ligule suborbicular, 8–10 × 6–7 mm, retuse at apex. Disk tubular florets yellow, 1–1.4 cm, 5-lobed. Cypselae linear, 8–12 mm, black, pubescent. Pappus of several scales, 1–2 of them long-awned, 2–3 short and obtuse.

Locality: Cultivated. *H. Y. Yeung 134, 177* (CUHK).

Distribution: Native to Mexico, widely cultivated.

Ecology: Flowering & fruiting: Jun.–Oct.

Uses: Ornamental.

58. Porophyllum Guett. 葩葩洛屬

Annual or perennial herbs or shrubs. Leaves simple, opposite or alternate, usually glabrous, with conspicuous oil glands growing along margin. Capitula homogamous-discoid. Involucres cylindric to campanulate; phyllaries 5–9 in one series, free or united. Receptacle small and alveolate. All florets hermaphrodite and fertile, yellow or purplish, corolla tube slender and much longer than the upper funnelform throat; anther bases obtuse; stylar branches long and exserted, hairy, bearing subulate apical appendages. Cypselae cylindric and attenuate. Pappus of bristle hair.

About 30 species native to N & S America; one species newly found in Hong Kong.

1. Porophyllum ruderale (Jacq.) Cass. 葩葩洛

Dict. Sci. Nat. ed. 2, 43: 56. 1826; Fl. N. Amer. 21: 233–234. 2006.

Kleinia ruderalis Jacq., Enum. Syst. Pl. 8, 28. 1760.

Annual herbs, 30–80 cm tall. Stems erect and branched, glabrous. Leaves odorous, simple and alternate, elliptic, 1.5–3.5 × 0.5–2 cm, base attenuate, apex obtuse to rounded and mucronulate, both surfaces glabrous, midvein prominent on lower side, margin entire and somewhat undulate, with linear oil glands 1–2 mm long growing along leaf margin; petiole 0.3–1.2 cm. Capitula homogamous, discoid, in corymbose arrangement; peduncles 3–6 cm, glabrous. Involucres herbaceous green, cylindric, 1.8–2 × 0.3–0.4 cm wide; phyllaries 1-seriate, united at anthesis, without calycule at base, divided into 5 linear-lanceolate involucral bracts and gradually spread out at fruiting stage, each segment 1.2–2 mm broad, margin scarious, apex acuminate or acute. Receptacle small and plain, alveolate, areoles sometimes with remnants of vascular tissue after fruit dispersal. All florets bisexual and fertile, about 50–60 per head or more, corolla yellow, slightly hairy outside, 13 mm, lower part slender filiform-tubular with length 11–11.5 mm, upper part broaden as funnelform with length 1.5–2 mm, apex 5-lobed, lobes acute-ovate; anther bases rounded, apical appendages ovate and acute; stylar branches approximately 3 mm, exserted outside the involucres, bearing hairy subulate apical appendages. Cypselae narrow cylindric, 8 × 0.5–0.6 mm, black or blackish brown, hirtellous with brown adpressed hair pointing upward. Pappus persistent, 8–10 mm, capillary, pale brown.

Locality: Cultivated. *S. Y. Hu & P. P. H. But 24093, 24097* (CUHK).

Distribution: SW United States, Mexico, West Indies, C & S America.

Ecology: Flowering: May–Sep.

59. Solidago L. 一枝黃花屬

Perennial herbs with rhizomes. Leaves alternate. Capitula heterogamous, radiate, arranged in racemes, panicles, corymbs or clustered as glomerules. Involucres subcampanulate; phyllaries 3–4-seriate, imbricate. Receptacle small, flat, alveolate. Marginal florets female, 1-seriate, corolla ligulate, yellow in colour, rarely white. Disk florets bisexual, corolla tubular, trumpet-shaped, the limb with 5 lobes; anther bases obtuse or subsagittate; stylar branches complanate, apical appendages lanceolate. All florets fertile; cypselae cylindric, distinctly 8–many-ribbed; pappus setae slender, in 1 or 2 series.

Over 100 species native to temperate N hemisphere; one species in China and in Hong Kong.

1. Solidago decurrens Lour. 一枝黃花 **(Fig. 276; Photo 540)**

Fl. Cochinch. 501. 1790; S. Y. Hu, Quart. J. Taiwan Mus. 21(3–4): 160. 1968; FRPS 74: 75. 1985; FGD 8: 190, fig. 109. 2007.

Solidago virgaurea var. *leiocarpa* (Benth.) A. Gray, Mem. Amer. Acad. Arts, n. s. 4: 395. 1857; FTW ed. 2, 4: 1064. 1998.

Solidago virgaurea auct. non L.: FHK 179; FKH 140. 1912.

Perennial erect herb, 25–80 cm tall, simple or branching on upper portion. Radical leaves ovate, oblong or lanceolate, 3–7 × 2–3 cm, base cuneate-attenuate to form long winged petiole of 2–13 cm or more. Cauline leaves similar in shape, 2–5 × 1–2 cm, short-petiolate, base cuneate, apex acute or acuminate, margin serrate or subserrate, much smaller in size upward, sparsely puberulous along margin, subglabrous on both surfaces. Capitula in tight or loose racemes or panicles. Involucres campanulate, 5–7 mm in diam.; phyllaries 3–4-seriate; the outer ones ovate-lanceolate, ca. 2 mm; the inner ones lanceolate-oblong, ca. 6 mm. Ligulate florets pistillate, corolla yellow, ca. 8 mm; tubular florets bisexual, corolla yellow, ca. 4 mm. Cypsela glabrous or puberulous above, cylindric.

Locality: Common in Hong Kong. *H. Y. Yeung 163* (CUHK); *S. Y. Hu 7168* (CUHK); *Y. W. Lam 663*.

Distribution: Widely distributed in S, SW, C & E China.

Ecology: Margins of forests, grassy slopes. Flowering: Oct.–Apr. of the following year.

Uses: Medicinal (folklore).

60. Dichrocephala L'Hér. ex DC. 魚眼草屬

Annual or perennial herbs. Stems erect or decumbent. Leaves alternate, lyrately pinnatifid. Capitula heterogamous, disciform, hemispherical or globose, pedunculate, forming racemes or loose panicles, rarely solitary. Involucres small; phyllaries 2-seriate. Receptacle convex, depressed globose or conical, naked. All florets tubular and fertile, marginal ones many-seriate, white or yellow, female; central ones funnelform, with 4–5 lobes at apex, green or purple, hermaphrodite. Anthers cuneate and sagittate at base, with apical appendages; stylar branches of bisexual florets short, with lanceolate appendages. Cypselae oblanceolate-oblong, bilaterally compressed, marginal ribs prominent, glandular at apical and basal portions. Pappus absent or with few short and easily deciduous bristles on the cypselae of bisexual florets.

About five species native to tropical Asia and Africa; three species in China; one species as a common weed in Hong Kong.

1. Dichrocephala integrifolia (L. f.) Kuntze

魚眼草 **(Fig. 277; Photo 541)**

Revis. Gen. Pl. 1: 333. 1891; FTW ed. 2, 4: 933. 1998; FGD 8: 192, fig. 111. 2007.

Hippia integrifolia L. f., Suppl. Pl. 389. 1781.

Dichrocephala latifolia DC., Contr. Bot. India 2. 1834; Prodr. 5: 372. 1836; FHK 173. 1861; FKH 140. 1912.

Dichrocephala bicolor (Roth) Schltdl., Linnaea 25: 209. 1852; Li, FTW 4: 847. 1975.

Dichrocephala auriculata (Thunb.) Druce, Rep. Bot. Soc. Exch. Club Brit. Isles 4: 619. 1917; FRPS 74: 77, pl. 25: 1–3. 1985.

Annual herbs, 12–40 cm tall. Stems erect or decumbent, usually branched from the basal part, loosely pilose. Leaves ovate to elliptic, sparsely pubescent on both surfaces, those in middle part 2–11 × 1–4.5 cm, lyrately lobed with the terminal lobe largest, up to 4.5 cm across, ovate, 1–2 pairs of lateral lobes, oblong to obovate, base attenuate to form winged petiole of 1–3 cm, apex acute to obtuse, leaf margin irregularly crenate-serrate; leaves in lower and upper parts smaller in size, but similar in shape, with the lower ones less lobed. Capitula small, 2–3.5 mm across, globose, forming panicles terminal or axillary to the stem. Phyllaries in 1–2 series, ovate-oblong, apex acute, margin slightly scarious and fimbriate, central part and midvein green in colour, outer phyllaries 1 mm, the inner ones slightly shorter. Receptacle globose with flattened top. Marginal florets in many series, corolla tubular, usually 2-lobed, 0.3–0.5 mm, white. Disk florets few, corolla tubular, funnelform to campanulate, tetramerous, 1 mm, green. Cypselae obovate-oblanceolate, compressed, thickened on both sides, glandular at apical region. Pappus lacking, or bearing 1–2 short bristles on cypselae of central florets.

Locality: Common in Hong Kong. *S. Y. Hu 7620, 9617* (CUHK); *Y. W. Lam 517*.

Distribution: Areas S of Changjiang; widely distributed in tropical and subtropical Asia and Africa.

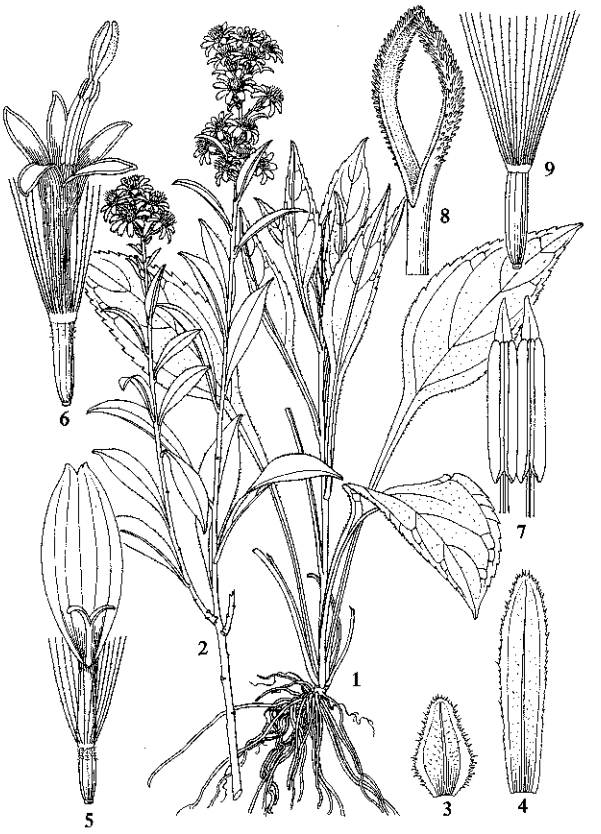


Figure 276. *Solidago decurrens* Lour.

1. young plant; *2.* portion of flowering plant; *3.* outer phyllary; *4.* innermost phyllary; *5.* ligulate ray floret; *6.* tubular floret; *7.* stamens; *8.* stylar branches; *9.* cypsela. (drawn by X. L. Zeng)

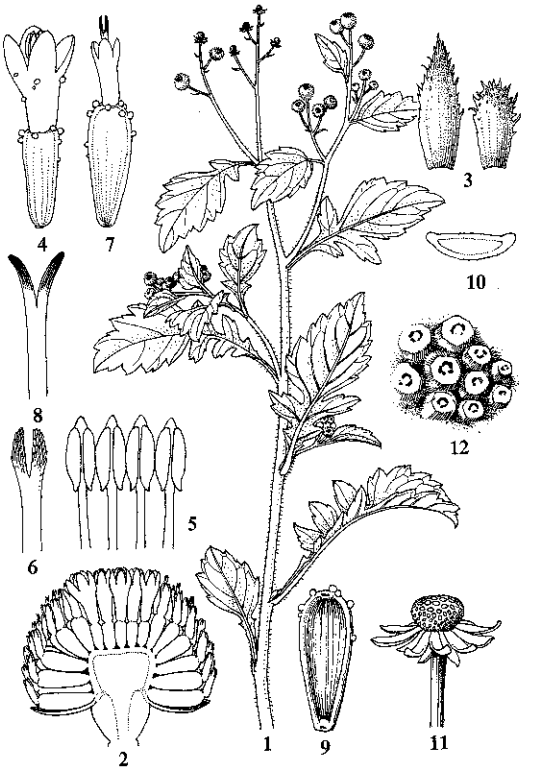


Figure 277. *Dichrocephala integrifolia* (L. f.) Kuntze

1. flowering part of plant; *2.* vertical section of capitulum; *3.* outer phyllary (left) and inner phyllary (right); *4.* bisexual disk floret; *5.* anthers of disk floret; *6.* stylar branches of disk floret; *7.* marginal female floret; *8.* stylar branches of marginal floret; *9.* cypsela; *10.* cross section of cypsela; *11.* capitulum after fruit dispersal; *12.* portion of receptacle. (drawn by X. L. Zeng)

Ecology: Abandoned cultivated fields, banks of paddy fields. Flowering: Jan.–May.
Uses: Medicinal (folklore).

61. Grangea Adans. 田基黃屬

Annual or perennial herbs. Stems prostrate, sometimes erect. Leaves alternate, oblong-obovate to spatulate, sinuate-pinnatifid. Capitula heterogamous, disciform, usually solitary, pedunculate, terminal or axillary. Involucres broadly campanulate; phyllaries 2–3-seriate, herbaceous, margin ciliate. Receptacle convex, hemispherical or conical, naked. Marginal female florets 1–many-seriate, narrowly tubular, usually 2-lobed; stylar branches exserted. Disk bisexual florets many, corolla tubular, funnelform, bearing 4–5 lobes at apex; anthers with apical appendages, base lobes rounded; stylar branches stout, with deltoid apical appendages. Cypselae compressed or subcylindric, apex truncate. Pappus short, crown of scale with fimbriate margin.

About ten species native to tropical Asia and Africa; one species in China and in Hong Kong.

1. Grangea maderaspatana (L.) Poir.
田基黃(荔枝菊) **(Fig. 278; Photo 542)**
Encycl. Suppl. 2(2): 825–826. 1812; FHK 185. 1861; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 279. 1966; FRPS 74: 83. 1985; FTW ed. 2, 4: 982. 1998; FGD 8: 191, fig. 110. 2007.
Artemisia maderaspatana L., Sp. Pl. 849. 1753.

Annual herbs; stems 5–20 cm, decumbent and ascending, branched at basal portion, strigose. Leaves obovate, oblanceolate to spatulate, 1.5–6 × 0.5–2.5 cm, base attenuate, sessile or some forming winged petioles, apex obtuse, margin sinuate-pinnatifid with 2–5 pairs of lateral lobes, irregularly serrate-crenate, pubescent and glandular punctate on both surfaces, abaxial surface covered with denser hair and glands. Capitula globose, 0.5–1 cm across, solitary, growing terminal or axillary to the stems. Involucres bowl-shaped; phyllaries 2–3-seriate, herbaceous, hirsute, margin fimbriate; outer ones lanceolate-oblong, 4–5 mm, apex acute to obtuse; inner ones oblanceolate or obovate, apex rounded, slightly shorter. Receptacle convex, spherical. Marginal pistillate florets numerous, in 2–6 series, corolla yellow, tubular, 1–1.2 mm, narrow, glandular, with 2–4 lobes at apex; style exserted. Disk hermaphrodite florets many, corolla yellow, tubular, funnelform, glandular, 1.5 mm, with 5 ovate-deltoid lobes at apex. Cypselae compressed, with thickened ribs on margin, 1.5 mm, glandular. Pappus scarious cupular, about 1 mm, irregularly toothed and ciliate.

Locality: Happy Valley, Tai Tam Tuk Reservoir, Tai Lung, Ting Kok, Ho Pui Reservoir. *Y. S. Lau 2469, 2483; Y. W. Lam 1486.*

Distribution: Hainan, Guangdong, Guangxi, S Yunnan, Taiwan; tropical Asia.

Ecology: Lowland thickets, abandoned fields. Flowering: Mar.–Aug.

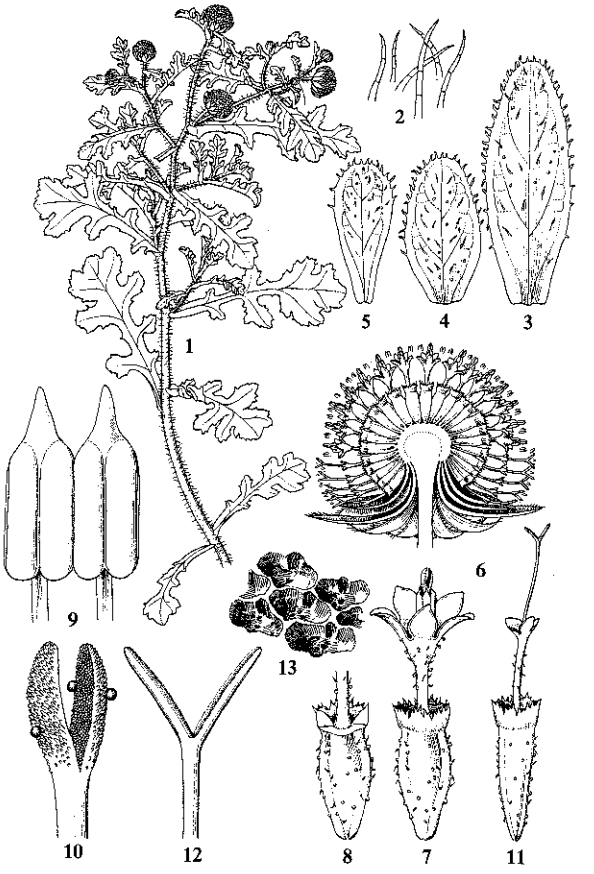


Figure 278. *Grangea maderaspatana* (L.) Poir.
1. flowering branch; *2.* multicellular hairs of stem; *3–5.* phyllaries of outer, middle and inner series; *6.* vertical section of capitulum; *7.* disk bisexual floret; *8.* disk floret with portion of pappus and corolla removed; *9.* stamens; *10.* stylar branches of disk floret; *11.* marginal female floret with elongated style; *12.* stylar branches of marginal floret; *13.* portion of receptacle. (drawn by P. Ma)

62. Lagenophora Cass. 瓶頭草屬

Small perennial rhizomatous or stoloniferous herbs; stem scapiform. Leaves radical and rosulate. Capitula solitary, heterogamous, radiate. Involucre hemispherical; phyllaries 2–4-seriate. Receptacle convex, without palea, areole with a central projection. Marginal ray florets in 1–several series, fertile. Disk tubular florets few, corolla 4–5-lobed, bisexual or functionally staminate, bearing no fruits; anther bases obtuse, entire; stylar branches flattened with lanceolate or triangular papillose apical appendages. Cypselae compressed with thick margins, obovate to oblanceolate, glabrous, shortly beaked, no pappus.

About five species distributed from Japan to SE Asia, Australia and New Zealand, also in C & S America; one species in China and in Hong Kong.

1. Lagenophora stipitata (Labill.) Druce
瓶頭草(瓶頭菊) **(Fig. 279)**

Rep. Bot. Exch. Club Brit. Isles. 4: 630. 1917; S. Y. Hu, Quart. J. Taiwan Mus. 20(1–2): 32. 1967; FRPS 74: 85. 1985; FGD 8: 190, fig. 108. 2007.

Bellis stipitata Labill., Pl. Nov. Holl. 2: 55, t. 205. 1806.

Lagenophora billardieri Cass., Bull. Soc. Philom. Paris 34. 1818; FHK 173. 1861; FKH 140. 1912.

Small perennial herbs; rootstock 5–7 mm, densely covered by remnant of petiole bases; bearing 2–5 tuberous storage roots. Leaves all radical, rosulate, obovate to spatulate, 1–3 × 0.5–1.3 cm, base cuneate and gradually running to become wing of the petioles, apex rounded or obtuse, margin inconspicuously 1–3 toothed, softly pubescent on both surfaces, especially on the veins and along the margin. Capitula 5 mm across, solitary and terminal; scape 2.5–13 cm, slender, rarely bearing a branch. Involucre hemispherical, 4 mm across; phyllaries 4-seriate, apex acute, glabrous, margin membranous; outer ones ovate-lanceolate; middle ones long-oblong; inner ones linear. Receptacle 1 mm across, space between floret glandular. Ray florets 30, fertile, 3 mm, ligules 1.6 mm, entire; style short, branches stout. Disk florets 14, tubular, 2 mm, limb 4-toothed; stamens 4, base obtuse, apical appendages small; stylar branches slender, appendages acute; ovary narrowed towards the apex. Cypselae brown, compressed oblanceolate, margin thickened, beaked, 2.5 mm including the glandular beak, end of beak with a waxy ring. Pappus absent.

Locality: Ma On Shan, Tai Mo Shan, Sunset Peak. *Y. S. Lau 2989; Y. W. Lam 234, 1434.*

Distribution: Guangdong, Guangxi, Yunnan, Fujian, Taiwan; India, Indochina, Indonesia, Australia.

Ecology: Grassy hillslopes. Flowering: Mar.–Jun.

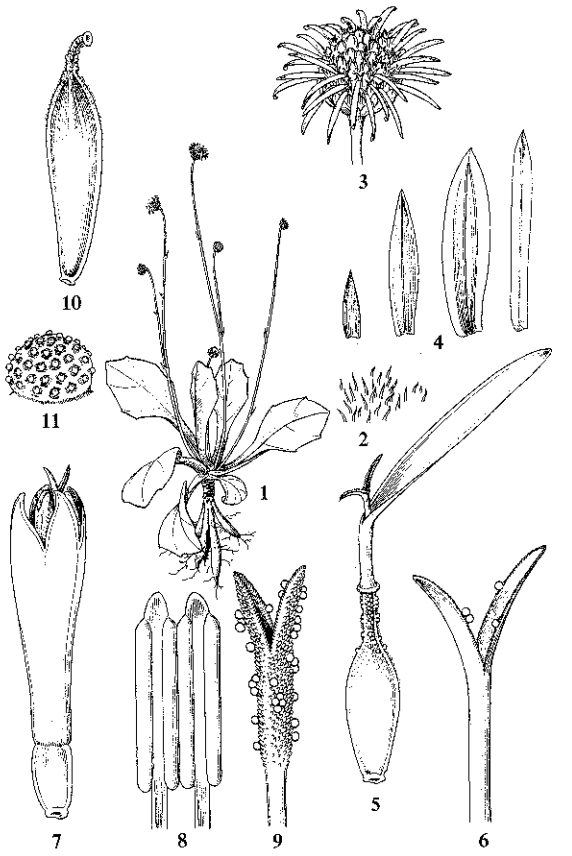


Figure 279. *Lagenophora stipitata* (Labill.) Druce
1. flowering plant; *2.* hairs on lower surface of leaf; *3.* capitulum; *4.* phyllaries from outermost to innermost series, with inner ones becoming membranous; *5.* marginal ray floret; *6.* style of marginal floret; *7.* disk floret; *8.* stamens; *9.* style of disk floret; *10.* cypsela; *11.* receptacle. (drawn by P. Ma)

63. Conyza Less. 白酒草屬

Annual, biennial or perennial herbs, rarely shrubs. Leaves alternate, margin entire, dentate or pinnately lobed. Capitula heterogamous, disciform, in form of racemes, corymbs or panicles, rarely solitary. Involucre hemispherical, campanulate to urceolate; phyllaries 2–4-seriate, ± imbricate, then widely spreading, herbaceous, with scarious margin. Receptacle convex, alveolate or fimbriate, marginal areoles usually smaller in size. Marginal florets female, numerous, corolla filiform, shorter than style and pappus, without ligules or with minute ligules only. Disk florets hermaphrodite or functionally staminate, usually few, tubular, corolla 5-lobed at the apex; anther bases obtuse and entire; stylar branches of tubular floret puberulent, papillose, with short lanceolate apical appendages. Cypsela compressed, obovate-oblong, ribbed along the side, mostly pubescent. Pappus hair fine, 1 series or in rarely 2 series with the outer ones very short.

About 80–100 species distributed mainly in tropical and subtropical regions; ten species and one variety in China; four species in Hong Kong.

1a. Leaves clearly amplexicaul; marginal female florets without ligules ..... 1. *C. japonica*
1b. Leaves not amplexicaul; marginal female florets with minute ligules.
2a. Stems glabrous or sparsely hirsute; leaf surfaces nearly glabrous but with distinct stiff and curved hair growing loosely along margin; capitula 2–3.5 mm across when dried ..... 2. *C. canadensis*
2b. Stems, leaf surfaces and margins densely pubescent and pilose; capitula 5–10 mm across when dried.
3a. Cauline leaves linear to narrowly lanceolate; lateral branches usually grow over the main axis; pappus reddish brown ..... 3. *C. bonariensis*
3b. Cauline leaves narrowly oblanceolate or broadly linear; lateral branches not over the main axis; pappus yellowish brown ..... 4. *C. sumatrensis*

1. Conyza japonica (Thunb.) Less. 白酒草

Syn. Compos. 204. 1832; FKH 142. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 19(1–2): 70. 1966; FRPS 74: 342. 1985; FTW ed. 2, 4: 918. 1998; FGD 8: 185. 2007.

Erigeron japonicum Thunb., Fl. Jap. 312. 1784.

Conyza veronicaefolia Wall. ex DC., Prodr. 5: 382. 1836; FHK 176. 1861.

Annual or biennial herbs, 15–50 cm tall. Stems erect, branched in upper portion, striate, villose. Leaves amplexicaul, villous on both surfaces; radical leaves in rosettes, obovate to spatulate, 4–11 × 1.5–4 cm, base attenuate to form wing with petiole, apex rounded, crenate or dentate; middle leaves oblanceolate to oblong, sessile, 4–5 × 0.5–1.5 cm; upper leaves much reduced in size, linear-lanceolate. Capitula globose, 7–10 mm across, numerous, in tight corymbs or clustered as glomerules in terminal. Involucres hemispherical; phyllaries 2–3-seriate, imbricate, pubescent, green in the middle, scarious and purple along margin, apex acute or acuminate; outer ones ovate-lanceolate, 2 mm; inner ones linear-lanceolate, 4 mm. Receptacle hemispherical, areole of hermaphrodite florets larger than those of marginal female florets, fimbriate. Florets all fertile, yellow. Ray florets numerous, pistillate, corolla filiform, 1.8–2 mm, half the length of style, ciliate at tip; style 3 mm, reddish purple. Disk florets 15, hermaphrodite, corolla tubular, 4 mm, swollen in upper part, with 5 ovate lobes, each lobe bearing 2 or 3 hairs. Cypsela obovate, flattened, minutely puberulous, yellow; pappus bristles greyish white, 1-seriate, 4 mm.

Locality: Hong Kong Island, Tai Mo Shan. *H. C. Tang 2015; Y. W. Lam 582; S. Y. Hu & P. P. H. But 22842* (CUHK).

Distribution: S to C and E to SW China; Japan, India, Myanmar, Thailand, Malaysia.

Ecology: Margins of forests, wastelands. Flowering: Apr.–Aug.

Uses: Medicinal (folklore).

2. Conyza canadensis (L.) Cronq. 小蓬草 **(Fig. 280)**

Bull. Torrey Bot. Club. 70: 632. 1943; FRPS 74: 348. 1985; FTW ed. 2, 4: 916. 1998; FGD 8: 185, fig. 104. 2007.

Erigeron canadensis L., Sp. Pl. 863. 1753.

Annual herbs, 30–120 cm tall; stems erect, densely or loosely hirsute or glabrous, branched on upper portion. Basal leaves usually withered at flowering stage; middle cauline leaves linear-lanceolate, 3.5–10 cm × 2–6 mm, leaf surfaces nearly glabrous, bearing loose and distinct, curved and stiff hair along margin; upper leaves much reduced to about 1 cm long, linear. Capitula 3–4 × 2–3.5 mm, numerous, forming large pyramidal panicle. Involucres subcylindric, then widely spreading; phyllaries in 3–4 series, linear to linear-lanceolate; outer ones about or less than 1 mm, glabrous or loosely ciliate, herbaceous; inner ones ca. 3 mm, glabrous, scarious along margin. Receptacle flat. Marginal female florets white, ligulate, corolla tube 2 mm, filiform, ciliate near the throat, ligule 0.5 mm. Central bisexual florets yellow, tubular, 2.5 mm, upper part cylindric, lower part filiform, 4–5-lobed and ciliate at apex. Cypselae linear-oblong, ca. 1 mm, compressed, minutely pubescent, pale brown. Pappus bristles in 1 series, ca. 2 mm, white to yellowish brown.

Locality: Naturalized and widely distributed in Hong Kong. *Y. S. Lau 2383; Y. W. Lam 1007; S. L. Thrower 1538* (CUHK).

Distribution: Native to N America, distributed worldwide.

Ecology: Wastelands, roadsides. Flowering: Jul.–Oct.

Uses: Medicinal (folklore).

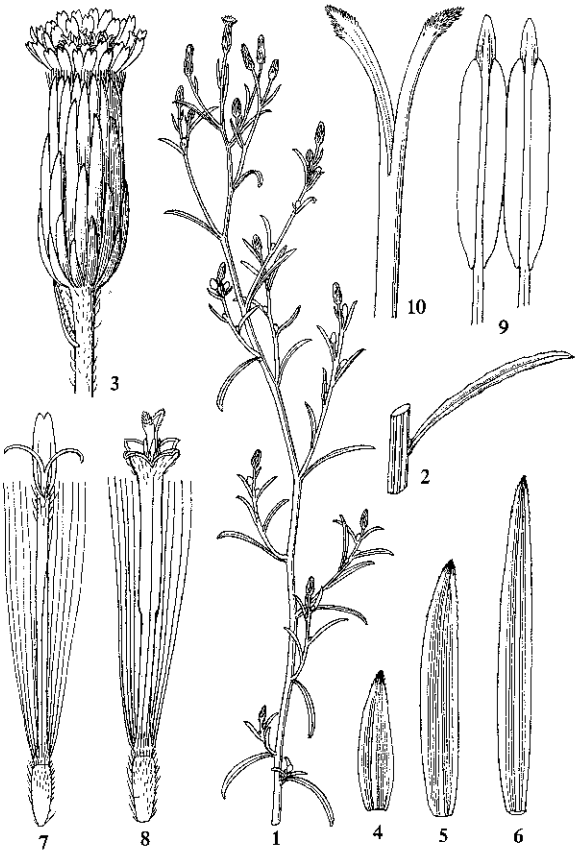


Figure 280. *Conyza canadensis* (L.) Cronq.
1. flowering branch; *2.* portion of stem; *3.* capitulum; *4–6.* phyllaries from outermost to innermost; *7.* marginal ligulate floret; *8.* disk hermaphrodite floret; *9.* anthers; *10.* stylar branches of disk floret. (drawn by X. L. Zeng)

3. Conyza bonariensis (L.) Cronq. 香丝草

Bull. Torrey Bot. Club. 70: 632. 1943; FRPS 74: 350. 1985; FTW ed. 2, 4: 914. 1998; FGD 8: 186. 2007.

Erigeron bonariensis L., Sp. Pl. 863. 1753.

Erigeron linifolius Willd., Sp. Pl. 3(3): 1955. 1803; FHK 176. 1861.

Annual or biennial herb; stem erect, 25–60 cm tall; lateral branches usually grow over the main axis, pubescent throughout, sparsely hirsute. Leaves densely pubescent on both surfaces; basal leaves usually withered at flowering period, oblanceolate or oblong-lanceolate, coarsely toothed or shallowly pinnatifid along margin, 3–10 × 0.2–0.8 cm; middle leaves linear-lanceolate to linear, entire or slightly toothed, 3–10 × 0.1–0.5 cm; upper leaves linear, entire, 1.5–6 × 0.1–0.2 cm or much smaller. Capitula 4–6 × 8–10 mm, arranged in terminal racemes or racemose-panicles. Involucres urceolate, then widely spreading; phyllaries 2–3-seriate, linear-lanceolate, apex acuminate, herbaceous, margin scarious, densely covered with greyish white hair, inner layers 3–4 mm, outermost 2–3 mm. Receptacle flat. Marginal female florets numerous, white, corolla tube filiform, 3 mm, with or without minute ligules, 2–4-cleft. Central bisexual florets tubular, yellow, 3 mm, upper part cylindric, lower part filiform, 5 lobes at apex. Cypselae oblong, 1.5 mm, compressed, pilose, straw-coloured. Pappus bristles in 1 series, 3 mm, reddish brown.

Locality: Naturalized and widely distributed in Hong Kong. *S. L. Thrower 1401* (CUHK); *Y. S. Lau 2012, 2196.*

Distribution: Origin from S America, widely naturalized in tropical and subtropical regions.

Ecology: Wastelands, roadsides. Flowering: Apr.–Sep.

Uses: Medicinal (folklore).

4. Conyza sumatrensis (Retz.) Walker
蘇門白酒草 **(Fig. 281; Photo 543)**

J. Jap. Bot. 46: 72. 1971; FRPS 74: 350. 1985; FTW ed. 2, 4: 919. 1998; FGD 8: 186. 2007.

Erigeron sumatrensis Retz., Observ. Bot. 5: 28. 1789.

Erigeron floribundus auct. non (H. B. K.) Sch.-Bip.

Annual or biennial herbs, 50–100 cm tall. Stems erect, hirsute-pubescent throughout. Basal leaves withered at flowering period; leaves in lower part oblanceolate or lanceolate, 5–15 × 0.5–2.5 cm, base attenuate, apex acute, margin coarsely toothed or subentire; middle and upper leaves gradually smaller upward, lanceolate to linear, subentire or shallowly toothed. All leaves pubescent on both surfaces. Capitula 3–5 × 5–8 mm, arranged in large panicle. Involucres urceolate, then widely spreading; phyllaries 3-seriate, linear-lanceolate, apex acuminate, greyish green, hirsute, outer ones 2–3 mm, innermost 4 mm, scarious along margin. Receptacle flat. Ray florets numerous, pistillate, corolla tube filiform, 4 mm, bearing minute ligule, pale yellow. Disk florets 5–10, hermaphrodite, pale yellow, narrowly tubular with 5 lobes at apex, 4 mm, upper part minutely ciliate. Cypselae oblong-oblanceolate, 0.7–1.5 mm, compressed, slightly pubescent, pale brown. Pappus capillary, 4 mm, in 1 series, white to yellowish brown.

Locality: Naturalized and widely distributed in Hong Kong. *Y. S. Lau 1900; Y. W. Lam 994; S. Y. Hu & P. P. H. But 23103* (CUHK).

Distribution: Native to S America, widely naturalized in tropical and subtropical regions.

Ecology: Wastelands, roadsides. Flowering: Feb.–Aug.

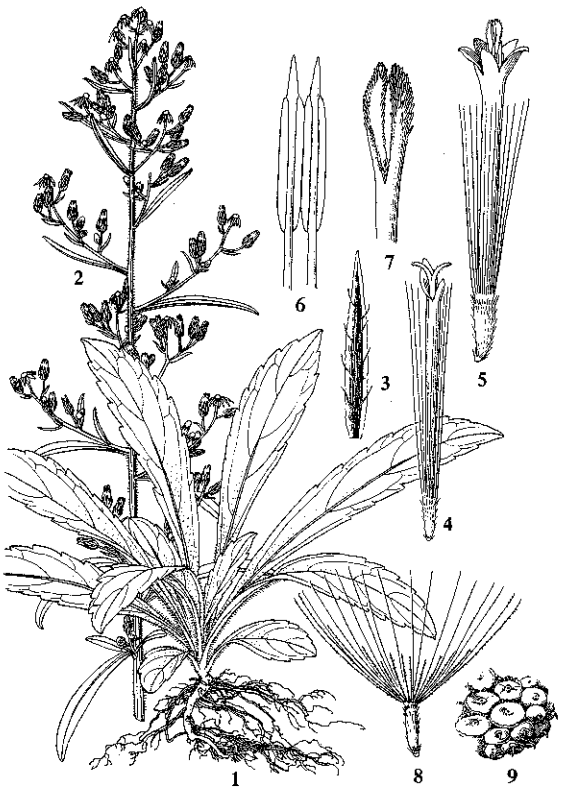


Figure 281. *Conyza sumatrensis* (Retz.) Walker

1. young plant; *2.* flowering branch; *3.* phyllary; *4.* marginal floret; *5.* disk floret; *6.* anthers; *7.* stylar branches of disk floret; *8.* cypsela at fruit dispersal; *9.* portion of naked receptacle. (drawn by X. L. Zeng)

64. Microglossa DC. 小舌菊屬

Slender subshrubs or tall herbs. Leaves alternate, petiolate, ovate to lanceolate, entire or lightly toothed along margin. Capitula heterogamous, minute, radiate, densely clustered in corymb or panicle. Involucre campanulate, phyllaries imbricate, many-seriate, with various shapes from ovate, lanceolate to linear. Receptacle naked or rarely scarious, flat or slightly convex. Marginal florets many-seriate, pistillate, corolla ligulate, filiform, ligule linear, white; style long and slender. Disk florets few, bisexual or functionally staminate, corolla tubular, 3–5-lobed at the apex; anther base obtuse and entire, apex acute. Cypsela cylindric or ovate-oblong, angulate. Pappus setae copious, scabrid.

About ten species native to tropical Asia and Africa; one species in China and in Hong Kong.

1. Microglossa pyrifolia (Lam.) Kuntze 小舌菊 **(Fig. 282)**

Rev. Gen. 1: 353. 1891; S. Y. Hu, Quart. J. Taiwan Mus. 20(3–4): 286. 1967; FRPS 74: 337. 1985; FTW ed. 2, 4: 1014. 1998; FGD 8: 182, fig. 103. 2007.

Conyza pyrifolia Lam., Encycl. 2: 89. 1786.

Erigeron pyrifolius Benth., FHK 176. 1861.

Microglossa volubilis DC., Prodr. 5: 320. 1836; FKH 141. 1912.

Perennial scandent subshrubs, 70–150 cm tall; stem branches with prominent ribs, puberulous, glandular punctate. Leaves ovate or ovate-oblong, 4–10 × 2.5–3.5 cm, base cuneate, apex acuminate, margin inconspicuously serrate or nearly entire, pubescent and with yellow glands abaxially; petiole 7–13 mm. Capitula 5–7 mm across, clustered in terminal corymb, with lanceolate bract 2–5 mm. Involucre campanulate, 5-seriate, with scarious margin

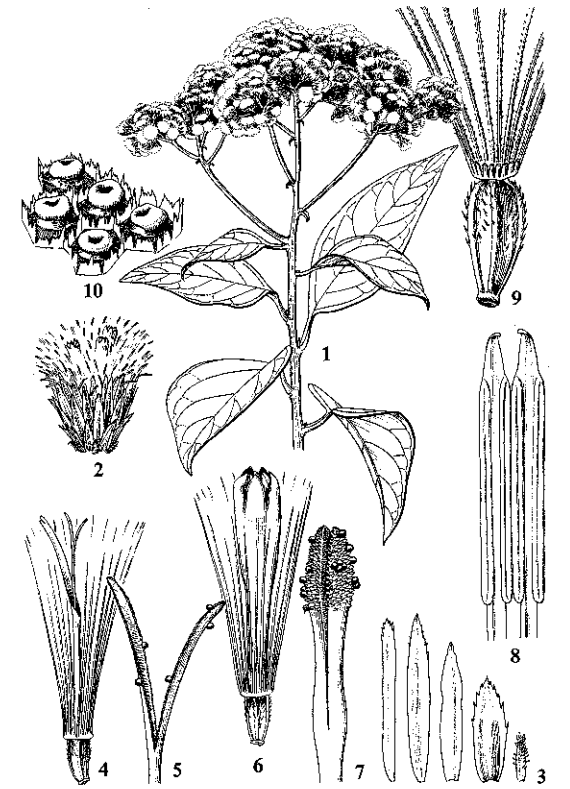


Figure 282. *Microglossa pyrifolia* (Lam.) Kuntze

1. flowering branch; *2.* capitulum showing many marginal female florets and three central bisexual florets; *3.* phyllaries from outside to inside (right to left); *4.* marginal floret; *5.* stylar branches of marginal floret; *6.* central floret; *7.* stylar branches of central floret; *8.* stamens; *9.* cypsela; *10.* portion of receptacle. (drawn by P. Ma)

and brown midvein; outermost herbaceous, ovate-lanceolate, apex obtuse, glandular and pilose; inner ones becoming increasingly longer, changing from lanceolate to linear, from herbaceous to scarious with hyaline margin, apex slightly acute or obtuse. Receptacle alveolate, each areole with a large elevation at center, naked or rarely scarious. Female florets numerous at the margin, ligulate, corolla 3 mm, filiform; bisexual florets 2–3 in the middle, 4.5 mm, tubular, 5-lobed. Cypsela oblong, 1 mm, ribbed, minutely pubescent, apex truncate, base with white ring. Pappus bristles white to pink in colour, numerous.

Locality: Tai Po, Lantau Island. *W. J. Tutcher 9136, 11286; S. Y. Hu 10022* (CUHK).

Distribution: Hainan, Guangdong, Guangxi, Guizhou, Yunnan, Taiwan; Africa and tropical Asia.

Ecology: Margins of forests and open grasslands. Flowering: Feb.–Jun.

65. **Kalimeris** Cass. 馬蘭屬

Perennial rhizomatous herbs. Leaves alternate, entire or serrate, sessile or petiolate. Capitula solitary or in loose corymb form, heterogamous, radiate. Involucre hemispherical; phyllaries 2–3-seriate, imbricate, herbaceous, membranous along the margin. Receptacle convex, alveolate. Ray florets uniseriate, female, corolla ligular, pilose, white, pink or purple. Disk florets perfect, tubular, trumpet-shaped, the limb 5-lobed, yellow changing to red or purple; stamens exserted, anthers rounded and entire at base; stylar branches flattened, with subulate or ovate, acute appendages. Cypselae of ray florets trigonous, 3-ribbed; those of the disk florets compressed, 2-ribbed; pappus coronate, scarious.

About 20 species distributed in E & S Asia; seven species in China; one species native to Hong Kong.

This genus is very similar to *Aster*, with the only difference that the former one has pappus less developed, appearing as a scarious crown or scale-like bristles no longer than 1 mm.

1. Kalimeris indica (L.) Sch.-Bip. 馬蘭(雞兒腸) **(Fig. 283)**

Syst. Verz. 125. 1854; S. Y. Hu, Quart. J. Taiwan Mus. 20(1–2): 11. 1967; FTW 4: 892. 1978; FRPS 74: 99, pl. 30: 1–3. 1985; FGD 8: 180, fig. 101. 2007.

Aster indicus L., Sp. Pl. 2: 876. 1753; FKH 141. 1912; FTW ed. 2, 4: 855. 1998.

Boltonia indica Benth., FHK 174. 1861.

Perennial rhizomatous herb, 30–75 cm tall; stems erect, with hair on upper portion. Leaves on basal part oblanceolate or obovate-oblong, coarsely dentate above, 3–6 × 0.7–1.5 cm, base attenuate and narrowed down to form wing with petiole, apex acute or obtuse; those on upper part smaller in size, linear or lanceolate, subentire. Capitula solitary to each branch, or loosely corymbose. Involucres hemispherical, 0.5–1 cm across; phyllaries 2–3-seriate, margin membranous and hair-bearing; outer ones elliptic, 1.8 mm; middle ones obovate; inner ones oblanceolate-oblong, 4 mm, apex obtuse. Receptacle convex with each areole elevated at centre. Ligulate marginal florets 15–20, 1-seriate, 8–10 mm, limb purple; stylar branches papillose along margin. Tubular disk florets 3.5 mm, yellow, pilose; anther bases obtuse and entire, apex appendages ovate-lanceolate; style with triangular appendage at apex. Cypselae obovate-oblong, 1.8 mm, brown, hirsute, with a crown of scarious pappus, marginal one 3-ribbed, inner disk one laterally compressed and 2-ribbed.

Locality: Hong Kong Island, Tseng Lan Shu, New Territories, Lantau Island. *L. T. Lo 438; C. P. Lau 051* (CUHK); *S. Y. Hu & K. H. Yung 308* (CUHK).

Distribution: E to SW and S to NE China; S & E Asia.

Ecology: Margins of forests, grassy hillslopes. Flowering: May–Sep.

Uses: Medicinal (folklore).

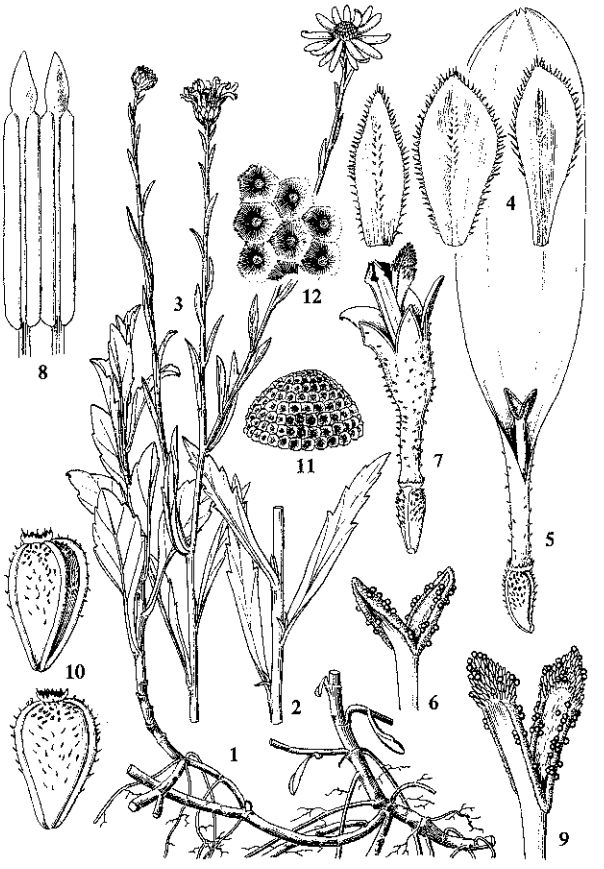


Figure 283. *Kalimeris indica* (L.) Sch.-Bip.
1. underground portion of plant; *2.* lower portion of stem at anthesis; *3.* upper portion of flowering plant; *4.* phyllaries; *5.* marginal ray floret; *6.* stylar branches of marginal floret; *7.* disk floret; *8.* anthers; *9.* stylar branches from disk floret; *10.* cypsela; *11.* receptacle; *12.* portion of receptacle. (drawn by P. Ma)

66. **Callistephus** Cass. 翠菊屬

Annual erect herbs. Leaves alternate, coarsely dentate. Capitula large, heterogamous, radiate, solitary. Involucre hemispherical; phyllaries many-seriate, imbricate, the outer ones herbaceous or foliaceous, the inner ones membranous-scarious. Receptacle plain, alveolate. Ray florets 1–2-seriate, female, corolla ligular, tube short, lip entire or 2-lobed. Disk florets fertile, corolla tubular, regular, limb shortly 5-lobed; anther base entire, obtuse, apical appendage very long; style enclosed, stylar branches flat, the apical appendage deltoid. Cypselae compressed, hairy on upper portion, each side with 1 obscure rib; pappus 2-seriate, the outer setae short.

One species native to N China; it is also cultivated in gardens in Hong Kong.

1. Callistephus chinensis (L.) Nees 翠菊 **(Fig. 284)**

Gen. Sp. Aster. 222. 1832; FRPS 74: 109. 1985; FGD 8: 177, fig. 98. 2007.

Aster chinensis L., Sp. Pl. 877. 1753.

Erect annual herbs, 30–100 cm tall, hirsute throughout. Leaves in the middle portion of stem ovate or spatulate, 3–6 × 2–4 cm, base cuneate, serrate on margin; petiole winged, 2–4 cm; leaves changed to smaller size in upper portion, oblanceolate, long-oblong or linear, entire or slightly serrate at distal end. Capitula terminal to branches, 4–8 cm across. Involucres hemispherical, 2–4 cm across; phyllaries 3-seriate, nearly equal in length; outer ones foliaceous, oblong-lanceolate or spatulate, 10–20 × 2–4 mm, apex rounded, coarsely ciliate on margin; those in middle layer spatulate, membranous, tinged purple; inner ones long-oblong, apex obtuse, membranous, semi-transparent. Ligulate florets in 1–several series, 10–30 × 2–5 mm; cultivated form with various colours, white, red, pink, purple or blue. Achenes oblong-oblanceolate, slightly compressed, 3 mm, pilose on upper portion. Pappus 2-seriate, outer ones short; inner ones plumose, caducous.

Locality: Cultivated. *S. Y. Hu & K. H. Yung 113* (CUHK); *S. Y. Hu & P. P. H. But 22444* (CUHK); *S. Y. Hu 12979* (CUHK).

Distribution: Native to SW and N China; cultivated elsewhere.

Ecology: Flowering: May–Oct.

Uses: Ornamental.

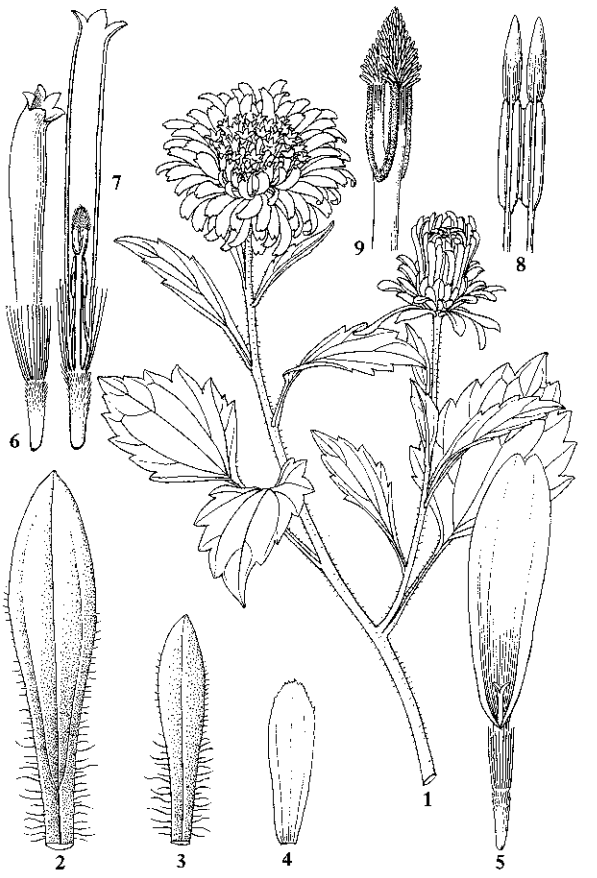


Figure 284. *Callistephus chinensis* (L.) Nees
1. flowering branch; *2.* outer phyllary; *3.* middle phyllary; *4.* innermost phyllary; *5.* marginal ray floret; *6–7.* disk florets; *8.* stamens; *9.* stylar branches of disk floret. (drawn by X. L. Zeng)

67. Aster L. 紫菀屬

Perennial rarely annual herbs, subshrubs or shrubs. Leaves alternate, entire or toothed. Capitula heterogamous, radiate, solitary at terminal or in panicle or corymbose form. Involucres campanulate, hemispherical or obconical; phyllaries 2–many-seriate with outer shorter, margin scarious, imbricate. Receptacle pitted or alveolate, plane or convex. Ray florets 1–2-seriate, female and fertile, corolla ligulate, ligules long, obscurely 3-toothed at apex, white, pink, purple or blue in colour; style filiform. Disk florets tubular, hermaphrodite and all fertile, corolla narrowly tubular or funnelform, deeply 5-lobed, mostly yellow, or sometimes tinged purple at tips; anther bases obtuse, entire; stylar branches complanate, with lanceolate apical appendages. Cypsela compressed and ribbed, usually pubescent. Pappus setaceous or scarious, white or reddish brown.

A large genus with more than 600 species, cosmopolitan; about 90 species in China; five species and one variety growing naturally in Hong Kong.

Aster novi-belgii L. (荷蘭菊) was also cultivated previously.

1a. Middle cauline leaves narrow with width less than 1.5 cm; involucres subcylindric; phyllaries linear-lanceolate to subulate ..... 1. *A. subulatus*

1b. Middle cauline leaves broad, usually wider than 1.5 cm; involucres hemispherical or obconical; phyllaries varied from ovate, lanceolate to oblong.

2a. Leaf base auriculate and amplexicaul; ray female florets about 18–30.

3a. Basal rosette leaves lacking at anthesis; ligulate florets pale purple to white ..... 2. *A. panduratus*

3b. Basal rosette leaves persist at anthesis; ligulate florets light blue, fading white ..... 3. *A. striatus*

2b. Leaf base not auriculate, non-amplexicaul; ray female florets 10–15.

4a. Phyllaries in 4–7 series; corolla of tubular florets deeply cleft with lobes 2–3 mm long, usually reflexed and rolling back; pappus white ..... 4. *A. baccharoides*

4b. Phyllaries 3-seriate; corolla of tubular florets with lobes 1–2 mm long, reflexed but not rolling back; pappus usually reddish.

5a. Leaves papery; stem glabrous or puberulent; leaf lower surfaces and phyllaries pubescent and sparsely glandular ..... 5. *A. ageratoides*

5b. Leaves thicker; stem, leaf lower surfaces and phyllaries densely pubescent and glandular ..... 5a. *A. ageratoides* var. *scaberulus*

1. Aster subulatus Michx. 鑽形紫菀 **(Photos 544–545)**

Fl. Bor.-Amer. 2: 111. 1803; FTW ed. 2, 4: 861. 1998.

Annual or rarely biennial herbs; stem erect, 30–120 cm tall, branched on upper portion, glabrous, terete. Leaves linear to lanceolate, less than 1.5 cm wide, margin subentire or occasionally shallowly toothed, sessile and subamplexicaul, glabrous and smooth; those on branches smaller in size, bract-like. Capitula arranged in loose panicle or corymb. Involucres subcylindric; phyllaries 4–5-seriate, linear-lanceolate to subulate, apex acute or acuminate, greenish, some tinged purple at the tip, margin scarious, outermost ones 2 mm, length gradually increased inward, innermost 5 mm. Marginal ligulate florets white or pale pink in colour, limb 1.5–5 mm, slightly exserted at anthesis, always recurved and rolling back when dried. Central tubular florets yellow, 3 mm, lower half of corolla tube narrower, upper half broader, 5-lobed at apex. Cypselae pale brown, cylindric, 0.8–2 mm, pubescent. Pappus 4–5 mm, longer than tubular florets, white or reddish, easily shed off as a whole ring.

Locality: Naturalized. *Y. W. Lam 365, 733, 985.*

Distribution: Native to N America, introduced and distributed throughout temperate N hemisphere.

Ecology: Wastelands, roadsides. Flowering: May–Dec.

Notes: As a weed.

2. Aster panduratus Nees ex Walp. 琴葉紫菀 **(Photo 546)**

Nov. Act. Cur. 19, Suppl. 1: 258. 1843; FKH 141. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 296. 1965; FRPS 74: 145. 1985; FGD 8: 173. 2007.

Perennial erect herb, 30–150 cm tall, branched on upper part, ribbed, strigose villose and glandular throughout. Lower leaves usually withered at anthesis, pandurate or spatulate-oblong, 5–8 × 1.5–2.5 cm; middle leaves pandurate to oblong, 3–6 × 1–1.5 cm, base cordate or auriculate, sessile and subamplexicaul, apex acute or obtuse, margin entire; those on the flowering branches smaller, ovate-oblong, base cordate and amplexicaul, margin entire. All leaves hispid or pilose along veins and margin, glandular. Capitula 1.2–1.8 cm across, terminal to shoots, solitary or forming loose corymbose clusters; peduncles 0.5–6 cm, densely pubescent or pilose, with linear-lanceolate or ovate bract subtending the head. Involucres hemispherical; phyllaries 3-seriate, oblong-lanceolate; outermost herbaceous, 3 mm, apex acute, pubescent; middle and inner ones 4 mm and 5 mm respectively, apex and midvein herbaceous, margin scarious. Receptacle chaffy. Marginal ligulate florets about 18–30, pale purple to white, corolla tube 1.5 mm, limb 5–8 mm. Disk tubular florets greenish yellow or yellow, 3 mm including lobe of 1 mm, hairy. Cypselae brown, obovate, 1.5–2 mm, ribbed along sides, puberulous. Pappus 3 mm, white to reddish.

Locality: Chai Wan, Shatin Pass Rd., Kowloon Peak, Lantau Island. *Y. S. Lau 869, 2526; L. T. Lo 567.*

Distribution: Guangdong, Guangxi, Guizhou, Sichuan, Hubei, Hunan, Jiangxi, Zhejiang, Jiangsu.

Ecology: Grassy hillslopes, wastelands. Flowering: Apr.–Dec.

3. Aster striatus Champ. ex Benth. 香港紫菀

Hooker's J. Bot. Kew Gard. Misc. 4: 233. 1852; FHK 174. 1861; FKH 141. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 300. 1965.

Perennial erect herb, 12–30 cm tall; stem striate, strigose throughout. Radical leaves persist at anthesis, arranged in rosette form, spatulate, 3–7 × 1–1.5 cm, apex rounded to obtuse, scabrous on both surfaces, hair denser along margin and midvein on abaxial surface; cauline ones few, pandurate-oblong, 1–4 × 0.5–0.8 cm, base usually auriculate, amplexicaul, apex acute. Capitula hemispherical. Phyllaries in 2–3 series, lanceolate-oblong, apex acute or acuminate, herbaceous at the middle and apical region, margin scarious, slightly fimbriate at edges, outermost 4 mm, inner ones 5 mm. Ray florets about 30, corolla tube 1.5 mm, limb 5 mm. Central tubular ones 3 mm, funnelform, hairy on the tube. Cypselae obovate, 3 mm, puberulent. Pappus white to pale red, equal in length, 3 mm.

Locality: Hong Kong Island, South Ninepin Island, Beaufort Island. *S. L. Thrower 1518* (CUHK); *W. J. Tutcher 4820; S. P. Lau 177.*

Distribution: Endemic to Hong Kong.

Ecology: Grassy hillslopes. Flowering: Apr.–Oct.

Notes: The type specimen was collected by J. G. Champion from Hong Kong Island between 1847 and 1850.

4. Aster baccharoides (Benth.) Steetz 白舌紫菀 **(Fig. 285; Photo 547)**

Bot. Voy. Herald 385. 1857; FHK 175. 1861; FKH 141 1912; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 276. 1965; FRPS 74: 195. 1985; FGD 8: 175, fig. 96. 2007.

Aster brevipes Benth., FHK 175. 1861; FKH 141. 1912.

Diplopappus baccharoides Benth., Lond. J. Bot. 1: 487. 1842.

Subshrubs or herbs with lower portion woody; stem erect, 50–100 cm tall, covered with short curved hair. Lower leaves spatulate-oblong, usually withered at anthesis; middle leaves elliptic, 2–6 × 0.6–1.5 cm, sessile or with very short petiole, apex acute, margin entire or loosely serrulate at apical half; upper leaves smaller in size, subentire. All leaves scabrid on adaxial surfaces, pubescent and glandular on abaxial surfaces, midvein protrude on abaxial side. Capitula arranged in panicle-corymb. Involucres turbinate with 5–7 × 2–3 mm; phyllaries in 4–7 series, imbricate, puberulent, margin scarious and ciliate; outermost ones ovate, 1.5 mm, apex nearly acute; those in middle layers obovate-oblong, apex obtuse, length increasing inward; innermost ones oblanceolate-oblong, 5–6 mm, apex rounded. Receptacle alveolate, with flat top, turbinate shape can be observed when phyllaries removed. Ray florets 10–15, corolla

tube 3 mm, ligules white, 4.5–5 × 1.5–2 mm. Disk florets tubular, yellow, corolla tube 3 mm, 5-lobed, lobes 2–3 mm, reflexed and rolling back; anthers exposed. Cypselae narrowly oblong, 2–2.5 mm, slightly compressed, sometimes ribbed, densely pubescent. Pappus white, 3.5–4.5 mm.

Locality: Common in Hong Kong. *Y. S. Lau 1290, 2048; L. T. Lo 565.*

Distribution: Guangdong, Hunan, Jiangxi, Zhejiang, Fujian.

Ecology: Thickets, grassy hillslopes. Flowering: Sep.–Dec.

5. Aster ageratoides Turcz. 三脉紫菀

Bull. Soc. Imp. Naturalistes Moscou 17: 154. 1837; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 270. 1965; FRPS 74: 159. 1985; FTW ed. 2, 4: 849. 1998; FGD 8: 174. 2007.

Perennial herbs; stem erect, 40–100 cm tall, ribbed, glabrous on lower portion, sparsely puberulent upward. Basal leaves ovate, 4–6 × 2.5–3.5 cm, attenuate to form 4–8 cm of petiole, usually withered at anthesis; middle leaves elliptic or oblong-lanceolate, 6–8.5 × 3–5 cm, base attenuate-cuneate to form broadly-winged petiole 3–9 cm, apex acuminate, margin with 4–7 pairs of serrate teeth; upper leaves smaller in size, subentire or shallowly toothed, subsessile or shortly petiolate. All leaves thin, triplinerved, scabrous adaxially, pubescent and sometimes glandular abaxially. Capitula corymbose or panicle-corymbose. Involucres obconic or hemispherical; phyllaries 3-seriate, imbricate, thickly scarious or leathery, oblong, pubescent, ciliate along margin, apex obtuse to rounded, apical region green or sometimes tinged purple, outer ones 2 mm, middle 3 mm, innermost 4 mm. Receptacle flat, alveolate, with edges of areoles shallowly chaffy. Ray florets 10–15, corolla tube 2 mm, ligules white or rarely purple, linear-oblong, 5–8 × 0.8–1.2 mm. Disk tubular florets yellow, 5 mm, lower half of corolla tube narrower, upper half broader, bearing 5 lobes, 1.5–2 mm. Cypselae brown, densely pubescent, obovate-oblong, 2–2.5 mm, slightly compressed, laterally ribbed, with midrib on one or both surfaces. Pappus reddish, about 4 mm.

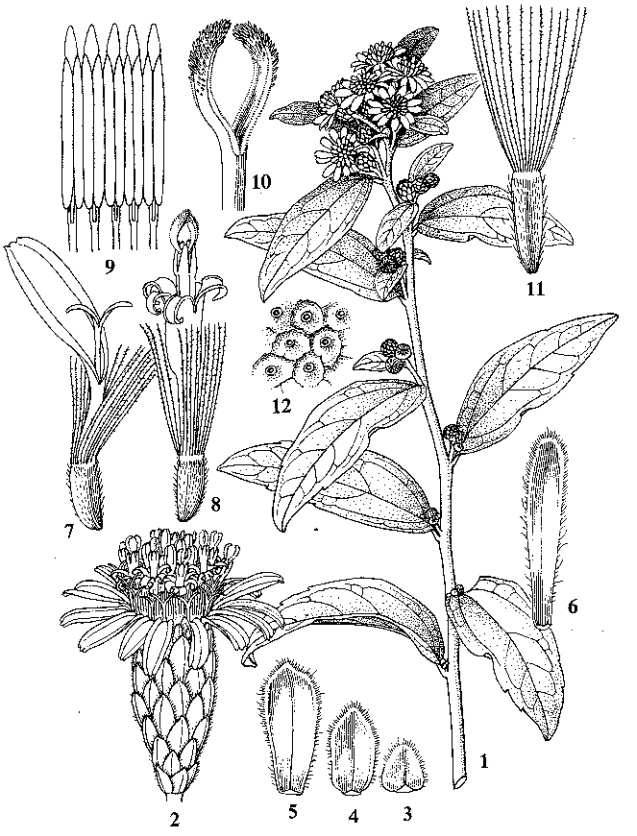


Figure 285. *Aster baccharoides* (Benth.) Steetz

1. flowering branch; *2.* capitulum; *3–6.* outermost phyllary to innermost phyllary; *7.* marginal ligulate floret; *8.* disk tubular floret; *9.* stamens; *10.* stylar branches of disk floret; *11.* cypsela; *12.* portion of receptacle. (drawn by X. L. Zeng)

Locality: Ng Tung Chai, Tai Mo Shan, Sunset Peak. *P. S. Choi 527; Y. S. Lau 3028; S. Y. Hu & P. P. H. But 22966* (CUHK).

Distribution: SE to NE China; E Asia, Siberia, Mongolia, S Korea, Japan.

Ecology: Margins of forests, thickets. Flowering: May–Dec.

5a. Aster ageratoides var. **scaberulus** (Miq.) Ling. 微糙三脉紫菀

FRPS 74: 162. 1985; FGD 8: 174. 2007; Check List HK Plants 275. 2002.

Aster scaberulus Miq., J. Bot. Neerl. 1: 100. 1861; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 299. 1965.

Aster trinervius auct. non Roxb. ex D. Don: Benth., FHK 174. 1861; FKH 141. 1912.

Stem, lower surfaces of leaves and phyllaries more densely hairy, scaberulous and glandular. Leaves relatively thicker.

Locality: Common in Hong Kong. *Y. S. Lau 1317; P. S. Choi 105; HK sheet 38777.*

Distribution: S to SW, and C to E China; Vietnam.

Ecology: Thickets, grassy hillslopes. Flowering: May–Dec.

68. Erigeron L. 飛蓬屬

Mostly perennial herbs or subshrubs. Stem erect or prostrate. Leaves alternate, entire, toothed or pinnately lobed. Capitula heterogamous, radiate, solitary or few arranged into racemes, corymbs or panicles. Involucre hemispherical or campanulate; phyllaries 2–3-seriate, lanceolate or linear; receptacle plane or convex, without palea, alveolate. Ray florets 2–many-seriate, pistillate, fertile, corolla variable, some with short tube and long ligule, others with long tube and short ligule, white, blue, purple or pink in colour, rarely yellow. Disk florets tubular, in form of tube to funnel, perfect, corolla mostly yellow, limb with 5 triangular lobes, lobes sometimes tinged purple; anther bases obtuse or slightly acute, entire, apical appendages ovate-lanceolate. Cypsela compressed, margin ribbed; pappus bristles either long and uniform or long and short mixed.

About 200 species, cosmopolitan, especially in temperate regions of N America; 35 species in China; one species (naturalized) in Hong Kong.

1. Erigeron karvinskianus DC.
加勒比飛蓬 **(Fig. 286; Photo 548)**
Prodr. 5: 285. 1836; C. M. Hu, Check List HK Plants 281. 2002.

Perennial herbs or subshrubs 30–50 cm tall; stems slender, many-branched, growth of branches terminated by two capitula. Leaves dimorphous, sparsely pilose; those on vegetative shoots trilobed, ovate-rhombic in outline, 1.5–3.5 cm × 5–15 mm, base cuneate, lobes ovate, entire, acute; upper cauline leaves narrowly elliptic, 1–2 cm × 2–5 mm, both ends acute. Capitula heterogamous, radiate, solitary or in a loose panicle. Involucre campanulate, 5 mm across; phyllaries 3-seriate, herbaceous, lanceolate, 2–4 mm, the outer ones shorter. Receptacles flat, smooth, areoles inconspicuous, the attachments of ovaries each marked by a conic elevation and a fibrous remains of vascular tissue. Marginal ligulate florets white, turning purplish pink after anthesis, slightly over 40, 2-seriate, neuter, ligules 5.5 × 1 mm, 3-lobed, tube 1.5 mm, stylar branches exserted. Central tubular florets yellow, numerous, hermaphrodite, corolla 5-lobed; stamens 5, anther bases obtuse, apical appendages ovate, acute; style appendages rounded or obtuse. Achenes brown, compressed-oblong, 1.4 mm, sparsely pilose, base with a white spongy ring, each side with a stout rib, apex truncate, apiculate at center. Pappus 2-seriate, with short scarious ones alternate with capillary bristles.

Locality: Cultivated and naturalized in Hong Kong. *Y. S. Lau 1239; S. Y. Hu 7197, 13245* (CUHK).

Distribution: Guangdong; native to Mexico and Panama.

Ecology: Cultivated or naturalized, usually found in wastelands. Flowering: Feb.–Oct.

Uses: Ornamental.

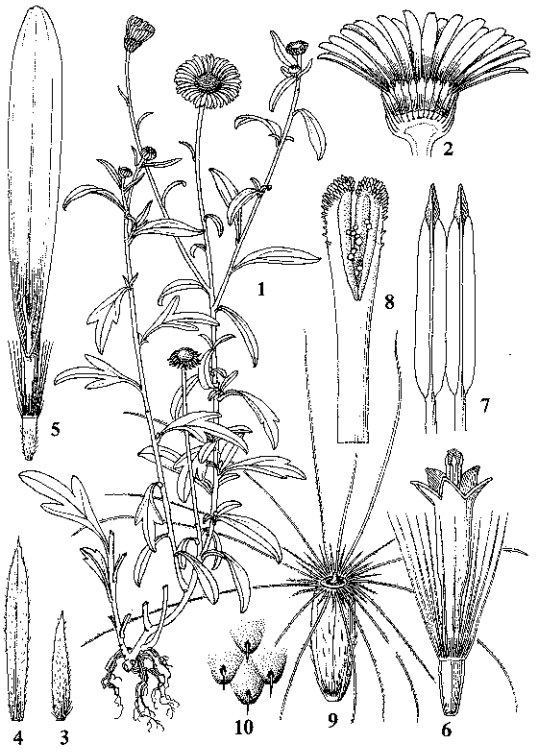


Figure 286. *Erigeron karvinskianus* DC.
1. whole plant showing the adventitious root; *2.* vertical section of capitulum; *3.* outer phyllary; *4.* inner phyllary; *5.* ligulate marginal floret; *6.* tubular disk floret; *7.* stamens; *8.* stylar branches of disk floret; *9.* cypsela; *10.* portion of receptacle. (drawn by X. L. Zeng)

69. Chrysanthemum L. 茼蒿屬

Annual herbs. Leaves alternate, 1–2-pinnately divided or margin toothed. Capitulum heterogamous and radiate, pedunculate, solitary or in loose corymbs. Involucres broadly hemispherical; phyllaries 4-seriate, rigidly herbaceous with margin and apices membranous or scarious. Receptacle convex to hemispherical, nude. Marginal ligulate florets 1-seriate, or with various series in cultivated form, pistillate and fertile, corolla yellow or white, ligule linear to linear-oblong. Disk tubular florets bisexual and fertile, corolla yellow, lower part narrow, upper part broad campanulate, apex 5-lobed; anther bases obtuse, apical appendages ovate-elliptic; stylar branches linear, truncate at distal end. Cypselae developed from ray florets 3-angulate, 2–3-winged; those developed from disk florets with one side broadly hard-winged. Both without pappus.

Five species native to Mediterranean region, with wide range of cultivation and hybridization; two to three species cultivated in Hong Kong for ornamental uses or for vegetables, such as *Chrysanthemum carinatum* Schousb. (蒿子桿), *Chrysanthemum coronarium* L. (艾菜; *Chrysanthemum spatiosum* auct. non Bailey; Photo 549) and the one described below.

1. Chrysanthemum segetum L. 茼蒿 **(Fig. 287; Photo 550)**
Sp. Pl. 889. 1753; FKH 146. 1912; FRPS 76(1): 22. 1983; FGD 8: 199, fig. 118. 2007.

Chrysanthemum coronarium var. *spatiosum* Bailey, Gentes Herb. 1: 47. 1920; S. Y. Hu, Quart. J. Taiwan Mus. 19(1–2): 27. 1966.

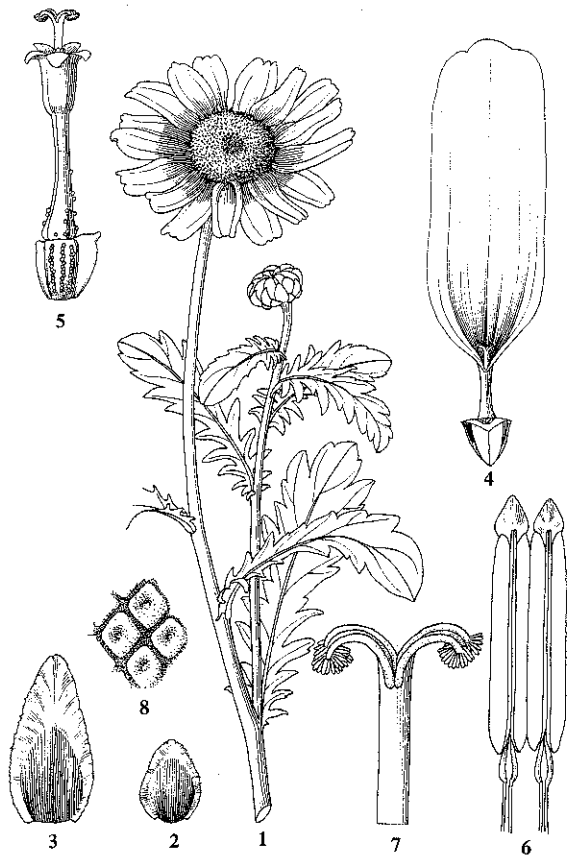


Figure 287. *Chrysanthemum segetum* L.
1. flowering branch; *2–3.* outer phyllary and innermost phyllary; *4.* marginal flower; *5.* hermaphrodite disk floret; *6.* stamens; *7.* stylar branches of disk floret; *8.* portion of receptacle. (drawn by X. L. Zeng)

Annual herbs; stems erect, 20–80 cm tall, fleshy, glabrous or subglabrous. Leaves elliptic, obovate-elliptic to oblanceolate, margin coarsely and irregularly serrate or dentate, sometimes shallowly pinnatifid, 4–12 × 3–4 cm, base cuneate, sessile, apex rounded, both surfaces glabrous; leaves in upper stem smaller in size. Capitulum solitary at stem terminal or few at branches; peduncle about 5 cm. Involucres broad hemispherical, 1–2 cm across; phyllaries 4-seriate, imbricate, ovate, rigidly herbaceous with margin and apices hyaline, the membranous apices of the innermost layer broaden as appendages. Marginal ligulate florets 1.5 cm, ligule linear-oblong, yellow. Central tubular florets yellow or orange-yellow, lower portion narrow and glandular, upper portion campanulate, 5-lobed at apex. Cypselae of ray florets trigonous and narrowly 2-winged on both lateral sides; those of disk florets oblong, inconspicuously ribbed, with one side broadly hard-winged. Pappus absent.

Locality: Cultivated. *S. Y. Hu 9409A, 11875* (CUHK); *HK sheet 2665.*

Distribution: Cultivated all over China; native to Mediterranean region.

Ecology: Flowering: Mar.–Aug.

Uses: Food (vegetable).

70. Leucanthemum Mill. 濱菊屬

Perennial herbs. Leaves alternate. Capitula radiate and heterogamous, solitary or occasionally in loose corymbose form, pedunculate. Involucres shallow dish-like; phyllaries 3–4 rows, margin scarious or membranous. Receptacle convex, sometimes conical, naked. Marginal florets one-seriate, female and fertile, corolla ligulate, colour white, pink or rarely yellow. Disk florets many, bisexual and fertile, corolla tubular, 5-lobed at apex, tube swollen basally, colour yellow; anther bases obtuse, apical appendages ovate-lanceolate; stylar branches linear, truncate at apices. Cypselae usually 10-ribbed. Pappus none, or of a short crown or auricle.

About 30 species mainly in C & S Europe; two to three species cultivated in Hong Kong for ornamental uses. One described below.

1. Leucanthemum vulgare Lam. 濱菊(延命菊) **(Fig. 288)**

Fl. Franc. 2: 137. 1778; FRPS 76(1): 25. 1983; FTW ed. 2, 4: 1010. 1998; FGD 8: 197, fig. 116. 2007.

Chrysanthemum leucanthemum L., Sp. Pl. 2: 888. 1753.

Perennial erect herbs 15–100 cm tall, with simple or branched stems, glabrous or subglabrous. Basal and lower cauline leaves obovate-spatulate to oblanceolate-spatulate, 5–10 × 1.5–2.2 cm, margin crenate to obtuse-dentate, base cuneate-attenuate, apex obtuse; upper cauline leaves oblong, margin crenate to pinnatifid, base attenuate, sessile, somewhat auriculate and semi-amplexicaul, both surfaces glabrous; uppermost leaves smaller in size, sometimes pinnatisect. Capitula heterogamous and radiate, 2–5 cm across, long-pedunculate, solitary, terminal to stem and branches. Involucres 0.5–1 × 1–2 cm; phyllaries 3–4-seriate, ovate-oblong to lanceolate, glabrous, green, margin and apex scarious, brownish or dark, the innermost one with apical scales broaden as rounded appendages. Ray florets pistillate, corolla white, ligule oblong, 0.8–2.5 cm. Disk florets hermaphrodite, corolla yellow, tube base swollen and skirt-like, slightly covering the apical region of hypanthium, middle part constricted and upper part campanulate, 5-lobed at apex. Cypselae subcylindric, cuneate at base, 2–3 mm, prominently 10-ribbed, ribs projected into the apical rim, ribs pale brown and grooves black. Pappus absent or with short coronate scales or auricles on ray cypselae.

Locality: Cultivated. *S. Y. Hu & K. H. Yung 586* (CUHK); *S. Y. Hu & P. P. H. But 22008* (CUHK).

Distribution: Caucasus, W Asia, Europe.

Ecology: Flowering: Mar.–Oct.

Uses: Ornamental.

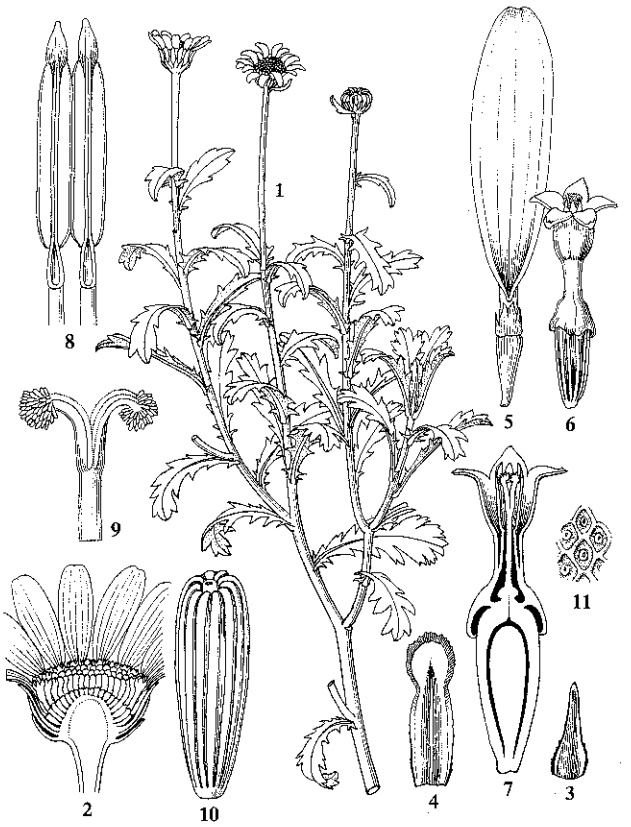


Figure 288. *Leucanthemum vulgare* Lam.
1. flowering branch; *2.* vertical section of capitulum; *3.* outer phyllary; *4.* inner phyllary; *5.* marginal ray floret; *6.* hermaphrodite disk floret; *7.* vertical section of disk floret; *8.* stamens; *9.* stylar branches of disk floret; *10.* cypsela; *11.* portion of receptacle. (drawn by P. Ma)

71. Dendranthema (DC.) Des Moul. 菊屬

Perennial herbs or subshrubs, strongly scented. Leaves alternate, 1–2-palmately or pinnately divided, serrate, rarely entire. Capitula heterogamous and radiate, solitary or in loose corymbs. Involucres mostly shallow-dish-like, rarely campanulate; phyllaries in 3–5 series, margin brownish or blackish scarious, or the outer and middle layers herbaceous with margin pinnatilobed to pinnatifid. Receptacle convex, hemispherical or conical, naked. Marginal florets female and fertile, 1-seriate, or many-seriate in some cultivated form, corolla ligulate, colour yellow, white, purple or pink. Disk florets hermaphrodite and fertile, numerous, corolla tubular, apex 5-lobed, colour

yellow, usually glandular; anther bases obtuse, apical appendages ovate-lanceolate or elliptic-oblong; stylar branches linear, apices truncate. Cypselae obovoid-oblong to subterete, 5–8-ribbed. Pappus none.

About 30–40 species mainly distributed in Japan, Korea and China; two species commonly growing wild or cultivated in Hong Kong.

1a. Capitula 1.5–2.5 cm in diam.; outermost phyllaries ovate, 2–3 mm long; ray florets usually in 1 series, yellow; plant growing wild ..... 1. *D. indicum*

1b. Capitula 2.5–25 cm in diam.; outermost phyllaries linear-lanceolate, 5–6 mm long; ray florets usually in many rows, colour various, yellow, white, purple or pink; plant cultivated ..... 2. *D. morifolium*

1. Dendranthema indicum (L.) Des Moul.
野菊 **(Fig. 289; Photos 551–552)**

Actes Soc. Linn. Bordeaux 20: 562. 1855; FRPS 76(1): 32. 1983; Peng, FTW ed. 2, 4: 929. 1998; FGD 8: 195, fig. 115. 2007.

Chrysanthemum indicum L., Sp. Pl. 889. 1753; FHK 184. 1861; FKH 146. 1912.

Perennial herbs with procumbent rhizomes, 25–100 cm tall; stem erect or decumbent, branched, pubescent mainly on upper portion. Basal and lower leaves withered at anthesis; middle cauline leaves ovate or ovate-elliptic, 3–5 × 2–3.5 cm, leaf base truncate or cuneate, serrate, pinnatilobed to pinnatifid, terminal lobe largest, ovate-elliptic, obtuse apically, lateral lobes in two pairs, elliptic-oblong, acute or obtuse, upper surfaces pubescent, lower surfaces glandular and covered with branched T-typed hair and short straight pubescent hair; petioles 0.5–1.5 cm. Capitula heterogamous and radiate, 1.5–2.5(–3.3) cm in diam., loosely corymbose. Peduncle 1.5–11 cm, densely hairy. Involucres in shallow disciform; phyllaries 4–5-seriate, herbaceous, hairy, margins scarious and brownish, apex obtuse to rounded; outer ones smaller, ovate, 2–3 mm; median ones ovate, 4–8 mm; innermost ones oblong, 6–10 mm. Marginal ligulate florets yellow, 8–12 ×, 2–3 mm, ligule elliptic-oblong, apex entire or 2–3-lobed, tube long and glandular. Disk tubular florets yellow, glandular, 3–3.5 mm, tube lower half narrow, upper half campanulate, 5-lobed at apex. Cypselae obliquely obovoid-oblong, 1.5–1.8 mm, 5-ribbed, brownish black with the ribs pale brown. Pappus absent.

Locality: Common in Hong Kong. *H. Y. Yeung 157* (CUHK); *S. Y. Hu 12403* (CUHK); *Y. S. Lau 1331.*

Distribution: Widely distributed in China; also in India, Korea, Japan.

Ecology: Grassy hillslopes, thickets. Flowering: Oct.–May of the following year.

Uses: Medicinal (folklore).

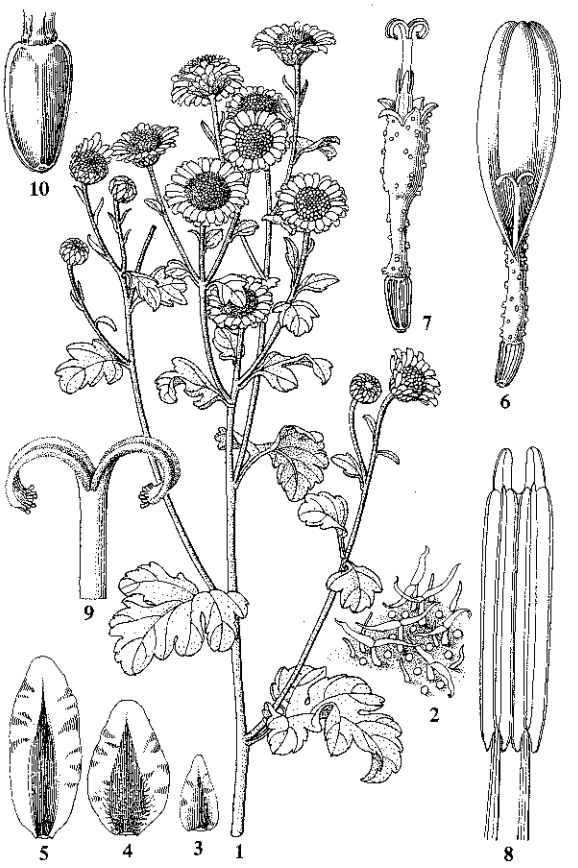


Figure 289. *Dendranthema indicum* (L.) Des Moul.
1. flowering branch; *2.* glands and two types of trichomes on lower surface of leaf; *3–5.* outer phyllary to innermost phyllary; *6.* marginal ligulate floret; *7.* tubular disk floret; *8.* stamens; *9.* stylar branches of disk floret; *10.* cypsela. (drawn by X. L. Zeng)

2. Dendranthema morifolium (Ramat.) Tzvelev 菊花

Fl. URSS 26: 373. 1961; FRPS 76(1): 35. 1983; FGD 8: 196. 2007.

Chrysanthemum morifolium Ramat., Journ. Hist. Nat. 2: 240. 1792.

Chrysanthemum sinense Sabine, Trans. Linn. Soc. London 14(1): 142, 145 description. 1823.

Perennial herbs, 50–120 cm tall; stem erect, branched on upper portion, usually woody at base, pubescent. Lower and middle cauline leaves ovate, lanceolate or long-elliptic, 5–8 × 3–5.5 cm, base cuneate, pinnatilobed to pinnatifid, lobes ovate or oblong, apex acute, margin dentate to serrate, abaxial surfaces densely pubescent, adaxial surfaces glabrous or subglabrous, petiolate. Upper leaves obovate or rhomboid. Capitula of many forms and colours, solitary or few as loose corymbs, size various, 2.5–25 cm in diam. Peduncle up to 9 cm, densely pubescent. Involucres shallow-dish-like; phyllaries 3–5-seriate, herbaceous, hairy abaxially, scarious-margined; outer rows linear-lanceolate, 5–6 mm, hair denser; median and inner ones oblong to obovate, 8–12 mm, marginal scales broader. Ligulate florets many, oblong or narrowly linear-oblong, length various, colour yellow, white, pink or purple. Disk tubular florets small, yellow. Cypselae 1.5–3 mm.

Locality: Cultivated. *Y. S. Lau 3086; S. Y. Hu & K. H. Yung 112* (CUHK); *S. Y. Hu 5507* (CUHK).

Distribution: Native to China; widely cultivated worldwide.

Ecology: Flowering: Oct.–Feb. of the following year.

Uses: Ornamental, medicinal (folklore).

72. Centipeda Lour. 石胡荽属

Small annual herbs; stem decumbent or procumbent, branched. Leaves alternate, oblanceolate-spatulate, usually toothed. Capitula small, heterogamous and disciform, sessile to subsessile, axillary. Involucres hemispherical; phyllaries 2–3-seriate, oblong, herbaceous with hyaline margins. Receptacle hemispherical, naked. Marginal florets female and fertile, in many rows, corolla short and narrowly tubular, inconspicuously 2–3-lobed at apex. Central florets bisexual and fertile, few, corolla short and broadly tubular, apically 4-toothed; anther bases obtuse, without apical appendages; stylar branches short, obtuse or truncate at distal ends. Cypselae tetragonous, hairy along the ribs. Pappus none.

About four species native to Australia, S America and Asia; one species as a common weed in China and in Hong Kong.

1. Centipeda minima (L.) A. Br. & Aschers.
石胡荽 **(Fig. 290; Photo 553)**

Index Sem. (Berlin) 1867: App. 6. 1867; S. Y. Hu, Quart. J. Taiwan Mus. 19(1–2): 21. 1966; FRPS 76(1): 132. 1983; FTW ed. 2, 4: 898. 1998; FGD 8: 201, fig. 121. 2007.

Myriogyne minuta (G. Forst) Less., Linnaea 6: 219. 1831; FHK 186. 1861; FKH 146. 1912.

Cotula minuta G. Forst., Fl. Ins. Austr. 57. 1786.

Artemisia minima L., Sp. Pl. 849. 1753.

Small annual herbs, branches many; stem decumbent, 4–20 cm or longer, glabrous or covered with cobwebby hair. Leaves alternate, sessile, oblanceolate to spatulate, 5–18 × 1–7 mm, base cuneate, apex obtuse to rounded, margin entire or with 1–2 pairs of teeth in upper half, glabrous or cobwebby hairy on both surfaces, abaxially glandular-punctate. Capitula small, depressed globose, 3–4 mm in diam., solitary and axillary, sessile or subsessile. Involucres depressed hemispherical; phyllaries in 2–3 series, outer 1–2 layers oblong and larger in size, inner layers obovate-oblong, all herbaceous green, with hyaline and lacerate margins and apices, glabrous or loosely cobwebby on abaxial side. Marginal florets pistillate, many-seriate, corolla narrowly tubular, 0.2 mm, shorter than the ovary, pale greenish yellow in colour, minutely 2–3-toothed at apex. Central florets bisexual, corolla tubular, 0.5 mm, apex 4-lobed, colour pale purple. All florets fertile. Cypselae narrowly and obliquely oblong, 1–1.2 mm in length, 4-angulate, base cuneate, brown in colour, ribs pale brown and hairy. Pappus wanting.

Locality: Common in Hong Kong. *Y. S. Lau 2187; S. L. Thrower 1350* (CUHK); *S. Y. Hu 11889* (CUHK).

Distribution: Widely distributed in China; Korea, Japan, India, Malaysia, Australia.

Ecology: Wastelands, margins of farmlands. Flowering: Mar.–Sep.

Uses: Medicinal (folklore).

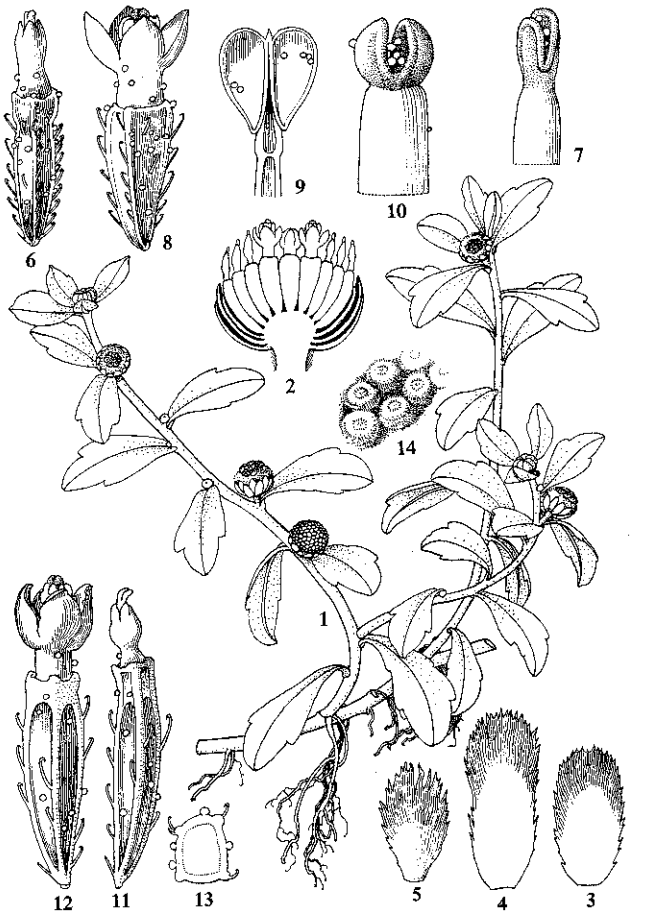


Figure 290. *Centipeda minima* (L.) A. Br. & Aschers.
1. portion of plant; *2.* vertical section of capitulum; *3–5.* outer phyllary to innermost phyllary; *6.* marginal female floret; *7.* stylar branches of marginal floret; *8.* central floret; *9.* stamen; *10.* stylar branches of central floret; *11.* cypsela from marginal floret; *12.* cypsela from central floret; *13.* cross section of cypsela; *14.* portion of receptacle. (drawn by X. L. Zeng)

73. Crossostephium Less. 芙蓉菊属

Subshrubs, stem branches densely pubescent to tomentose. Leaves alternate, fleshy, narrowly spatulate or oblanceolate, entire or 2–5-lobed, densely lanate abaxially. Capitula heterogamous, disciform, arranged in leafy racemes or raceme-panicles. Involucres hemishperical; phyllaries in 3 series, herbaceous, densely tomentose, median and inner layers broadly scarious-margined. Receptacle hemispherical to conical, alveolate, toothed along margin of areoles. Marginal florets pistillate and fertile, 1-seriate, corolla tubular, 2–3-toothed, glandular-punctate. Disk florets hermaphrodite and fertile, many, corolla tubular, apex 5-lobed, glandular punctate; anther bases obtuse, apical appendages obtuse oblong; stylar branches truncate at distal ends. Cypselae oblong-cuneate, 5-ribbed. Pappus of short coronate and lacerate scales.

A monotypic genus native to China; it also occurs in Hong Kong.

1. Crossostephium chinense (L.) Makino 芙蓉菊 **(Fig. 291)**
Bot. Mag. Tokyo 20: 33. 1906; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 231. 1966; FRPS 76(1): 131. 1983; FTW ed. 2, 4: 927. 1998; FGD 8: 194, fig. 114. 2007.

Artemisia chinensis L., Sp. Pl. 849. 1753.

Perennial aromatic herbs to subshrubs, 10–40 cm tall, branched in upper portion, branches ascending, densely greyish tomentose, with leaves crowded at shoot apices, the vegetative shoots having very short internodes, the flowering shoots with longer internodes. Leaves fleshy, narrowly spatulate to oblanceolate, 1.5–4 × 0.4–1.2 cm, base cuneate-attenuate, sessile, entire or 3–5-lobed near the tip, apex obtuse-rounded, both surfaces densely covered with greyish lanate and stellate hair. Capitula heterogamous and disciform, subglobose, 7 mm across, in leafy racemose or racemose-panicle form; peduncle short, 6–15 mm. Involucres hemispherical, 3 × 7 mm, densely lanate; phyllaries in 3 series, herbaceous; outer ones ovate-deltoid, 1.5–2 mm, obtuse or acute; middle layers elliptic, 2–2.2 mm, scarious margined; inner layers oblong, 2.5–3 mm, with wider scarious margin. Receptacle hemispherical-conical, areoles irregularly toothed, without palea. Peripherical florets female and fertile, in one row, corolla tubular, 1.5 mm, 2–3-dentate at apex, glandular-punctate. Central florets bisexual and fertile, many, corolla tubular, 1.5 mm, 5-dentate apically, glandular punctate. Cypselae oblong, 0.8–1.5 mm, 5-costate, glandular. Pappus of scarious crown about 0.2–0.5 mm, toothed along rims.

Locality: Cape Collinson, Basalt Island. Also cultivated as pot plants. *Y. S. Lau 1773; F. W. Xing 9234.*

Distribution: Distributed in coastal regions of SE China; Indochina, Japan, Philippines.

Ecology: Crevices of rocks near seashore. Flowering: Jul.–Apr. of the following year.

Uses: Medicinal (folklore).

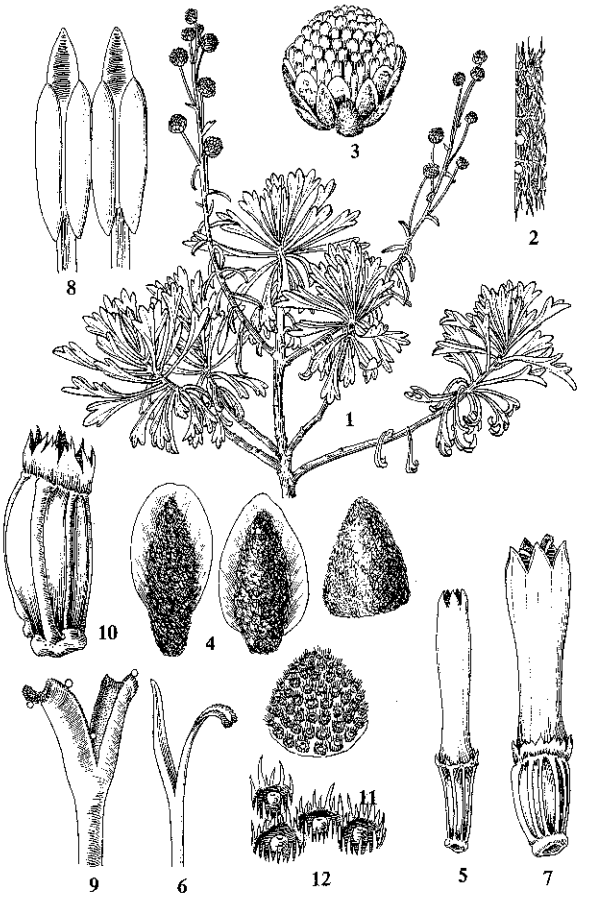


Figure 291. *Crossostephium chinense* (L.) Makino
1. flowering branches; *2.* hair and glands on abaxial surface of leaf; *3.* capitulum; *4.* outer phyllary to innermost phyllary (right to left); *5.* marginal floret; *6.* stylar branches of marginal floret; *7.* disk floret; *8.* stamens; *9.* stylar branches of disk floret; *10.* cypsela; *11.* receptacle without paleae; *12.* portion of receptacle. (drawn by P. Ma)

74. Artemisia L. 蒿屬

Annual, biennial or perennial plant, herbs, subshrubs or shrubs, aromatic, plant cobwebby, pubescent, glandular, viscid, or glabrescent; stem erect, striated, branched. Leaves alternate, 1–3-pinnately divided or not, rarely palmately divided, margin usually toothed. Capitula small, usually nodding or pendent at anthesis, heterogamous and disciform, shape globose, hemispherical, ovoid or ellipsoidal, usually with small stipules at base, arranged as spikes, racemes, panicles, or corymbs; phyllaries 3–4-seriate, imbricate, herbaceous with scarious margin, and usually with a green line on midvein, or totally scarious without the green midvein. Receptacle flat, convex or hemispherical, hairy or not. Marginal florets pistillate, in 1–2 rows, corolla narrowly tubular, rarely conical, urceolate or cup-shaped, 2–3(–4)-lobed apically; stylar branches exserted, acute at distal ends. Disk florets bisexual, in many rows, fertile or not, corolla tubular, apex 5-lobed; anther bases obtuse, apical appendages elongate-triangular, acute; style divergent, branch apices truncate, usually penicillate and tuberculate; or style not divided, as claviform or funnelform. Cypselae ovoid, obovoid or oblong-obovoid, faintly striate. Pappus mostly absent.

About 380 species mainly native to temperate regions in N hemisphere, some distributed in C & S America, Africa and Australia. Most with medicinal uses and rich in polyacetylenes, flavonoids, terpenoids and cyanogenic glycosides. Some are used in desert for sand stabilization or used for feeding livestock; about 186 species in China; seven species in Hong Kong.

1a. Central florets fertile, with style as long as or longer than the corolla, and apices branched and recurved, also with conspicuous ovaries; corolla of marginal florets filiform-tubular, that of disk florets funnelform-tubular.
  2a. Plant annual; median stem leaves 2–4-pinnately divided, ultimate lobes less than 1.5 mm wide; head 1.5–2.5 mm in diam. ..... 1. *A. annua*
  2b. Plant perennial; median stem leaves 1–2-pinnatifid to pinnatisect, ultimate lobes more than 4 mm wide.
    3a. Abaxial surfaces of median cauline leaves sparsely pubescent or glabrescent; phyllaries glabrous abaxially; capitula without leafy bracts at base ..... 2. *A. lactiflora*
    3b. Abaxial surfaces of median cauline leaves densely arachnoid-tomemtose; phyllaries cobwebby or woolly hairy on abaxial surfaces; capitula with leafy bracts at base.
      4a. Leaves densely dotted with white glandular pits adaxially ..... 3. *A. lavandulaefolia*

4b. Leaves without glandular dots or pits.
5a. Middle leaves 1–2-pinnatifid to pinnatisect, with lateral primary segments 3(–4) pairs ..... 4. *A. indica*
5b. Middle leaves 1-pinnatifid to pinnatisect, with lateral lobes 2(–3) pairs ..... 5. *A. princeps*

1b. Central florets infertile, with style shorter than the corolla, appearing as claviform or funnelform, apices undivided or shortly cleft, not recurved; ovaries reduced or absent; corolla of marginal florets conical-tubular, that of disk florets ellipsoidal-tubular.
6a. Median leaves (1–)2-pinnatisect with ultimate lobes filiform-linear, 0.3–1 mm wide ..... 6. *A. capillaris*
6b. Median leaves spatulate-cuneate, 4–15 mm wide, incisely lobed and toothed, or obliquely pinnatifid from apex to centre ... . 7. *A. japonica*

1. Artemisia annua L. 黃花蒿
Sp. Pl. 1: 847. 1753; FHK 187. 1861; FKH 147. 1912; FRPS 76(2): 62. 1991; FTW ed. 2, 4: 834, pl. 386. 1998; FGD 8: 204, fig. 122. 2007.

Annual herbs, strongly aromatic; stem 70–150(–200) cm tall, branched above, initially puberulous, glabrescent. Lowermost cauline leaves ovate to triangular-ovate in outline, 3–7 × 2–6 cm, 3(–4)-pinnately parted, segments 5–8(–10) pairs, ultimate lobes deeply serrate, teeth triangular, 1–2 × 0.5 mm, Median cauline leaves 2(–3)-pinnately and pectinately parted; petiole 1–2 cm. Upper leaves 1(–2)-pinnately parted. Capitula globose, numerous, 1.5–2.5 mm in diam., shortly pedunculate and with leafy bracts, arranged as pyramid-shaped paniculate inflorescences. Involucres with 3–4 series of phyllaries, with green midvein, margin broadly scarious; outer layer oblong-ovate to narrowly elliptic; middle and inner layers broadly ovate to ovate. Receptacle small, convex. Marginal pistillate florets 10–18, corolla filiform-tubular, apex minutely 2–3-lobed, glandular abaxially; style much longer than the corolla tube and conspicuously exserted, bifid. Disk bisexual florets 10–30, corolla tubular; anther linear, apical appendages elongate-triangular; style slightly longer than the corolla. Cypselae small, ellipsoidal-ovoid, slightly compressed. Pappus none.

Locality: New Territories. *HK sheet 2668.*

Distribution: Widely spread over Eurasia, from E Europe to Caucasus, Asia Minor, E Siberia and China, and widely naturalized.

Ecology: Cultivated lands, wastelands. Flowering: Aug.–Oct.

Uses: Medicinal (folklore).

2. Artemisia lactiflora Wall. ex DC. 白苞蒿(甜菜子) **(Photos 554–555)**
Prodr. 6: 115. 1837; FKH 147. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 238. 1965; FRPS 76(2): 174. 1991; FGD 8: 209. 2007.

Perennial aromatic herbs 50–100 cm tall; stem striate, loosely cobwebby pubescent, glabrescent later. Basal leaves withered at flowering stage. Middle cauline leaves ovate or ovate-elliptic, 5–9 × 4–9 cm, upper part pinnatilobed into 3 ovate to ovate-oblong lobes, lower part pinnatisect with 1–2 pairs of lateral lobes, ovate or ovate-oblong, the basal one smallest in size, apex usually obtuse, sometimes acute, margin serrate, both surfaces sparsely pubescent or glabrescent; petiole 1.5–5 cm. Capitula sessile, without leafy bracts at base, heterogamous and disciform, oblong to subglobose, 4–5 × 3–4.5 mm, arranged as spikes. Phyllaries 3–4-seriate, semi-membranous, glabrous abaxially; outer ones ovate, about 1.5 mm; middle and inner ones oblong, length 2.5–3 mm. Receptacle conical. All florets fertile. Marginal female florets 3–6, corolla narrowly tubular, about 1 mm, glandular outside, apex 2-lobed; style long and exserted, twice the length of corolla, divided. Disk bisexual florets 4–10, corolla funnelform-tubular, 1.8–2 mm, glandular, apex 5-lobed; anther bases obtuse, apical appendages elongate-triangular, long-acuminate; style subequal in length with the corolla, shortly branched, truncate and penicillate at distal ends. Cypselae oblong, faintly striate, 0.8–1 mm. Pappus none.

Locality: Shing Mun, Tai Po. *H. Y. Yeung 526* (CUHK); *Y. S. Lau 2635, 3033.*

Distribution: Area S of Qinling Range; E & SE Asia.

Ecology: Margins of forests, thickets, wastelands. Flowering: Aug.–Oct.

Uses: Medicinal (folklore).

3. Artemisia lavandulaefolia DC. 野艾蒿
Prodr. 6: 110. 1837; FRPS 76(2): 92, pl. 12: 1–8. 1991; FFJ 5: 380, fig. 351. 1993; FGD 8: 205. 2007.

Perennial herbs or shrubs, 50–120 cm tall; stems erect, striate, densely arachnoid-pubescent. Leaves densely tomentose abaxially, white glandular punctate and sparsely arachnoid-pubescent adaxially. Basal and lowermost leaves long petiolate; leaf blade ovate to suborbicular, 8–13 × 7–8 cm, 2-pinnatisect. Petiole of middle cauline leaves 1–2(–3) cm; leaf blade ovate, ovate-elliptic, or suborbicular, 6–8 × 5–7 cm, (1 or) 2-pinnatisect; segments 2 or 3 pairs, 30–50(–70) × 5–7(–9) mm; lobules 2 or 3 pairs, lanceolate or linear-lanceolate, serrate. Uppermost leaves and leafy bracts pinnatisect or 3-lobed or entire. Capitula numerous, ellipsoidal or oblong, 2–2.5 mm in diam., pedicellate or subsessile, arranged in panicles; phyllaries densely arachnoid-tomentose. Marginal female florets 4–9. Disk bisexual florets 10–20; corolla limb purple. Cypselae oblong or obovoid.

Locality: Tsing Yi. *L. T. Lo 182.*

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Sichuan, Hunan, Jiangxi, Hubei, Henan, Shaanxi, Shanxi, Hebei, Nei Mongol, Heilongjiang, Liaoning, Jilin, Shandong, Jiangsu; Japan, Korea, Mongolia, Russia (Far East).

Ecology: Margins of forests, grassy hillslopes. Flowering & fruiting: Jul.–Oct.

Uses: Medicinal (folklore).

4. Artemisia indica Willd. 五月艾 **(Fig. 292; Photo 556)**

Sp. Pl. 3: 1846. 1800; S. Y. Hu, Quart. J. Taiwan Mus. 18(1–2): 136. 1965; FRPS 76(2): 117. 1991; FTW ed. 2, 4: 839. 1998; FGD 8: 206, fig. 123. 2007.

Artemisia vulgaris auct. non L.: FHK 187. 1861; FKH 147. 1912.

Perennial herbs or subshrubs, strongly aromatic; stem 30–120 cm tall, branched above, reddish brown, striate, base glabrescent, upper part arachnoid. Basal leaves withered at anthesis, ovate to ovate-oblong in outline, (1–)2-pinnatisect, primary lobes elliptic, terminal one largest, lateral ones 3–4 pairs, midvein winged. Median cauline leaves similar, ovate, ovate-oblong or elliptic, 4–9 × 2–5.5 cm, 1–2-pinnatisect, lobes elliptic lanceolate, linear-lanceolate to linear, base falsely stipulate, apex acute or acuminate, margin entire, coarsely serrate or lobed, terminal segment largest, 1.5–4 cm long, lateral ones 3–4 pairs, 1–2.5 cm. Upper leaves pinnately parted, with lateral lobes 1–3 pairs, or undivided and appeared as linear-lanceolate in shape. Leaf upper surfaces loosely cobwebby or glabrescent, lower surfaces densely covered with greyish arachnoid woolly hair. Capitula ovoid to oblong-ovoid, numerous, 2.5–4 × 2–2.5 mm, shortly pedunculate and with leafy bracts, arranged as leafy spike-like to racemose panicles. Involucres with 3–4 series of phyllaries, woolly hairy, with green midvein, margin broadly scarious; outer layer ovate and obtuse, 1.5 mm; middle and inner layers elliptic oblong to oblong, apex rounded, 2–3 mm. Receptacle small, convex. Marginal pistillate florets 4–8, corolla filiform-tubular, about 1–1.2 mm, apex minutely 2–3-lobed, glandular abaxially; style much longer than the corolla tube and conspicuously exserted, bifid, apex acute. Disk bisexual florets 8–12, corolla tubular, about 2 mm, upper half funnelform to campanulate, lower half narrowed, abaxial side glandular; anther bases obtuse, apical appendages elongate-triangular and long-acuminate; style slightly longer than the corolla, branched, truncate and penicillate at distal ends. Cypselae oblong, about 0.8–1 mm, truncate at both ends, faintly striate. Pappus absent.

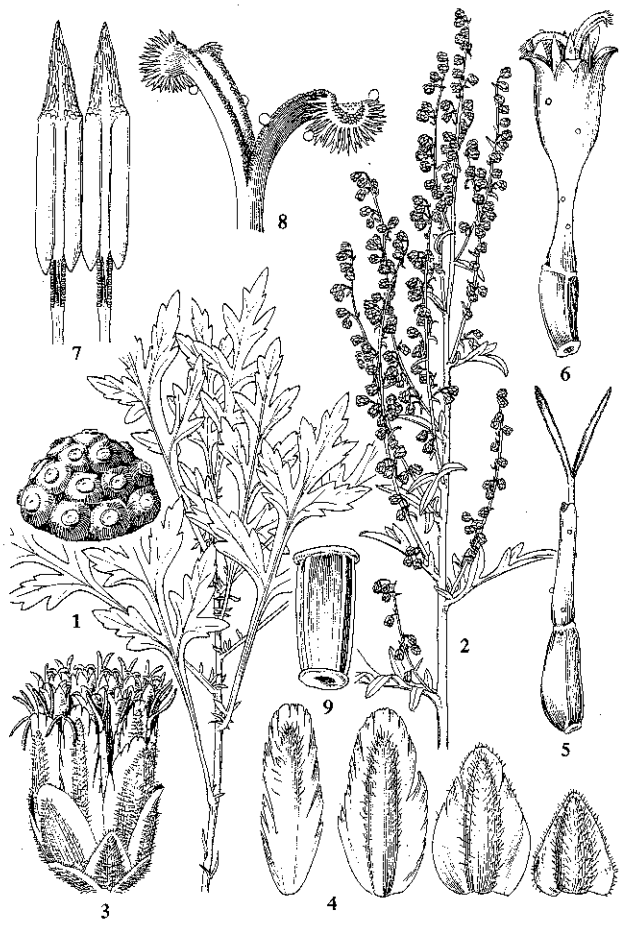


Figure 292. *Artemisia indica* Willd.

1. young shoot; *2.* flowering branch; *3.* capitulum; *4.* outer phyllary to innermost phyllary (right to left); *5.* marginal female floret; *6.* hermaphrodite disk floret; *7.* stamens; *8.* stylar branches of disk floret; *9.* cypsela; *10.* portion of receptacle. (drawn by P. Ma)

Locality: Hong Kong Island, Tai Mo Shan, Wu Kau Tang, Tai Po, Sheung Shui, High Island, Ping Chau, Lantau Island. *H. Y. Yeung 84* (CUHK); *S. Y. Hu 7658* (CUHK); *Y. S. Lau 154.*

Distribution: Widely distributed in China; C & S Asia.

Ecology: Farmlands and wastelands. Flowering: May–Sep.

Uses: Medicinal (folklore).

5. Artemisia princeps Pamp. 魁蒿

Nuovo Giorn. Bot. Ital., n. s. 36(4): 444. 1930; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 153. 1965; FRPS 76(2): 120. 1991; FGD 8: 207. 2007.

Perennial herbs, 40–150 cm tall; stem purplish brown or brown, striate, branched above, cobwebby tomentose or later glabrescent. Basal leaves withered at anthesis. Middle leaves petiolate, petiole 0.5–1.5 cm, leaf blade ovate to ovate-elliptic, 6–10 × 4–6 cm, pinnatipartite to pinnatisect, usually with 2 pairs of lateral lobes, elliptic or ovate-elliptic, apex obtuse, margin coarsely serrate or lobed, upper surfaces loosely arachnoid to glabrous, lower surfaces densely white cobwebby tomentose. Upper leaves smaller in size, 3-parted or undivided. Capitula heterogamous and disciform, elliptic-ovoid, 2.5–3.5 × 1.5–2.5 mm, sessile or subsessile, with small leafy bracts at base, arranged as spikes which form panicles. Phyllaries 3–4-seriate, with green line on midvein, cobwebby hairy, scarious along margin, outer ones small ovate, middle ones oblong, inner ones obovate-oblong, semi-membranous. Marginal female florets 5–7, corolla narrowly tubular, 2-lobed at apex; style long and exserted, branched. Central bisexual florets 4–9, corolla tubular, 5-lobed at apex, glandular outside; anther bases short-acute, apical appendages elongate-triangular; style with length subequal to corolla, divided, apex truncate and penicillate. Cypselae oblong, 1.5 mm, without pappus.

Locality: Mount Gough. *Y. S. Lau 1962.*

Distribution: S, SW, C & N China, Shaanxi, Gansu, Nei Mongol, Liaoning; also in Korea and Japan.

Ecology: Margins of forests, thickets. Flowering: Jul.–Nov.

Uses: Medicinal (folklore).

6. Artemisia capillaris Thunb. 茵陳蒿 **(Photo 557)**

Fl. Jap. 309. 1784; S. Y. Hu, Quart. J. Taiwan Mus. 18(1–2): 126. 1965; FRPS 76(2): 216. 1991; FTW ed. 2, 4: 837. 1998; FGD 8: 209. 2007.

Artemisia scoparia auct. non Waldst.: Check List HK Plants 68. 1993.

Annual or biennial herbs or subshrubs, aromatic; stem 30–150 cm tall, reddish brown or brown, faintly striate, base woody, branched above, silky pubescent or glabrescent. Basal and lower leaves ovate or elliptic, 2–5 × 1.5–3 cm, 2(–3)-pinnatisect, with 2–3 pairs of primary lateral segments, ultimate lobules straightly linear or linear-lanceolate, 5–10 × 0.5–2 mm, both surfaces densely silky pubescent, usually withered at anthesis. Median leaves ovate or elliptic, 2–4 × 1.5–3 cm, (1–)2-pinnatisect, leaf lobes straightly linear-filiform, 5–15 × 0.3–1 mm, base subsessile, apex acute, subglabrous. Upper leaves 3- or 5-sect. Capitula many, ovoid to ellipsoidal, 2–3 × 1.3–2 mm, shortly pedunculate, with small linear bracts at base, arranged as racemose panicles. Phyllaries 3–4-seriate, pale yellow with a green line at midvein, glabrous, margin scarious; outer ones small ovate, 1–1.3 mm; middle and inner layers ovate-oblong, 1.5–2 mm. Peripheral florets 6–10, female and fertile, corolla conical-tubular, 0.6–0.7 mm long, apically 2–3-lobed, glandular on abaxial side; style divided, branches long and exserted, acute. Central florets 3–7, bisexual but infertile, corolla ellipsoidal-tubular, 1.5–1.8 mm, 5-lobed at apex, abaxially glandular; anther bases obtuse, apical appendages elongate-triangular; style short, clavate form, apex swollen, slightly bifid or not, ovary vestigial. Cypselae obovate-oblong, length 0.8–1 mm, without pappus.

Locality: Sai Kung, Port Island, Tai A Chau, Ping Chau. *P. S. Choi 469; Y. W. Lam 288; S. Y. Hu 8733* (CUHK).

Distribution: Guangdong, Guangxi, Sichuan, Shaanxi, Hebei, Liaoning, Shandong, Henan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Zhejiang, Fujian, Taiwan; Russia (Far East), Korea, Japan, Philippines, Cochinchina via Malaysia to Indonesia.

Ecology: Coastal grasslands. Flowering: Jul.–Oct.

Uses: Medicinal (folklore).

7. Artemisia japonica Thunb. 牡蒿 **(Fig. 293; Photo 558)**

Fl. Jap. 308. 1784; FHK 186. 1861; FKH 147. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 18(3–4): 233. 1965; FRPS 76(2): 241. 1991; FTW ed. 2, 4: 839. 1998; FGD 8: 210. 2007.

Perennial aromatic herbs; stem 40–130 cm tall, striate, purplish brown or brown, branched at upper portion, puberulous and later glabrescent. Leaves subsessile or sessile, loosely puberulous or glabrous on both sides. Basal and lower leaves obovate or spatulate, 4–5.5 × 1.5–2 cm, apex rounded and irregularly toothed, usually withered at flowering stage. Median leaves spatulate-cuneate, 2–5.5 × 0.4–1.5 cm, apical 1/3 incisely lobed and toothed, and / or obliquely pinnatifid from apex to centre, usually with small linear false stipules at base. Upper leaves smaller in size. Capitula numerous, arranged as leafy racemose panicles, shape ovoid-ellipsoidal, 2–2.5 × 1.5–2 mm, heterogamous and disciform, sessile or with tiny peduncles. Phyllaries 3–4-seriate, imbricate, abaxially glabrous, with green line along midvein, margin scarious; outer ones ovate, 1–1.2 mm, apex obtuse; middle ones ovate-oblong, 1.5–1.8 mm, apex rounded; inner ones oblong, length about 2 mm, apex rounded, broadly scarious. Marginal pistillate florets 3–8, fertile, corolla conical-tubular, apex 2–3-lobed; style branched, long and exserted, acute. Central florets 5–10, bisexual but infertile, corolla ellipsoidal-tubular; anther bases obtuse, apical appendages elongate-triangular and long-acuminate; style short and claviform, apex swollen, slightly divided or not, vestigial ovary inconspicuous. Cypselae obovate-oblong, faintly striate, about 1 mm. Pappus absent.

Locality: Shing Mun, Kowloon Peak, Tai Mo Shan, Tai Po, Castle Peak, Ping Chau. *L. T. Lo 185; Y. W. Lam 1134; S. Y. Hu 11290* (CUHK).

Distribution: Guangdong, Guangxi, Guizhou, Yunnan, Xizang, Sichuan, Gansu, Shaanxi, Shanxi, Liaoning, Henan, Hubei, Hunan, Jiangxi, Anhui, Shandong, Jiangsu, Zhejiang, Fujian, Taiwan; Russia (Far East), Korea, Japan, Philippines, Vietnam, Thailand, Myanmar, India to Afghanistan.

Ecology: Margins of forests, grassy slopes. Flowering: Jul.–Oct.

Uses: Medicinal (folklore).

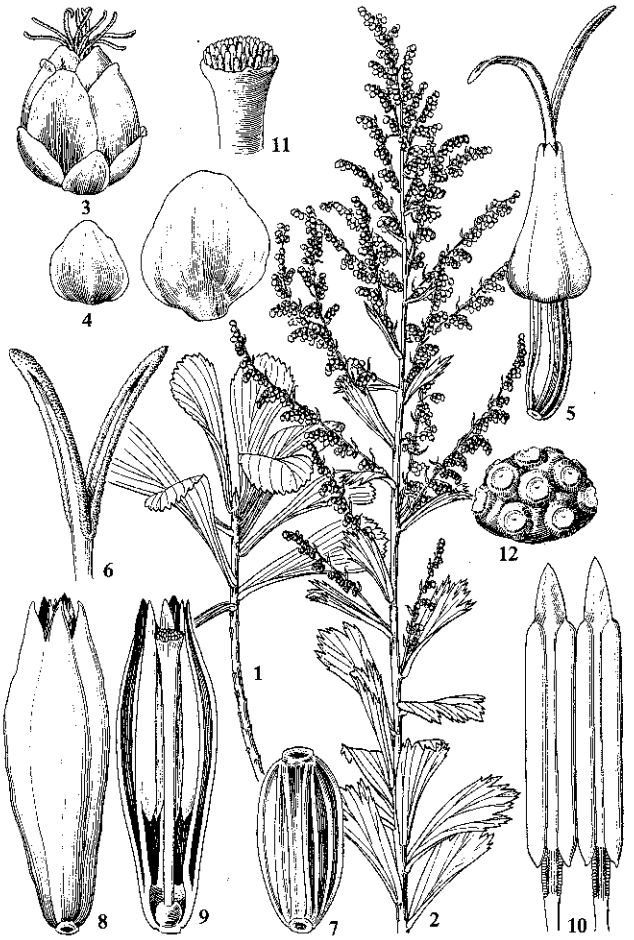


Figure 293. *Artemisia japonica* Thunb.

1. vegetative shoot; *2.* flowering branch; *3.* capitulum; *4.* outer and inner phyllaries (left to right); *5.* marginal female floret; *6.* stylar branches of marginal floret; *7.* mature cypsela; *8.* disk bisexual but functionally male floret; *9.* vertical section of disk floret; *10.* stamens; *11.* apex of style of disk floret; *12.* portion of receptacle. (drawn by P. Ma)

75. Cotula L. 山芫荽属

Small annual or perennial herbs, often creeping; stem branched mostly at base. Leaves alternate, or sometimes opposite or rosulate, pinnatifid to pinnatisect. Capitula small, heterogamous and disciform, pedunculate, solitary, axillary, or opposite to leaves. Involucres dish-like, hemispherical or campanulate; phyllaries in 2–3 series, oblong, herbaceous green with margin scarious. Receptacle flat or convex, naked. Marginal florets female and fertile, 1–many-seriate, corolla absent with the pistils only. Central florets hermaphrodite and fertile, corolla tubular, yellow, 4–5-lobed apically; anther bases obtuse, apical appendages lanceolate; stylar branches obtuse to truncate, or sometimes unbranched. Cypselae oblong or obovate, dorsiventrally compressed, glandular, margin with thicken wings which extended to the apex, base stipitate, especially for the marginal cypselae. Pappus absent.

About 75 species mainly distributed in S hemisphere; two species in China; one species as weed in Hong Kong.

1. Cotula anthemoides L. 芫荽菊 **(Fig. 294)**

Sp. Pl. 891. 1753; FHK 185. 1861; FKH 146. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 19(3–4): 204. 1966; FRPS 76(1): 134. 1983; FGD 8: 200, fig. 119. 2007.

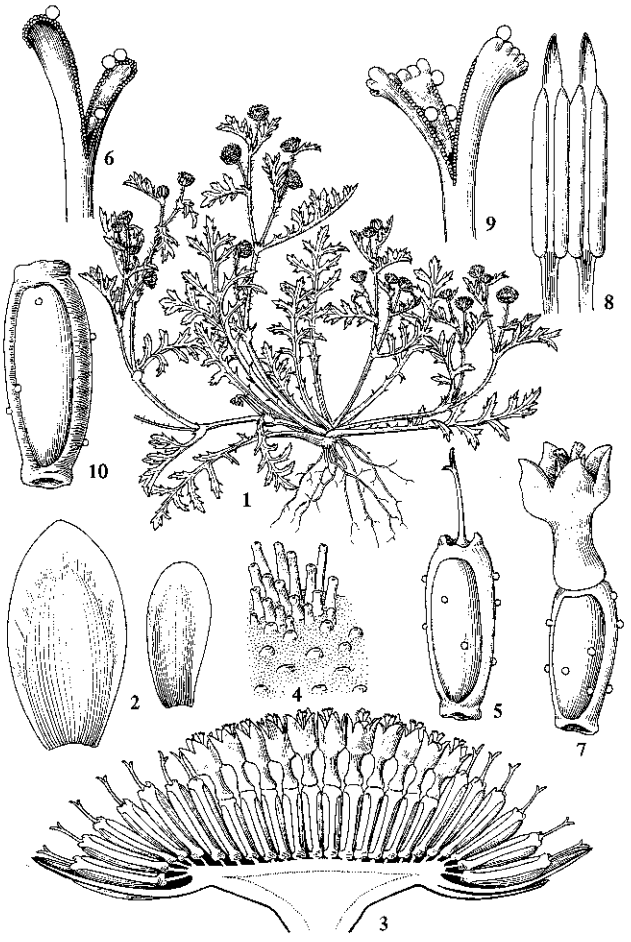


Figure 294. *Cotula anthemoides* L.
1. flowering plant; *2.* outer phyllary and inner phyllary (left to right); *3.* vertical section of capitulum; *4.* portion of receptacle; *5.* marginal female floret; *6.* stylar branches of marginal floret; *7.* disk floret; *8.* stamens; *9.* stylar branches of disk floret; *10.* cypsela. (drawn by P. Ma)

Small annual herbs; stem procumbent or decumbent, 4–15 cm or longer, branched and diffuse, glabrous or brownish villose. Leaves alternate, subglabrous or loosely villose on both surfaces, bipinnatisect, primary lateral lobes elliptic-oblong, about 5 pairs, terminal lobes triangular to lanceolate, shortly acute; basal leaves oblanceolate-oblong, 3–5 × 1–2 cm; median cauline leaves oblong or elliptic, 1.5–2.5 × 0.7–1.6 cm, base semi-amplexicaul. Capitula heterogamous and disciform, 4–7 mm across, solitary on branch terminals, axillary, or opposite to leaves; peduncle 5–10 mm. Involucres dish-like; phyllaries 2-seriate, oblong, green with a red line on midvein, margin scarious, apex obtuse to rounded; outer layer larger in size, about 2–3 mm; inner layer smaller, 1–1.5 mm. Receptacle flat, naked. Marginal florets pistillate, in many rows, corolla none with the pistils only. Disk florets hermaphrodite, corolla tubular, yellow, 4-lobed at apex. Cypselae obovate-oblong, dorsiventrally compressed, 1–1.2 × 0.8 mm, smooth, glandular, margin broadly and thickly winged, base with stalks derived from the receptacle, especially appeared on the outer cypselae. Pappus absent.

Locality: Lai Chi Kok, Tai Po, Sha Tin, High Island, Lantau Island. *Y. S. Lau 243; W. J. Tutcher 9163; S. Y. Hu 12909* (CUHK).

Distribution: Guangdong, Guangxi, Yunnan, Fujian; Indochina, India, Pakistan, Africa.

Ecology: Wet places near streams, paddy fields. Flowering: Jul.–Apr. of the following year.

76. Soliva Ruiz & Pav. 裸柱菊属

Small annual herbs. Leaves alternate, pinnatisect. Capitula heterogamous, disciform, sessile and axillary. Involucres dish-like to hemispherical; phyllaries 2-seriate, margin scarious. Receptacle convex or conical, naked. Outer florets in many series, female and fertile, corolla absent with the pistils only; style shortly branched. Central florets bisexual but usually infertile, corolla tubular, 3–4-lobed at apex; anther bases obtuse; style usually capitate at tip. Cypselae of pistillate florets dorsiventrally compressed, margins with wings which extended to the apex, style persistent. Pappus absent.

Eight species native to America and Australia; one species naturalized in China; it also occurs as a weed in Hong Kong.

1. Soliva anthemifolia (Juss.) Sweet 裸柱菊 **(Fig. 295; Photo 559)**

Hort. Brit. 243. 1826; FKH 146. 1912; S. Y. Hu, Quart. J. Taiwan Mus. 21(3–4): 162. 1968; FRPS 76(1): 135. 1983; FTW ed. 2, 4: 1068. 1998.

Gymnostyles anthemifolia Juss., Ann. Mus. Natl. Hist. Nat. 4: 262. 1804.

Small prostrate annual herbs; stem short and seems to be stemless, stoloniferous. Leaves alternate, forming rosette at base, petioles 2–3 cm, leaf blade spatulate or oblanceolate, 3–13 × 1–2.5 cm, 2–3-pinnatisect with segments linear-elliptic, apex acute, margin entire or irregularly 1–3-dentate, subglabrous or villose on both surfaces. Capitula subglobose, 7–11 mm in diam., sessile and axillary to

leaves, solitary or sometimes with few heads aggregated at basal nodes. Involucres dish-like; phyllaries 2-seriate, ovate-lanceolate, apex acuminate, herbaceous with margin scarious, hairy on abaxial side; outer phyllaries 3–3.5 mm long, 1–1.2 mm wide; inner ones 3–4 × 0.3–0.6 mm. Receptacle convex, naked. Outer florets in many series, female, corolla absent with pistil only, fertile; style minutely divided. Central florets few, about 8–12, bisexual but usually functionally staminate, corolla tubular, yellow, 1.2–2 mm, apex 3-lobed, base narrowed; stamens 3, anthers enclosed, base obtuse, apical appendages acute; style without branches, apex capitate and flat. Cypselae oblanceolate, 2–2.5 × 0.8–1.1 mm, dorsiventrally compressed, margin with thicken rugose wings which extended to the apex, colour brown with the wings orange-brown, villous near the apical region, style persistent. Pappus none.

Locality: Kong Sin Wan, Wu Kai Sha, Tai Po, Fanling, Sheung Shui, Yuen Long, Lamma Island, Lantau Island. *Y. S. Lau 1774, 1792; S. Y. Hu 6772* (CUHK).

Distribution: Hainan, Guangdong, Jiangxi, Fujian, Taiwan; native to S America.

Ecology: Wastelands, cultivated lands. Flowering: Dec.–Apr. of the following year.

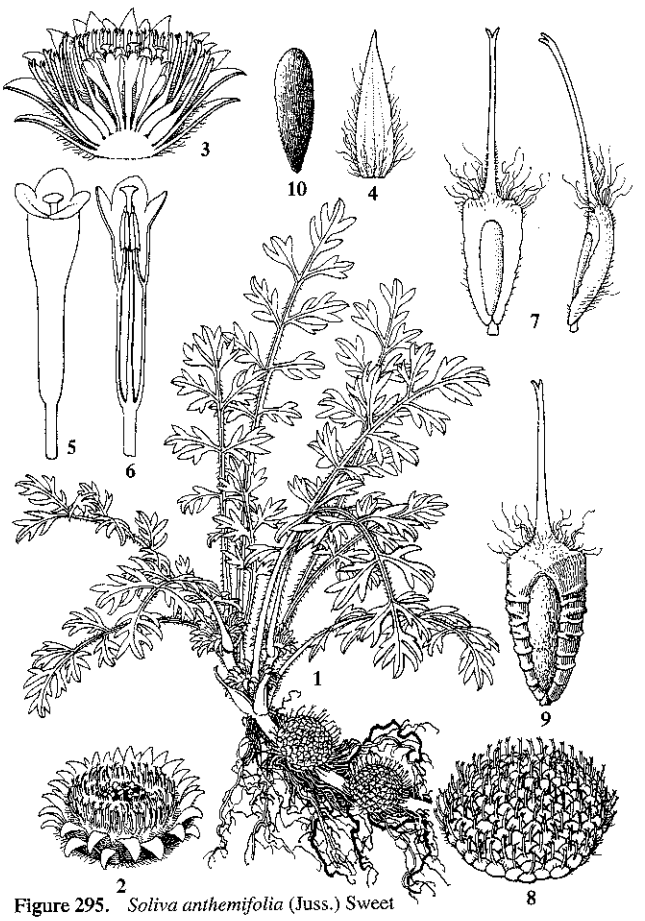


Figure 295. *Soliva anthemifolia* (Juss.) Sweet

1. flowering and fruiting plant; *2*. capitulum; *3*. vertical section of capitulum; *4*. phyllary; *5*. central floret; *6*. vertical section of central floret; *7*. dorso-ventral view and lateral view of female floret; *8*. fruiting capitulum; *9*. cypsela; *10*. seed. (drawn by X. L. Zeng)

LIST OF CONTRIBUTORS (VOLUME 3) *(in alphabetical order)*

AU Wai-chun[4] 區偉臻	:	Stylidiaceae
DENG Yun-fei[1] 鄧雲飛	:	Acanthaceae
GAO Chun-ming[1] 高春明	:	Acanthaceae
HU Qi-ming[1] 胡啟明	:	Campanulaceae, Goodeniaceae, Lamiaceae (Labiatae), Lentibulariaceae, Rubiaceae, Solanaceae
HU Shiu-ying[3] 胡秀英	:	Asteraceae (Compositae)
LAI Chuen-chi, Patrick[4] 黎存志	:	Flora Conservation in Hong Kong
LAU Kai-man[5] 劉啟文	:	*Blumea* [Asteraceae]
LI ping-tao[2] 李秉滔	:	Apocynaceae, Asclepiadaceae, Convolvulaceae, Loganiaceae
WANG Fa-guo[1] 王發國	:	Orobanchaceae
WONG Yan[3] 王茵	:	Asteraceae (Compositae)
WU De-lin[1] 吳德鄰	:	Buddlejaceae, Plantaginaceae, Scrophulariaceae
XIA Nian-he[1] 夏念和	:	Acanthaceae, Bignoniaceae, Boraginaceae, Callitrichaceae, Convolvulaceae, Cuscutaceae, Gentianaceae, Menyanthaceae, Myoporaceae, Oleaceae, Pedaliaceae, Verbenaceae
XING Fu-wu[1] 邢福武	:	Orobanchaceae
XU Bing-qiang[1] 許炳強	:	Callitrichaceae, Caprifoliaceae, Oleaceae, Pedaliaceae
YIP Kwok-leung[4] 葉國樑	:	Stylidiaceae, Flora Conservation in Hong Kong
ZHENG Yong-li[1] 鄭永利	:	Gesneriaceae

1 South China Botanical Garden/South China Institute of Botany, Chinese Academy of Sciences, Xingke Road 723, Tianhe District, Guangzhou 510650, China.
2 Department of Forestry, South China Agricultural University, Wushan, Tianhe, Guangzhou 510642, China.
3 Herbarium, Biology Department, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong, China.
4 The Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department, Room 737, 303 Cheung Sha Wan Road, Kowloon, Hong Kong, China.
5 Hong Kong Chinese Medical Research Institute, 212 Johnston Road, 1st Floor, Hong Kong, China.

INDEX TO CHINESE FAMILY AND PLANT NAMES

Numbers refer to page numbers.

一畫

一串紅, 102, Photo 194
一枝黃花, 309, Photo 540
一枝黃花屬, 309
一點紅, 295, Photo 523
一點紅屬, 294

二畫

丁公藤, 56, Photo 108
丁公藤屬, 56
七爪龍, 64, Photo 119
七里明, 290
九節, 230, Photos 416, 417
九節屬, 230
二花蝴蝶草, 147, Photo 268
二萼豐花草, 221, Photo 394
十字架樹, 188, Photo 333
十萬錯屬, 173
三七草, 296
三七草屬, 296
三脈紫菀, 318
三裂葉薯, 69, Photo 130
三裂葉蟛蜞菊, 271, Photo 484
三葉臭金鳳, 84
三萼木, 237

三畫

下田菊, 303, Photo 530
下田菊屬, 303
千里光, 292, Photo 518
千里光屬, 292
千層紙, 189
千頭艾納香, 289, Photo 511
叉柱花屬, 163
土丁桂, 56, Photos 109, 110
土丁桂屬, 56
大丁草屬, 278
大吳風草, 293, Photo 520
大吳風草屬, 293
大尾搖, 77, Photo 140
大沙葉屬, 234
大果巴戟, 219
大花水蓑衣, 169
大花老鴉嘴, 163, Photo 298
大花忍冬, 242, Photo 445
大花金鈕扣, 269, Photo 481
大花茄, 49
大花曼陀羅, 44
大青, 92, Photos 172, 173
大青屬, 90
大苞耳草, 213, Photo 378
大帽山耳草, 215
大葉石上蓮, 159, Photo 293
大葉石龍尾, 135, Photo 252
大葉紫珠, 88
大葉鴛鴦茉莉, 45
大葉鈎藤, 205, Photo 364
大獨腳金, 141
大頭艾納香, 287
大頭蓁吾, 294, Photo 521
大鴛鴦茉莉, 45
大麗花, 263, Photo 472
大麗花屬, 263
女貞, 133, Photo 249
女貞屬, 131
小一點紅, 294, Photo 522
小心葉薯, 68, Photo 129
小舌菊, 314
小舌菊屬, 314
小果草, 139
小果草屬, 139
小花十萬錯, 174, Photo 313
小苦蕒屬, 257
小苞黃脈爵床, 166
小牽牛, 59, Photos 112, 113
小牽牛屬, 58
小魚仙草, 103
小葉九節, 230
小葉月桂, 129
小葉水蓑衣, 169
小葉馬纓丹, 84, Photo 155
小葉假槐蘇, 120, Photos 221, 222
小葉雞屎樹, 227
小葉鐵矢米, 229
小駁骨, 184, Photo 327
小蓬草, 313
山一籠雞, 170, Photo 307
山大刀, 230
山石榴, 236, Photo 430
山石榴屬, 236
山牡荊, 95, Photo 180
山芫荽屬, 327
山指甲, 132, Photos 246, 247
山苦蕒, 257
山香, 113
山香屬, 113
山黃皮, 238
山黃菊, 280, Photo 493
山黃菊屬, 280
山萵苣, 253
山蒲桃, 236
山銀花, 242
山豬菜, 71, Photo 132
山橙, 25, Photos 36, 37
山橙屬, 25
山蟛蜞菊, 271
弓果藤, 35, Photos 60, 61
弓果藤屬, 35

四畫

中華小苦蕒, 257, Photo 465
中華石龍尾, 136, Photo 255
中華孩兒草, 179, Photos 319
中華雛花, 112, Photo 207
五月艾, 325, Photo 556
五爪金龍, 63, Photo 118
五代同堂茄, 48
五星花, 217, Photo 386
五星花屬, 217
五彩蘇, 108
六月雪, 220
六耳鈴, 288, Photos 503, 504, 505, 506
六棱菊, 283
六棱菊屬, 282
六道木屬, 242
天人菊, 307
天人菊屬, 307
天女散花龍吐珠, 90
天名精, 281
天名精屬, 281
天芥菜屬, 76
天星藤, 36, Photos 62, 63
天星藤屬, 36
孔雀草, 309
少花狸藻, 192, Photo 342
少花腰骨藤, 29

少花龍葵, 48, Photo 90
巴戟天屬, 219
心萼薯, 68, Photos 127, 128
方骨草, 215
日本蛇根草, 218, Photo 388
月光花, 65
月桂, 129
木玫瑰, 70, Photo 131
木犀, 128
木犀科, 124
木犀屬, 128
木犀欖屬, 131
木蝴蝶, 189, Photo 337
木蝴蝶屬, 189
毛大丁草, 279, Photo 492
毛山豬菜, 72
毛果短冠草, 143
毛茄, 49
毛茉莉, 128, Photo 234
毛脈翅果菊, 254
毛茶, 232, Photo 421
毛茶屬, 232
毛喉牛奶菜, 40, Photos 68, 69
毛葉蝴蝶草, 147, Photos 266, 267
毛氈草, 290, Photo 512
毛雞矢藤, 226, Photo 406
毛麝香, 137, Photo 256
毛麝香屬, 137
毛鉤藤, 205, Photo 365
水田白, 11, Photos 1, 2
水皮蓮, 75, Photos 137, 138
水虎尾, 106
水珍珠菜, 105, Photo 198
水苦賈, 138
水茄, 49, Photo 95
水馬齒, 121
水馬齒科, 120
水馬齒屬, 121
水壺藤屬, 27
水團花, 207, Photo 367
水團花屬, 207
水蓑衣, 168, Photos 305, 306
水蓑衣屬, 168
水橫枝, 235
水蘇屬, 114
水蠟燭屬, 106
火花離根香, 202
火焰樹, 191, Photos 339, 340
火焰樹屬, 191
爪哇楨桐, 90
牛奶菜屬, 39
牛白藤, 212, Photo 376
牛矢果, 129, Photos 238, 239
牛尾草, 109
牛茄子, 49, Photos 93, 94
牛眼馬錢, 12, Photos 5, 6
牛膝菊, 260, Photo 468
牛膝菊屬, 259
王子薯, 62

五畫

冬紅花, 94, Photo 177
冬紅屬, 94
加勒比飛蓬, 319, Photo 548
北越鈎藤, 206
半枝蓮, 116, Photos 212, 213
半邊蓮, 198, Photo 352
半邊蓮屬, 198
可愛花, 177, Photo 316
可愛花屬, 177
台灣女貞, 132, Photos 242, 243
台灣斑鳩菊, 300
四子馬藍, 172, Photo 311
巨勝, 185
打碗花, 57
打碗花屬, 57
母草, 150, Photo 277
母草屬, 149
玄參科, 133
玉葉金花, 209, Photo 370
玉葉金花屬, 208
瓜子金, 34
田玄參, 146
田基黃, 311, Photo 542
田基黃屬, 311
田野菟絲子, 74, Photo 136
白子菜, 296, Photo 525
白毛雞矢藤, 227, Photos 407, 408
白牛膽, 285
白舌紫菀, 317, Photo 547
白牡荊, 94
白果山黃皮, 239
白果香楠, 239, Photo 439
白花地膽草, 301
白花泡桐, 133, Photo 250
白花苦燈籠, 233, Photo 423
白花鬼針草, 265, Photo 474
白花蛇舌草, 211, Photo 373
白花燈籠, 91, Photos 170, 171
白背楓, 123, Photo 225
白背蔓荊, 94
白苞蒿, 324, Photos 554, 555
白香楠屬, 239
白酒草, 312
白酒草屬, 312
白馬骨, 220
白馬骨屬, 220
白骨壤, 84
白棠子樹, 87
白葉藤, 35
白葉藤屬, 35
白頭婆, 306
白蟾, 235, Photo 429
白蠟樹, 124
白蠟樹屬, 124
白鶴藤, 59
石胡荽, 322, Photo 553
石胡荽屬, 322
石梓, 96, Photo 183
石梓屬, 96
石龍尾, 135
石龍尾屬, 135
石薺苧, 102, Photo 195
石薺苧屬, 102
石蘿摩, 32, Photos 53, 54
石蘿摩屬, 32

六畫

光梗闊苞菊, 287
光葉蝴蝶草, 148
光葉翼萼, 148
光耀藤, 300
光蠟樹, 125, Photos 226, 227
全緣葉紫珠, 85, Photo 157
列當科, 154
同瓣草, 197, Photo 351
同瓣草屬, 197
吊球草, 113
向日葵, 263, Photo 471
向日葵屬, 262
回回蘇, 105
地旋花, 69
地旋花屬, 69
地膽草, 301, Photo 529
地膽草屬, 301
地錢, 114, Photo 208
多毛茜草樹, 239, Photos 437, 438
多枝婆婆納, 139
多花茜草, 224, Photo 400
多莖鼠麴草, 285
多裂翅果菊, 253
多裂魚黃草, 70
多頭苦賈菜, 256
如意草, 84
尖山橙, 26, Photos 38, 39
尖尾楓, 87, Photo 162
尖果母草, 151
尖苞帚菊, 276, Photo 489
尖帽草屬, 10
尖齒臭茉莉, 93
尖瓣花, 195, Photo 347

尖瓣花屬, 194
早田氏爵床, 181
曲枝馬藍, 171, Photo 309
朱唇, 102
灰毛大青, 93, Photo 175
百日菊, 261
百日菊屬, 261
百能葳, 270, Photo 483
百能葳屬, 270
百寶花, 123
羊耳菊, 285, Photos 495, 496
羊耳菊屬, 285
羊角拗, 26, Photos 40, 41
羊角拗屬, 26
羊角藤, 219, Photo 390
羊乳, 195, Photo 349
羽芒菊, 260, Photo 469
羽芒菊屬, 260
老鼠簕, 164, Photos 299, 300
老鼠簕屬, 164
老鴉嘴屬, 161
耳草, 212, Photo 375
耳草屬, 209
肉葉鞘蕊花, 109
艾納香, 288, Photos 501, 502
艾納香屬, 287
艾菜, 319, Photo 549
血見愁, 99, Photo 186

七畫

呂宋莢蹏, 244
夾竹桃, 20, Photo 24
夾竹桃科, 16
夾竹桃屬, 20
希美利, 232
忍冬, 241, Photo 443
忍冬科, 240
忍冬屬, 241
扶郎花, 278
扶郎花屬, 278
扭序花, 180
扭序花屬, 180
扭肚藤, 127
旱田草, 152, Photos 283, 284
杏葉兔兒風, 277, Photo 490
杜仲藤, 27, Photo 42
杜虹花, 88, Photo 165
杜根藤, 183, Photo 325
沙苦黃屬, 255
牡荊, 96
牡荊屬, 94
牡蒿, 326, Photo 558
秀英耳草, 215, Photo 384
芒毛苣苔, 158, Photos 291, 292
芒毛苣苔屬, 158
見霜黃, 290, Photo 513
豆腐柴屬, 97
車前草, 122, Photo 224
車前草科, 122
車前草屬, 122

八畫

乳茄, 48, Photos 91, 92
亞麻, 186
兔兒風屬, 276
刺天茄, 50
刺瓜, 42, Photos 75, 76
刺石梓, 96
刺齒泥花草, 153
刺蕊草屬, 105
卷毛新耳草, 217
夜來香, 39, Photo 67
夜來香屬, 38
夜香牛, 298, Photo 526
夜香樹, 46, Photos 83, 84
夜香樹屬, 46
帚菊屬, 276
延命菊, 320
拉拉藤, 223, Photo 399
拉拉藤屬, 223
東方烏檀, 206
東北水馬齒, 121
東風草, 287, Photos 499, 500
枇杷葉紫珠, 87, Photo 163
枝花李櫬, 130, Photo 240
林澤蘭, 305, Photo 537
松葉耳草, 210
泥花草, 152, Photo 282
泥胡菜, 275
泥胡菜屬, 274
狗牙花, 28, Photo 30
狗牙花屬, 23
狗肝菜, 178, Photo 318
狗肝菜屬, 178
狗骨柴, 237, Photos 432, 433
狗骨柴屬, 237
芳香鞘蕊花, 109
芝麻, 185, Photos 328, 329
芙蓉菊, 323
芙蓉菊屬, 322
花柱草, 200, Photo 356
花柱草科, 200
花柱草屬, 200
金苞花, 180, Photo 322
金苞花屬, 180
金草, 215, Photo 383
金魚草, 143, Photo 262
金魚草屬, 142
金鈕扣, 268, Photos 479, 480
金鈕扣屬, 268
金盞花, 280
金盞花屬, 280
金盞銀盤, 266
金腰箭, 267, Photo 478
金腰箭屬, 267
金銀花, 241
金燈藤, 72, Photo 134
金錢豹, 195, Photo 348
長果母草, 151
長花忍冬, 242, Photo 444
長花厚殼樹, 79, Photos 144, 145
長春花, 17, Photo 17
長春花屬, 17
長柄女貞, 133, Photo 248
長苞紫珠, 86
長圓葉艾納香, 290, Photos 514, 515
長節耳草, 213, Photo 377
長葉車前, 122, Photo 223
長隔木, 232, Photo 420
長隔木屬, 232
長蒴母草, 151, Photo 279
阿拉伯婆婆納, 138, Photo 257
青藤仔, 127
非洲凌霄, 186
非洲菊, 278
芫荽菊, 327

九畫

匍莖栓果菊, 252, Photo 458
南山藤, 40, Photo 70
南山藤屬, 40
南方菟絲子, 73, Photo 135
南美馬鞭草, 82
厚殼樹, 80, Photos 146, 147
厚殼樹屬, 79
厚藤, 65, Photos 122, 123
厚邊木犀, 129, Photo 237
垂茉莉, 92
娃兒藤, 41, Photos 71, 72
娃兒藤屬, 41
孩兒草, 179, Photos 320, 321
孩兒草屬, 179
挖耳草, 193, Photo 343
指葉山豬菜, 70
柔毛艾納香, 289, Photos 509, 510
柔弱斑種草, 76, Photo 139
柚木, 89
柚木屬, 89
枸杞, 45, Photos 81, 82

枸杞屬, 45
柳葉斑鳩菊, 297
毒根斑鳩菊, 299, Photo 528
洋芍藥, 263
洋金花, 44, Photos 79, 80
洋紫蘇, 108
流蘇子, 231
流蘇子屬, 231
流蘇樹, 130
流蘇樹屬, 130
活血丹, 114, Photos 209, 210
活血丹屬, 114
炮仗花, 187, Photo 332
炮仗藤屬, 187
珊瑚花, 183
珊瑚樹, 244, Photos 449, 450
玻璃苣, 75
秋鼠麴草, 284
穿心蓮, 166, Photos 302, 303
穿心蓮屬, 166
穿根藤, 231
紅仙丹花, 234
紅芽大戟, 222, Photo 398
紅芽大戟屬, 222
紅花耳草, 214
紅酒杯花, 19, Photo 21
紅紫珠, 87, Photo 164
紅絲線, 54, Photo 106
紅絲線屬, 54
紅葉金花, 208, Photo 368
紅樓花, 176, Photo 315
紅樓花屬, 176
美娘子, 97
美麗銀背藤, 61, Photo 116
胡麻, 186
胡麻草, 142
胡麻草屬, 141
胡蔓藤, 13
苣荬菜, 250, Photo 454
苦玄參, 146
苦玄參屬, 146
苦苣苔科, 155
苦苣菜, 251, Photo 455
苦苣菜屬, 250
苦郎樹, 90, Photos 167, 168
苦楹藍, 153, Photo 285
苦楹藍科, 153
苦楹藍屬, 153
苦楹木, 125, Photo 228
苦蘵, 52, Photos 100, 101
苦荬菜, 255, Photo 462
苦荬菜屬, 256
茄, 50, Photo 97
茄科, 43
茄葉斑鳩菊, 300
茄屬, 46
茉莉花, 127, Photo 233
虹眼, 140, Photo 258
虹眼屬, 139
重瓣臭茉莉, 93, Photo 176
陌上菜, 150, Photo 278
風毛菊, 275
風毛菊屬, 275
風鈴木, 188
風鳳菜, 296
風箱樹, 204, Photo 363
風箱樹屬, 204
風輪菜屬, 103
飛蓬屬, 318
飛機草, 305, Photos 535, 536
香科科屬, 99
香茶菜, 109, Photos 201, 202
香茶菜屬, 109
香港大沙葉, 234, Photos 425, 426
香港耳草, 214, Photo 381
香港紫菀, 317
香港雙蝴蝶, 14, Photos 13, 14
香絲草, 313
香楠, 238, Photo 434
香澤蘭屬, 306
香薷屬, 115

十畫

倒吊筆屬, 22
凌霄, 186, Photos 330, 331
凌霄屬, 186
唇形科, 97
唇柱苣苔, 157, Photos 289, 290
唇柱苣苔屬, 157
姬苗, 10
徐長卿, 42, Photos 73, 74
桂花, 128, Photos 235, 236
桟葉老鴉嘴, 162
桔梗, 196, Photo 350
桔梗科, 194
桔梗屬, 196
栓果菊屬, 252
海南杯冠藤, 43, Photos 77, 78
海南草海桐, 201, Photos 359, 360
海南槽裂木, 208
海島藤, 34, Photo 59
海島藤屬, 34
海灘牽牛, 65
海欖雌, 84, Photos 153, 154
海欖雌屬, 83
海杧果, 19, Photos 22, 23
海杧果屬, 19
烏口樹, 233
烏口樹屬, 233
烏檀, 206, Photo 366
烏檀屬, 206
狹花心萼薯, 67
狹葉母草, 151
狹葉花柱草, 200, Photos 357, 358
狸藻科, 191
狸藻屬, 192
益母草, 118, Photo 219
益母草屬, 118
破布木, 78, Photo 142
破布木屬, 78
素馨屬, 125
翅果菊, 253, Photos 459, 460
翅果菊屬, 253
翅煙苣, 287
脂麻, 185
脂麻科, 185
脂麻屬, 185
脈耳草, 212
荔枝草, 100, Photos 191, 192
荔枝菊, 311
草海桐, 201, Photos 361, 362
草海桐科, 201
草海桐屬, 201
茵陳蒿, 326, Photo 557
茶條樹, 243
迷你虎耳草, 149, Photos 275, 276
馬利筋, 32, Photos 51, 52
馬利筋屬, 32
馬刺薊, 273
馬鈴苣苔屬, 159
馬鈴薯, 47, Photo 85
馬蹄金, 55, Photos 107
馬蹄金屬, 55
馬錢科, 10
馬錢屬, 11
馬藍, 171, Photo 310
馬藍屬, 169
馬鞭草, 83, Photo 151
馬鞭草科, 80
馬鞭草屬, 82
馬蘭, 315
馬蘭屬, 315
馬纓丹, 84, Photo 156
馬纓丹屬, 84
鬼羽箭, 140
鬼針草, 265, Photo 475
鬼針草屬, 264
鬼燈籠, 91
茜木, 234
茜草科, 203
茜草屬, 223
茜樹, 239, Photos 435, 436
茜樹屬, 238

茼蒿, 319, Photo 550
茼蒿屬, 319
荇菜, 74
荇菜科, 74
荇菜屬, 74

十一畫

假九節, 230, Photo 418
假半邊蓮, 198, Photo 353
假地膽草, 302
假地膽草屬, 302
假杜鵑, 165, Photo 301
假杜鵑屬, 165
假厚藤, 65, Photo 124
假茉莉, 90
假桂烏口樹, 233, Photo 422
假臭草, 307, Photo 539
假馬齒莧, 145, Photo 265
假馬齒莧屬, 145
假馬鞭, 83, Photo 152
假馬鞭屬, 83
假連翹, 89, Photo 166
假連翹屬, 89
假煙葉樹, 47, Photos 86, 87
假酸漿, 52
假酸漿屬, 52
假澤蘭屬, 303
假糙蘇屬, 120
偏花黃芩, 117
剪刀股, 256, Photos 463, 464
匙葉鼠麴草, 284, Photo 494
匙羹藤, 38, Photos 65, 66
匙羹藤屬, 37
曼陀羅, 44
曼陀羅屬, 44
堅荚樹, 244
基及樹, 78, Photo 143
基及樹屬, 78
婆婆納屬, 138
婆婆針, 266, Photo 476
密蒙花, 123
常綠荚蒾, 244, Photos 451, 452
接骨木屬, 240
接骨草, 240, Photos 440, 441
斜脈粗葉木, 229, Photo 413
斜基粗葉木, 227, Photo 409
旋花, 57
旋花科, 54
旋蒴苣苔, 156
旋蒴苣苔屬, 156
梁子菜, 291
梔子, 235, Photos 427, 428
梔子屬, 235
涼粉草, 111, Photo 205
涼粉草屬, 110
清香藤, 126, Photos 230, 231
牽牛, 67, Photo 126
球花毛麝香, 137
球花馬藍, 170, Photo 308
球菊, 282
球菊屬, 282
球蘭, 33, Photo 55
球蘭屬, 33
瓶頭草, 312
瓶頭草屬, 311
瓶頭菊, 312
甜菜子, 324
異株木犀欖, 131, Photo 241
異葉石龍尾, 135
異葉黃鶴菜, 251, Photo 456
異葉黃鐘木, 186
疏毛半邊蓮, 199, Photo 354
疏毛白絨草, 119, Photo 220
疏花耳草, 216
盒果藤, 61
盒果藤屬, 61
眼樹蓮, 34, Photos 56, 57, 58
眼樹蓮屬, 33
粗葉木, 228, Photo 411
粗葉木屬, 227
粗葉耳草, 211, Photo 374
細風輪菜, 103, Photo 196
細莖母草, 151, Photo 280
細葉天芥菜, 77
細葉萬壽菊, 308
細錐香茶菜, 110, Photo 203
荚蒾屬, 243
荷蘭菊, 316
蛇根草屬, 217
軟枝黃蟬, 24, Photo 33
通泉草, 149, Photos 273, 274
通泉草屬, 149
連理藤, 186
野甘草, 134, Photo 251
野甘草屬, 134
野生紫蘇, 104
野白紙扇, 208
野艾蒿, 324
野芝麻, 114
野茄, 50, Photo 96
野茼蒿, 296, Photo 524
野茼蒿屬, 295
野菰, 154, Photo 286
野菰屬, 154
野菊, 321, Photos 551, 552
陰行草, 144, Photo 263
陰行草屬, 143
雪白馬纓丹, 85
雪見草, 100
魚尾菊, 261
魚骨木, 230, Photo 415
魚骨木屬, 229
魚眼草, 310, Photo 541
魚眼草屬, 310
魚黃草, 71, Photo 133
魚黃草屬, 70
鹿角草, 267, Photo 477
鹿角草屬, 266

十二畫

傘序臭黃荊, 97, Photos 184, 185
傘房花耳草, 211, Photo 372
傘花馬錢, 11, Photos 3, 4
單色蝴蝶草, 148, Photo 272
單色翼萼, 148
單葉蔓荊, 94, Photo 179
帽苞薯藤, 69
斑葉女貞, 132, Photos 244, 245
斑葉擬美花, 178, Photo 317
斑鳩菊, 300
斑鳩菊屬, 297
斑種草屬, 76
朝天椒, 53, Photo 103
湖北癭, 273
無梗艾納香, 289, Photos 507, 508
琴葉紫菀, 317, Photo 546
番茄, 53, Photos 105
番茄屬, 53
番薯, 64, Photo 121
番薯屬, 62
短小蛇根草, 218, Photo 387
短序紫珠, 86
短冠草, 143
短冠草屬, 143
短柄紫珠, 86, Photos 160, 161
短梗挖耳草, 193, Photo 345
短筒苣苔屬, 159
短穗刺蕊草, 106, Photo 199
硬枝老鴉嘴, 161, Photo 296
硬骨凌霄, 186
筋骨草屬, 100
紫丹, 77, Photo 141
紫丹屬, 77
紫色匍匐筋骨草, 100
紫花牡荊, 94
紫花香薷, 115, Photo 211
紫花短筒苣苔, 160, Photos 294, 295
紫背金盤, 100, Photos 189, 190
紫珠屬, 85
紫草科, 75
紫斑蝴蝶草, 148, Photo 271

紫斑翼萼, 148
紫絨草, 296
紫菀屬, 316
紫葳科, 186
紫蘇, 104, Photo 197
紫蘇草, 136, Photos 253, 254
紫蘇屬, 104
絲葉薊, 274
絡石, 28, Photo 46
絡石屬, 28
腎茶, 107, Photo 200
腎茶屬, 107
華氏耳草, 214
華石梓, 96
華南忍冬, 242, Photo 446
華南兔兒風, 278, Photo 491
華南龍膽, 15, Photos 15, 16
華南爵床, 184
華素馨, 127, Photo 232
華馬錢, 12, Photos 7, 8
華紫珠, 86, Photo 159
華鼠尾草, 101, Photo 193
華澤蘭, 306, Photo 538
菊芋, 262
菊芹, 291
菊芹屬, 291
菊花, 321
菊科, 245
菊藷, 262
菊屬, 320
菜豆樹, 186
菜椒, 53, Photo 104
菟絲子, 73
菟絲子科, 72
菟絲子屬, 72
裂葉芹菊, 291, Photos 516, 517
越南牡荊, 94, Photo 178
越南香楠, 239
陽春耳草, 215
雲南石梓, 96
雲南黃素馨, 126, Photo 229
黃瓜菜, 258, Photo 466
黃瓜菜屬, 258
黃色蝴蝶草, 147
黃花夾竹桃, 19, Photo 20
黃花夾竹桃屬, 19
黃花狸藻, 192, Photo 341
黃花蒿, 324
黃花龍船花, 234
黃金樹, 186
黃芩屬, 116
黃脈爵床屬, 165
黃荊, 95, Photo 182
黃鴨咀花, 180
黃龍船花, 234
黃蟬, 24, Photos 31, 32
黃蟬屬, 24
黃鵪菜, 252, Photo 457
黃鵪菜屬, 251
黃鐘木, 188, Photos 334, 335
黃鐘木屬, 188
黃鐘花, 190, Photo 338
黃鐘花屬, 190
黑板樹, 21
黑草, 140, Photo 259
黑草屬, 140
黑葉小駁骨, 184, Photo 326
黑葉龍吐珠, 92
黑鱗藤, 37, Photo 64
黑鱗藤屬, 37
棱萼母草, 152, Photo 281
鈎吻, 13, Photos 9, 10
鈎吻屬, 13
鈎粉草屬, 177
鈎藤屬, 205

十三畫

圓葉挖耳草, 194, Photo 346
圓葉牽牛, 67
廈門老鼠簕, 165
微糙三脈紫菀, 318
愛地草, 225, Photos 402, 403
愛地草屬, 224
新耳草, 216
新耳草屬, 216
楠草, 168
楠草屬, 168
楠藤, 208, Photo 369
楊梅葉大青, 90
煙草, 51, Photos 98, 99
煙草屬, 51
獅子球, 93
矮瓜, 50
矮胡麻草, 142
碗花草, 162
萬壽菊, 308
萬壽菊屬, 308
粵港耳草, 216, Photo 385
聖羅勒, 112
腰骨藤, 29, Photos 47, 48
腰骨藤屬, 29
腫柄菊, 262, Photo 470
腫柄菊屬, 262
腺毛陰行草, 144
葫蘆樹屬, 188
萵苣, 255, Photo 461
萵苣屬, 254
葩葩洛, 309
葩葩洛屬, 309
達侖木, 233
過江藤, 82, Photo 150
過江藤屬, 81
鼎湖耳草, 214
鼠尾草, 101
鼠尾草屬, 100
鼠麴草, 283
鼠麴草屬, 283

十四畫

槍刀藥, 174
槍刀藥屬, 174
滷地菊, 272, Photo 487
熊耳草, 304, Photo 534
碧冬茄, 51
碧冬茄屬, 51
福建茶, 78
翠菊, 316
翠菊屬, 315
蒿子桿, 319
蒿屬, 323
蒲公英屬, 249
蓋裂果, 225
蓋裂果屬, 225
蒼耳, 259, Photo 467
蒼耳屬, 259
裸花紫珠, 86, Photo 158
裸柱菊, 327, Photo 559
裸柱菊屬, 327
裸莖姬苗, 11
辣椒, 53, Photo 102
辣椒屬, 53
酸葉膠藤, 27, Photos 43, 44
酸漿屬, 52
銀背藤, 60, Photos 114, 115
銀背藤屬, 59
銀鱗金鈴木, 186
銅錘玉帶草, 199, Photo 355
銅錘玉帶屬, 199
閩粵千里光, 292, Photo 519
駁骨丹, 123
魁蒿, 325
豨薟, 264, Photo 473
豨薟屬, 264
寬葉十萬錯, 173

十五畫

廣州蛇根草, 218, Photo 389
廣防風, 118, Photos 217, 218
廣防風屬, 117

廣東水馬齒, 121
廣東玉葉金花, 209
廣東匙羹藤, 38
廣東粗葉木, 228
槽裂木屬, 207
鏃面草, 119
鏃葉忍冬, 241, Photo 442
線柱苣苔, 155, Photo 287
線柱苣苔屬, 155
線紋香茶菜, 110, Photo 204
線葉白絨草, 119
蓮生桂子花, 32
蔓九節, 231, Photo 419
蔓荊, 95, Photo 181
蔓龍膽, 14
蓬萊葛, 14, Photos 11, 12
蓬萊葛屬, 13
蝴蝶草屬, 146
蝶花荚蓬, 243, Photo 448
蝦衣草, 182
豬肚木, 229, Photo 414
豬菜藤, 58, Photo 111
豬菜藤屬, 58
輪葉耳草, 211
醉魚草, 123
醉魚草科, 123
醉魚草屬, 123
鋪地馬鞭草, 82
墨苜蓿, 224, Photo 401
墨苜蓿屬, 224
鳶蘿松, 63, Photo 117

十六畫

橙紅鳶蘿, 62
橙紅龍船花, 234
樹牽牛, 63
澤蘭屬, 305
燈臺兔兒風, 277
獨腳金, 141, Photos 260, 261
獨腳金屬, 141
糖膠樹, 21, Photos 25, 26
蕊木, 22
蕊木屬, 22
貓爪藤, 186
貓尾木, 190
貓尾木屬, 190
錐花屬, 112
鞘蕊花屬, 108
頭花銀背藤, 60
鴨嘴花, 183
鴛鴦茉莉屬, 45
龍吐珠, 91, Photo 169
龍船花, 234, Photo 424
龍船花屬, 234
龍葵, 48, Photos 88, 89
龍膽科, 14
龍膽屬, 15
羣吾屬, 294
薔屬, 81
賴桐, 92, Photo 174

十七畫

擬金草, 214, Photo 382
擬美花, 177
擬紫蘇草, 136
濱海斑鳩菊, 299
濱菊, 320
濱菊屬, 320
濕地挖耳草, 193, Photo 344
爵床, 182, Photo 324
爵床科, 160
爵床屬, 181
簇生椒, 53
糙葉叉柱花, 163
糙葉豐花草, 221, Photo 395
翼葉老鴉嘴, 162, Photo 297
薄荷, 107
薄荷屬, 107
薇甘菊, 304, Photo 531
蘄, 273, Photo 488
蘄屬, 273
闊苞菊, 286, Photos 497, 498
闊苞菊屬, 286
闊葉豐花草, 222, Photos 396, 397
韓信草, 117, Photo 216
薤菜, 64, Photo 120

十八畫

斷腸草, 13
繡球防風屬, 119
藍花參, 197
藍花參屬, 197
藍花黃芩, 116, Photos 214, 215
藍花楹, 188, Photo 336
藍花楹屬, 188
藍葉藤, 39
藍豬耳, 148, Photos 269, 270
藍樹, 23, Photo 29
豐花草, 221, Photo 393
豐花草屬, 221
離根香屬, 202
雙片苣苔, 157, Photo 288
雙片苣苔屬, 156
雙花耳草, 213, Photos 379, 380
雙蝴蝶屬, 14
雙頭菊, 271, Photo 485
雞爪箣, 237, Photo 431
雞爪箣屬, 236
雞矢藤, 226, Photos 404, 405
雞矢藤屬, 226
雞兒腸, 315
雞屎樹, 228, Photo 410
雞骨常山屬, 20
雞眼藤, 220, Photos 391, 392
雞蛋花, 18, Photos 18, 19
雞蛋花屬, 18
鵝不食草, 282
鵝絨藤屬, 41
蟛蜞菊, 272, Photo 486
蟛蜞菊屬, 270

十九畫

爆仗竹, 145, Photo 264
爆仗竹屬, 144
簾子藤, 28, Photo 45
簾子藤屬, 28
羅浮粗葉木 229, Photo 412,
羅勒, 111, Photo 206
羅勒屬, 111
藥用蒲公英, 249, Photo 453
鏈珠藤, 25, Photos 34, 35
鏈珠藤屬, 25

二十畫

糯米條, 243, Photo 447
藻百年, 16
藻百年屬, 16
蘆莉草, 168
蘆莉草屬, 167
蘇門白酒草, 314, Photo 543
鐘花草, 175, Photo 314
鐘花草屬, 175
鑭毛弓果藤, 36
鹹蝦花, 298, Photo 527
黨參屬, 195
藿香薊, 304, Photos 532, 533
藿香薊屬, 304

二十一畫

蘭花草, 167, Photo 304
蘭香草, 81, Photos 148, 149

二十三畫

鐵矢米, 230
鐵軸草, 99, Photos 187, 188
擘花蟛蜞菊, 271
纖花耳草, 210, Photo 371
纖細苦蕒菜, 257
蘼芙木, 21, Photos 27, 28
蘼芙木屬, 21
蘼蕪科, 31
變色牽牛, 66, Photo 125
顯脈忍冬, 241
顯脈馬鞭草, 82
鱔藤, 30, Photos 49, 50
鱔藤屬, 30
鱗花草, 173, Photo 312
鱗花草屬, 172

二十四畫

癲茄, 49
靈枝草, 180, Photo 323
鱧腸, 269, Photo 482
鱧腸屬, 269

二十七畫

鑽形紫菀, 317, Photos 544, 545
鱷嘴花, 175
鱷嘴花屬, 175

INDEX TO FAMILIES AND SCIENTIFIC NAMES

Numbers refer to page numbers. Synonyms are printed in italics.

A

Abelia, 242
Abelia chinensis, 243, Photo 447
ACANTHACEAE, 160
Acanthopale dalzielii, 171
Acanthopale radicans, 172
Acanthopale tetrasperma, 172
Acanthus, 164
Acanthus ebracteatus var. *xiamenensis*, 165
Acanthus ilicifolius, 164, Photos 299, 300
Acanthus ilicifolius var. xiamenensis, 165
Acanthus xiamenensis, 165
Acmella grandflora, 269
Acmella paniculata, 268
Adenosma, 137
Adenosma capicatum, 137
Adenosma glutinosum, 137, Photo 256
Adenosma grandiflorum, 137
Adenosma indianum, 137
Adenostemma, 303
Adenostemma lavenia, 303, Photo 530
Adenostemma viscosum, 303
Adhatoda chinensis, 183
Adhatoda vasica, 183
Adhatoda ventricosa, 184
Adina, 207
Adina affinis, 208
Adina globiflora, 207
Adina hainanensis, 208
Adina metcalfii, 208
Adina pilulifera, 207, Photo 367
Aeginetia, 154
Aeginetia indica, 154, Photo 286
Aeschynanthus, 158
Aeschynanthus acuminatus, 158, Photos 291, 292
Aeschynanthus acuminatus var. *chinensis*, 158
Aeschynanthus chinensis, 158
Aganosma laevis, 30
Ageratum, 304
Ageratum conyzoides, 304, Photos 532, 533
Ageratum houstonianum, 304, Photo 534
Aidia, 238
Aidia acuminatissima, 239
Aidia canthioides, 238, Photo 434
Aidia cochinchinensis, 239, Photos 435, 436
Aidia pycnantha, 239, Photos 437, 438
Ainsliaea, 276
Ainsliaea fragrans, 277, Photo 490
Ainsliaea macroclinidioides, 277
Ainsliaea parvifolia, 277
Ainsliaea walkeri, 278, Photo 491
Ajuga, 100
Ajuga decumbens, 100
Ajuga genevensis, 100
Ajuga nipponensis, 100, Photos 189, 190
Ajuga reptans var. *purpurea*, 100
Allamanda, 24
Allamanda cathartica, 24, Photo 33
Allamanda schottii, 24, Photos 31, 32
Alleizettella, 239
Alleizettella leucocarpa, 239, Photo 439
Allemanda cathartia var. *hendersonii*, 24
Allemanda neriifolia, 24
Alstonia, 20
Alstonia scholaris, 21, Photos 25, 26
Alyxia, 25
Alyxia sinensis, 25, Photos 34, 35
Ambulia aromatica, 136
Anagalloides procumbens, 150
Anchusa tenella, 76
Anchusa zeylanica, 76
Andrographis, 166
Andrographis paniculata, 166, Photos 302, 303
Aniseia biflora, 68
Aniseia stenantha, 67
Anisomeles, 117
Anisomeles indica, 118, Photos 217, 218
Anisomeles ovata, 118
Anisopappus, 280
Anisopappus chinensis, 280, Photo 493
Anodendron, 30
Anodendron affine, 30, Photos 49, 50
Anodendron fangchengense, 30
Anodendron laeve, 30
Anodendron salicifolium, 30
Anotis boerhaavioides, 217
Anotis thwaitesiana, 216
Antirhea, 232
Antirhea chinensis, 232, Photo 421
Antirrhinum, 142
Antirrhinum majus, 143, Photo 262
APOCYNACEAE, 16
Apocynum frutescens, 29
Apocynum mucronatum, 37
Argyreia, 59
Argyreia acuta, 59
Argyreia capitata, 60
Argyreia capitiformis, 60
Argyreia championii, 60
Argyreia mollis, 60, Photos 114, 115
Argyreia nervosa, 61, Photo 116
Argyreia obtecta, 60
Argyreia obtusifolia, 60
Argyreia speciosa, 61
Argyreia verrucosohispida, 60
Arnica japonica, 294
Arnica piloselloides, 279
Artemisia, 323
Artemisia annua, 324
Artemisia capillaris, 326, Photo 557
Artemisia chinensis, 323
Artemisia indica, 325, Photo 556
Artemisia japonica, 326, Photo 558
Artemisia lactiflora, 324, Photos 554, 555
Artemisia lavandulaefolia, 324
Artemisia maderaspatana, 311
Artemisia minima, 322
Artemisia princeps, 325
Artemisia scoparia, 326
Artemisia vulgaris, 325
ASCLEPIADACEAE, 31
Asclepias, 32
Asclepias carnosa, 33
Asclepias cordata, 39
Asclepias curassavica, 32, Photos 51, 52
Asclepias paniculata, 42
Asclepias volubilis, 40
Aster, 316
ASTERACEAE, 245
Aster ageratoides, 318
Aster ageratoides var. scaberulus, 318
Aster baccharoides, 317, Photo 547
Aster brevipes, 317
Aster chinensis, 316
Aster indicus, 315
Aster novi-belgii, 316
Aster panduratus, 317, Photo 546
Aster scaberulus, 318
Aster striatus, 317

Aster subulatus, 317, Photos 544, 545
Aster trinervius, 318
Asystasia, 173
Asystasia coromandeliana α *micrantha*, 174
Asystasia coromandelica, 173
Asystasia gangetica, 173
Asystasia gangetica subsp. *micrantha*, 174
Asystasia micrantha, 174, Photo 313
Asystasia pauciflora, 175
Atropa physalodes, 52
Avicennia, 160
Avicennia, 83
Avicennia marina, 84, Photos 153, 154
Avicennia officinalis, 84

B

Baccharis indica, 286
Bacopa, 145
Bacopa monnieri, 145
Bacopa monnieri, 145, Photo 265
Bacopa repens, 146
Ballota suaveolens, 113
Baphicacanthus cusia, 172
Barbula sinensis, 81
Barleria, 165
Barleria cristata, 165, Photo 301
Batatas crassicaulis, 63
Batatas edulis, 64
Batatas triloba, 69
Bellis stipitata, 312
Beloperone gutta, 182
Bidens, 264
Bidens alba, 265, Photo 474
Bidens bipinnata, 266, Photo 476
Bidens biternata, 266
Bidens pilosa, 265, Photo 475
Bidens pilosa var. *minor*, 265
Bidens pilosa var. *radiata*, 265
BIGNONIACEAE, 186
Bignonia chinensis, 186
Bignonia grandiflora, 186
Bignonia indica, 189
Bignonia pentandra, 189
Bignonia stans, 190
Bignonia venusta, 187
Blainvillea, 270
Blainvillea acumella, 270, Photo 483
Blainvillea latifolia, 270
Blumea, 287
Blumea alata, 283
Blumea balsamifera, 288, Photos 501, 502
Blumea chinensis, 287
Blumea clarkei, 290
Blumea glandulosa, 288
Blumea hieracifolia, 290, Photo 512
Blumea hongkongensis, 290
Blumea lacera, 290, 291, Photo 513
Blumea laciniata, 288, Photos 503, 504, 505, 506
Blumea lanceolaria, 289, Photo 511
Blumea megacephala, 287, Photos 499, 500
Blumea mollis, 289, Photos 509, 510
Blumea myriocephala, 289
Blumea oblongifolia, 290, Photos 514, 515
Blumea riparia var. *megacephala*, 287
Blumea sessiliflora, 289, Photos 507, 508
Blumea wightiana, 289
Boea, 156
Boea hygrometrica, 156
Boeica, 159
Boeica guileana, 160, Photos 294, 295
Boltonia indica, 315
Bonnaya brachiata, 153
Bonnaya hyssopoides, 151
Bonnaya veronicifolia, 152
BORAGINACEAE, 75
Borago officinalis, 75
Borreria articularis, 221
Borreria hispida, 221
Borreria latifolia, 222
Borreria repens, 221
Borreria stricta, 221
Bothriospermum, 76
Bothriospermum tenellum, 76
Bothriospermum zeylanicum, 76, Photo 139
Brachyramphus ramosissimus, 258
Brunfelsia, 45
Brunfelsia calycina, 45
Brunfelsia macrophylla, 45
Buchnera, 140
Buchnera asiatica, 141
Buchnera cruciata, 140, Photo 259
Buchnera masuria, 141
Buddleja, 123
Buddleja asiatica, 123, Photo 225
BUDDLEJACEAE, 123
Buddleja lindleyana, 123
Buddleja officinalis, 123

C

Cacalia ovalis, 297
Cacalia sonchifolia, 295
Calamintha gracilis, 103
Calendula, 280
Calendula officinalis, 280
Calliaspidia guttata, 182
Callicarpa, 85
Callicarpa acuminata, 86
Callicarpa acuminata var. *angustifolia*, 86
Callicarpa aspera, 88
Callicarpa brevipes, 86, Photos 160, 161
Callicarpa cathayana, 86, Photo 159
Callicarpa dichotoma, 87
Callicarpa dielsii, 87
Callicarpa dunniana, 88
Callicarpa formosana, 88, Photo 165
Callicarpa integerrima, 85, Photo 157
Callicarpa integerrima var. *serrulata*, 88
Callicarpa integrifolia, 85
Callicarpa kochiana, 87, Photo 163
Callicarpa longibracteata, 86
Callicarpa longifolia, 86, 87
Callicarpa longifolia var. *brevipes*, 86
Callicarpa longifolia var. *lanceolaria*, 87
Callicarpa longifolia var. *longissima*, 87
Callicarpa longiloba, 87
Callicarpa longissima, 87, Photo 162
Callicarpa loureiri, 87
Callicarpa macrophylla, 88
Callicarpa macrophylla var. *kouytchensis*, 88
Callicarpa macrophylla var. *sinensis*, 86
Callicarpa ningpoensis, 88
Callicarpa nudiflora, 86, Photo 158
Callicarpa panduriformis, 87
Callicarpa pedunculata, 88
Callicarpa purpurea, 87
Callicarpa reevesii, 86
Callicarpa rubella, 87, Photo 164
Callicarpa rubella f. *robusta*, 88
Callicarpa rubella var. *dielsii*, 87
Callicarpa rubella var. *hemsleyana*, 88
Callicarpa tenuiflora, 88
Callicarpa tomentosa, 87
Callistephus, 315
Callistephus chinensis, 316
CALLITRICHACEAE, 120
Callitriche, 121
Callitriche bengalensis, 121
Callitriche oryzetorum, 121
Callitriche palustris, 121
Callitriche palustris var. elegans, 121
Callitriche palustris var. oryzetorum, 121
Callitriche stagnalis, 121
Calogyne, 202
Calogyne chinensis, 202
Calogyne pilosa, 202
Calogyne pilosa subsp. chinensis, 202
Calonyction aculeatum, 65
Calonyction aculeatum var. *lobatum*, 66
Calonyction album, 66
Calonyction bona-nox, 66

Calonyction speciosum, 66
Calophanoides chinensis, 183
Calosanthes indica, 189
Calystegia, 57
Calystegia hederacea, 57
Calystegia hederacea var. *elongata*, 57
CAMPANULACEAE, 194
Campanula grandiflora, 196
Campanula marginata, 197
Campanumoea javanica, 195
Campanumoea lanceolata, 195
Campanumoea pilosula, 195
Campsis, 186
Campsis chinensis, 187
Campsis grandiflora, 186, Photos 330, 331
Canthium, 229
Canthium dicoccum, 230, Photo 415
Canthium didymum, 230
Canthium dubium, 238
Canthium horridum, 229, Photo 414
Canthium parvifolium, 229
Capraria crustacea, 150
CAPRIFOLIACEAE, 240
Capsicum, 53
Capsicum annuum, 53, Photo 102
Capsicum annuum var. *conoides*, 53, Photo 103
Capsicum annuum var. *fasciculatum*, 53
Capsicum annuum var. *grossum*, 53, Photo 104
Carduus linearis, 274
Carmona, 78
Carmona heterophylla, 78
Carmona microphylla, 78, Photo 143
Carpesium, 281
Carpesium abrotanoides, 281
Caryopteris, 81
Caryopteris incana, 81, Photos 148, 149
Caryopteris mastacantnus, 81
Caryopteris ovata, 81
Caryopteris sinensis, 81
Catalpa speciosa, 186
Catharanthus, 17
Catharanthus roseus, 17, Photo 17
Catharanthus roseus var. *albus*, 17
Catunaregam, 236
Catunaregam spinosa, 236, Photo 430
Centipeda, 322
Centipeda minima, 322, Photo 553
Centranthera, 141
Centranthera brunoniana, 142
Centranthera cochinchinensis, 142
Centranthera hispida, 142
Centranthera humifusa, 142
Centranthera tonkinensis, 142
Centranthera tranquebarica, 142
Cephalanthus, 204
Cephalanthus occidentalis, 204
Cephalanthus pilulifera, 207
Cephalanthus tetrandrus, 204, Photo 363
Cerbera, 19
Cerbera manghas, 19, Photos 22, 23
Cerbera odollam, 19
Cerbera peruviana, 19
Cerbera thevetia, 19
Cestrum, 46
Cestrum nocturnum, 46, Photos 83, 84
Championella dalzielli, 171
Championella tetrasperma, 172
Chionanthus, 130
Chionanthus ramiflorus, 130, Photo 240
Chionanthus retusus, 130
Chionanthus serrulatus, 130
Chirita, 157
Chirita obtusa, 157
Chirita sinensis, 157, Photos 289, 290
Chirita sinensis var. *angustifolia*, 158
Chorisis, 255
Chorisis repens, 255, Photo 462
Chromolaena odorata, 305
Chrysanthemum, 319
Chrysanthemum carinatum, 319
Chrysanthemum coronarium, 319
Chrysanthemum coronarium var. *spatiosum*, 319
Chrysanthemum indicum, 321
Chrysanthemum leucanthemum, 320
Chrysanthemum morifolium, 321
Chrysanthemum segetum, 319, Photo 550
Chrysanthemum sinense, 321
Chrysanthemum spatiosum, 319, Photo 549
Cineraria chinensis, 292
Cirsium, 273
Cirsium chinense, 274
Cirsium hupehense, 273
Cirsium japonicum, 273, Photo 488
Cirsium lineare, 274
Cirsium lyratum, 275
Cissus umbellata, 11
Clerodendranthus, 107
Clerodendranthus spicatus, 107, Photo 200
Clerodendranthus stamineus, 107
Clerodendron, 91
Clerodendrum, 90
Clerodendrum amplius, 92
Clerodendrum canescens, 93, Photo 175
Clerodendrum castaneifolium, 91
Clerodendrum chinense, 93, Photo 176
Clerodendrum cyrtophyllum, 92, Photos 172, 173
Clerodendrum formosanum, 92
Clerodendrum fortunatum, 91, Photos 170, 171
Clerodendrum fragrans, 93
Clerodendrum haematocalyx, 93
Clerodendrum inerme, 90, Photos 167, 168
Clerodendrum japonicum, 92, Photo 174
Clerodendrum kaempferi, 92
Clerodendrum lindleyi, 93
Clerodendrum lividum, 91
Clerodendrum macrosiphon, 90
Clerodendrum myricoides, 90
Clerodendrum nutans, 92
Clerodendrum oxysepalum, 91
Clerodendrum pentagonum, 91
Clerodendrum philippinum, 93
Clerodendrum pumilum, 91
Clerodendrum speciosissimum, 90
Clerodendrum spicatum, 107
Clerodendrum thomsonae, 91, Photo 169
Clerodendrum viscosum, 93
Clerodendrum wallichii, 92
Clinacanthus, 175
Clinacanthus burmanni, 175
Clinacanthus nutans, 175
Clinopodium, 103
Clinopodium gracile, 103, Photo 196
Clytostoma callistegioides, 186
Cnicus chinensis, 274
Cnicus japonicus, 273
Codonacanthus, 175
Codonacanthus acuminatus, 175
Codonacanthus pauciflorus, 175, Photo 314
Codonopsis, 195
Codonopsis javanica, 195, Photo 348
Codonopsis lanceolata, 195, Photo 349
Coleus, 108
Coleus aromaticus, 109
Coleus blumei, 108
Coleus carnosifolius, 109
Coleus pumilus, 109
Coleus scutellarioides, 108
Coleus scutellarioides var. *crispipilus*, 109
Columnea chinensis, 136
Columnea heterophylla, 135
COMPOSITAE, 245
CONVOLVULACEAE, 54
Convolvulus aculeatus, 66
Convolvulus acuminatus, 66
Convolvulus alsinoides, 57
Convolvulus batatas, 64
Convolvulus bicolor, 58
Convolvulus biflorus, 68
Convolvulus bilobatus, 65
Convolvulus bracteatus, 58

Convolvulus brasiliensis, 65
Convolvulus cairicus, 63
Convolvulus candicans, 64
Convolvulus capitatus, 60
Convolvulus capitiformis, 60
Convolvulus chryseides, 71
Convolvulus congestus, 66
Convolvulus dissectus, 70
Convolvulus edulis, 64
Convolvulus hirtus, 72
Convolvulus imperati, 65
Convolvulus indicus, 66
Convolvulus malabaricus, 58
Convolvulus maritimus, 65
Convolvulus mollis, 60
Convolvulus mutabilis, 66
Convolvulus nervosus, 61
Convolvulus nil, 67
Convolvulus obscurus, 68
Convolvulus parviflorus, 59
Convolvulus pennatus, 63
Convolvulus pescaprae, 65
Convolvulus pileatus, 69
Convolvulus purpureus, 67
Convolvulus quinatus, 70
Convolvulus repens, 64
Convolvulus sericeus, 61
Convolvulus sinensis, 68
Convolvulus sinuatus, 65
Convolvulus stoloniferus, 65
Convolvulus sublobatus, 58
Convolvulus tridentatus, 69
Convolvulus trilobus, 69
Convolvulus turpethum, 61
Convolvulus violaceus, 59
Conyza, 312
Conyza balsamifera, 288
Conyza bonariensis, 313
Conyza canadensis, 313
Conyza cappa, 285
Conyza cinerea, 298
Conyza japonica, 312
Conyza lacera, 290
Conyza laciniata, 288
Conyza lanceolaria, 289
Conyza patula, 298
Conyza pyrifolia, 314
Conyza sumatrensis, 314, Photo 543
Conyza veronicaefolia, 312
Coptosapelta, 231
Coptosapelta diffusa, 231
Cordia, 78
Cordia dichotoma, 78, Photo 142
Cordia myxa, 78
Cordia thyrsiflora, 80
Cordia venosa, 92
Coreopsis alba, 265
Coreopsis biternata, 266
Cornutia corymbosa, 97
Cornutia quinata, 95
Corysanthera elliptica, 155
Cotula, 327
Cotula anthemoides, 327
Cotula minuta, 322
Crassocephalum, 295
Crassocephalum crepidioides, 296, Photo 524
Crawfurdia fasciculata, 14
Crepis heterophylla, 251
Crepis japonica, 252
Crescentia, 188
Crescentia alata, 188, Photo 333
Crossostephium, 322
Crossostephium chinense, 323
Cryphiacanthus angustifolius, 167
Cryptanthus chinensis, 93
Cryptolepis, 35
Cryptolepis elegans, 35
Cryptolepis sinensis, 35
Cuscuta, 72
Cuscuta arvensis, 74
Cuscuta australis, 73, Photo 135
Cuscuta campestris, 74, Photo 136
CUSCUTACEAE, 72
Cuscuta chinensis, 73
Cuscuta hygrophilae, 73
Cuscuta japonica, 72, Photo 134
Cuscuta kawakamii, 73
Cuscuta millettii, 73
Cuscuta obtusiflora var. *australis*, 73
Cuscuta reflexa var. *densiflora*, 72
Cynanchum, 41
Cynanchum corymbosum, 42, Photos 75, 76
Cynanchum inodorum, 38
Cynanchum insulanum, 43, Photos 77, 78
Cynanchum paniculatum, 42, Photos 73, 74
Cynoctonum insulanum, 43
Cyrtanthera carnea, 183

D

Daedalacanthus nervosus, 177
Dahlia, 263
Dahlia pinnata, 263, Photo 472
Dasus verticillatus, 229
Datura, 44
Datura alba, 44
Datura metel, 44, Photos 79, 80
Datura stramonium, 44
Datura suaveolens, 44
Democritea serissoides, 220
Dendranthema, 320
Dendranthema indicum, 321, Photos 551, 552
Dendranthema morifolium, 321
Dentidia nankiensis, 105
Dichondra, 55
Dichondra micrantha, 55, Photo 107
Dichondra repens, 55
Dichondra repens var. *micrantha*, 55
Dichrocephala, 310
Dichrocephala auriculata, 310
Dichrocephala bicolor, 310
Dichrocephala integrifolia, 310, Photo 541
Dichrocephala latifolia, 310
Dicliptera, 178
Dicliptera chinensis, 178, Photo 318
Didymocarpus sinensis, 158
Didymostigma, 156
Didymostigma obtusum, 157, Photo 288
Digitalis cochinchinensis, 142
Digitalis sinensis, 137
Dilivaria ilicifolia, 164
Diplolepis ovata, 41
Diplopappus baccharoides, 317
Diplospora, 237
Diplospora dubia, 237, Photos 432, 433
Diplospora viridiflora, 237
Dipteracanthus, 168
Dipteracanthus calycinus, 171, 172
Dipteracanthus lanceolatus, 168
Dipteracanthus repens, 168
Dischidia, 33
Dischidia chinensis, 34, Photos 56, 57, 58
Dissolena verticillata, 21
Dolichandrone cauda-felina, 190
Dolichandrone stipulata var. *kerrii*, 190
Dopatrium, 139
Dopatrium junceum, 140, Photo 258
Dorcoceras hygrometrica, 156
Dregea, 40
Dregea volubilis, 40, Photo 70
Drejerella guttata, 182
Duhaldea, 285
Duhaldea cappa, 285, Photos 495, 496
Duranta, 89
Duranta erecta, 89, Photo 166
Duranta repens, 89
Dysophylla, 106
Dysophylla auricularia, 105
Dysophylla stellata, 106
Dysophylla stellatus, 106
Dysophylla verticillata, 106

E

Ebermaiera coninnula, 163
Ecbolium procumbens, 182
Ecdysanthera micrantha, 27
Ecdysanthera rosea, 27
Echites micrantha, 27
Echites scholaris, 21
Eclipta, 269
Eclipta alba, 269
Eclipta latifolia, 270
Eclipta prostrata, 269, Photo 482
Ehretia, 79
Ehretia acuminata, 80, Photos 146, 147
Ehretia acuminata var. *obovata*, 80
Ehretia buxifolia, 78
Ehretia dentata, 78
Ehretia glaucescens, 79
Ehretia longiflora, 79, Photos 144, 145
Ehretia microphylla, 78
Ehretia taiwaniana, 80
Ehretia thyrsiflora, 80
Elephantopus, 301
Elephantopus mollis, 301
Elephantopus scaber, 301, Photo 529
Elephantopus spicatus, 302
Elephantopus tomentosus, 301
Elsholtzia, 115
Elsholtzia argyi, 115, Photo 211
Elsholtzia ciliata, 116
Emilia, 294
Emilia prenanthoidea, 294, Photo 522
Emilia sonchifolia, 295, Photo 523
Epaltes, 282
Epaltes australis, 282
Epilobium tonkinense, 201
Epimeredi indica, 118
Eranthemum, 177
Eranthemum carruthersii, 178
Eranthemum nervosum, 177
Eranthemum pulchellum, 177, Photo 316
Erechtites, 291
Erechtites hieracifolius, 291
Erechtites valerianaefolia, 291
Erechtites valerianifolius, 291, Photos 516, 517
Ericala loureiroi, 15
Erigeron, 318
Erigeron alatum, 283
Erigeron bonariensis, 313
Erigeron canadensis, 313
Erigeron floribundus, 314
Erigeron hieracifolium, 290
Erigeron japonicum, 312
Erigeron karvinskianus, 319, Photo 548
Erigeron linifolius, 313
Erigeron molle, 289
Erigeron pyrifolius, 314
Erigeron sumatrensis, 314
Ervatamia divaricata, 23
Erycibe, 56
Erycibe obtusifolia, 56, Photo 108
Erycibe versatilihirta, 56
Eupatorium, 305
Eupatorium catarium, 307
Eupatorium chinense, 306, Photo 538
Eupatorium clematideum, 307
Eupatorium japonicum, 306
Eupatorium lindleyanum, 305, Photo 537
Eupatorium odoratum, 305, Photos 535, 536
Eupatorium reevesii, 306
Eupatorium wallichii, 306
Evolvulus, 56
Evolvulus alsinoides, 56, Photos 109, 110
Evolvulus chinensis, 57
Evolvulus hederaceus, 71
Evolvulus pudicus, 57
Evolvulus tridentatus, 69
Exacum, 16
Exacum tetragonum, 16
Exallage auricularia, 212

F

Fagerlindia sinensis, 237
Farfugium, 293
Farfugium japonicum, 293, Photo 520
Fraxinus, 124
Fraxinus chinensis, 124
Fraxinus formosana, 125
Fraxinus griffithii, 125, Photos 226, 227
Fraxinus guilingensis, 125
Fraxinus insularis, 125, Photo 228
Fraxinus insularis var. *henryana*, 125
Fraxinus retusa, 125
Fraxinus retusa var. *calcicola*, 125
Fraxinus taiwaniana, 125

G

Gaertnera hongkongensis, 234
Gaillardia, 307
Gaillardia aristata, 308
Gaillardia pulchella, 307
Galinsoga, 259
Galinsoga parviflora, 260, Photo 468
Galium, 223
Galium agreste var. *echinospermum*, 223
Galium aparine, 223
Galium aparine var. echinospermum, 223, Photo 399
Gardenia, 235
Gardenia florida, 235
Gardenia jasminoides, 235, Photos 427, 428
Gardenia jasminoides var. fortuniana, 235, Photo 429
Gardenia spinosa, 236
Gardenia volubilis, 29
Gardneria, 13
Gardneria chinensis, 14
Gardneria hongkongensis, 14
Gardneria multiflora, 14, Photos 11, 12
Gelsemium, 13
Gelsemium elegans, 13, Photos 9, 10
Gendarussa ventricosa, 184
Gendarussa vulgaris, 184
Gentiana, 15
GENTIANACEAE, 14
Gentiana loureiroi, 15, Photos 15, 16
Gentiana nienkui, 14
Gentiana scandens, 226
Geophila, 224
Geophila herbacea, 225, Photos 402, 403
Geophila repens var. *asiatica*, 225
Gerardia glutinosa, 137
Gerbera, 278
Gerbera jamesonii, 278
Gerbera piloselloides, 279, Photo 492
GESNERIACEAE, 155
Glechoma, 114
Glechoma brevituba, 115
Glechoma hederacea var. *longituba*, 114
Glechoma longituba, 114, Photos 209, 210
Glossocardia, 266
Glossocardia bidens, 267, Photo 477
Glossogyne tenuifolia, 267
Gmelina, 96
Gmelina arborea, 96
Gmelina chinensis, 96, Photo 183
Gmelina hystrix, 96
Gnaphalium, 283
Gnaphalium affine, 283
Gnaphalium hypoleucum, 284
Gnaphalium indicum, 285
Gnaphalium luteoalbum subsp. *affine*, 283
Gnaphalium multiceps, 283
Gnaphalium pensylvanicum, 284, Photo 494
Gnaphalium polycaulon, 285
Gnaphalium purpureum, 284
Goldfussia cusia, 171
Goldfussia dimorphotricha, 170
Gomphostemma, 112
Gomphostemma chinense, 112, Photo 207

GOODENIACEAE, 201
Grangea, 311
Grangea maderaspatana, 311, Photo 542
Graphistemma, 36
Graphistemma pictum, 36, Photos 62, 63
Gratiola ciliata, 153
Gratiola cordifolia, 151
Gratiola hyssopioides, 151
Gratiola pusilla, 151
Gratiola repens, 146
Gratiola ruellioides, 152
Gratiola serrata, 153
Guettardella chinensis, 233
Gutzlaffia aprica, 170
Gymnanthera, 34
Gymnanthera nitida, 34
Gymnanthera oblonga, 34, Photo 59
Gymnema, 37
Gymnema affine, 38
Gymnema inodorum, 38
Gymnema sylvestre, 38, Photos 65, 66
Gymnostyles anthemifolia, 327
Gynura, 296
Gynura aurantiaca, 296
Gynura bicolor, 296
Gynura crepidioides, 296
Gynura divaricata, 296, Photo 525
Gynura japonica, 296
Gynura ovalis, 297
Gynura pseudochina, 297
Gynura segetum, 296

H

Hamelia, 232
Hamelia patens, 232, Photo 420
Hedyotis, 209
Hedyotis acutangula, 215, Photo 383
Hedyotis angustifolia, 210
Hedyotis auricularia, 212, Photo 375
Hedyotis biflora, 213, Photos 379, 380
Hedyotis bodinieri, 215
Hedyotis boerhaavioides, 217
Hedyotis borrerioides, 213
Hedyotis bracteosa, 213, Photo 378
Hedyotis consanguinea, 214, Photo 382
Hedyotis corymbosa, 211, Photo 372
Hedyotis costata, 212
Hedyotis diffusa, 211, Photo 373
Hedyotis effusa, 214
Hedyotis hedyotidea, 212, Photo 376
Hedyotis hispida, 211
Hedyotis lancea, 215
Hedyotis loganioides, 216, Photo 385
Hedyotis macrostemon, 212
Hedyotis matthewii, 216
Hedyotis pinifolia, 210
Hedyotis recurva, 212
Hedyotis shiuyingiae, 215, Photo 384
Hedyotis tenelliflora, 210, Photo 371
Hedyotis uncinella, 213, Photo 377
Hedyotis vachellii, 214, Photo 381
Hedyotis verticillata, 211, Photo 374
Hedyotis yangchunensis, 215
Helianthus, 262
Helianthus annuus, 263, Photo 471
Helianthus tuberosus, 262
Heliotropium, 76
Heliotropium indicum, 77, Photo 140
Heliotropium strigosum, 77
Hemisteptia, 274
Hemisteptia lyrata, 275
Herpestis monnieri, 145
Herpestis rugosa, 135
Hewittia, 58
Hewittia bicolor, 58
Hewittia malabarica, 58, Photo 111
Hewittia sublobata, 58
Hippia integrifolia, 310
Hippobroma longiflora, 197
Holarrhena affinis, 30
Holmskioldia, 94
Holmskioldia sanguinea, 94, Photo 177
Holostemma pictum, 36
Hottonia sessiliflora, 135
Hoya, 33
Hoya carnosa, 33, Photo 55
Hygrophila, 168
Hygrophila erecta, 169
Hygrophila lancea, 168
Hygrophila megalantha, 169
Hygrophila phlomoides, 169
Hygrophila quadrivalvis, 169
Hygrophila salicifolia, 168, Photos 305, 306
Hygrophila salicifolia var. *megalantha*, 169
Hypoestes, 174
Hypoestes purpurea, 174
Hypoestes sinica, 174
Hyptis, 113
Hyptis decurrens, 113
Hyptis rhomboidea, 113
Hyptis suaveolens, 113
Hyssopus lophanthoides, 110

I

Ichnocarpus, 29
Ichnocarpus frutescens, 29, Photos 47, 48
Ichnocarpus jacquetii, 29
Ichnocarpus oliganthus, 30
Ichnocarpus ovatifolius, 29
Ichnocarpus polyanthus, 30
Ilysanthes hyssopoides, 151
Ilysanthes serrata, 153
Inula, 285
Inula cappa, 285
Ipomoea, 62
Ipomoea aculeata, 66
Ipomoea aculeata var. *bona-nox*, 66
Ipomoea acuminata, 66
Ipomoea alba, 65
Ipomoea angustifolia, 69
Ipomoea aquatica, 64, Photo 120
Ipomoea batatas, 64, Photo 121
Ipomoea batatas var. *edulis*, 64
Ipomoea biflora, 68, Photos 127, 128
Ipomoea biloba, 65
Ipomoea bona-nox, 66
Ipomoea cairica, 63, Photo 118
Ipomoea capitata, 60
Ipomoea carnea subsp. fistulosa, 63
Ipomoea carnosa, 65
Ipomoea chryseides, 71
Ipomoea coccinea, 62
Ipomoea congesta, 66
Ipomoea crassicaulis, 63
Ipomoea cymosa, 71
Ipomoea digitata, 64
Ipomoea dissecta, 70
Ipomoea edulis, 64
Ipomoea fastigiata, 64
Ipomoea filicaulis, 69
Ipomoea fimbriosepala, 67
Ipomoea fistulosa, 63
Ipomoea fulvicoma, 71
Ipomoea hederacea, 67
Ipomoea hispida, 67
Ipomoea horsfalliae, 62
Ipomoea imperati, 65, Photo 124
Ipomoea indica, 66, Photo 125
Ipomoea insularis, 66
Ipomoea learii, 66
Ipomoea linifolia, 72
Ipomoea maritima, 65
Ipomoea mauritiana, 64, Photo 119
Ipomoea mutabilis, 66
Ipomoea nil, 67, Photo 126
Ipomoea obscura, 68, Photo 129
Ipomoea palmata, 63
Ipomoea paniculata, 59
Ipomoea pentadactylis, 70
Ipomoea pes-caprae, 65, Photos 122, 123
Ipomoea pes-caprae subsp. *brasiliensis*, 65

Ipomoea pes-caprae var. *emarginata*, 65
Ipomoea pileata, 69
Ipomoea purpurea, 67
Ipomoea quamoclit, 63, Photo 117
Ipomoea quinata, 70
Ipomoea repens, 64
Ipomoea reptans, 64
Ipomoea setifera var. *fimbriosepala*, 67
Ipomoea sinensis, 68
Ipomoea sinuata, 65, 70
Ipomoea stenantha, 67
Ipomoea stolonifera, 65
Ipomoea tridentata, 69
Ipomoea triloba, 69, Photo 130
Ipomoea tuberosa, 70
Ipomoea turpethum, 61
Isodon, 109
Isodon amethystoides, 109, Photos 201, 202
Isodon coetsa, 110, Photo 203
Isodon lophanthoides, 110, Photo 204
Isodon striatus, 110
Isodon ternifolius, 109
Isotoma longiflora, 197
Ixeridium, 257
Ixeridium chinense, 257, Photo 465
Ixeridium gracile, 257
Ixeris, 256
Ixeris chinensis, 257
Ixeris debilis, 256
Ixeris denticulata, 258
Ixeris gracilis, 257
Ixeris japonica, 256, Photos 463, 464
Ixeris polycephala, 256
Ixeris ramosissima, 258
Ixeris repens, 255
Ixeris versicolor, 257
Ixora, 234
Ixora chinensis, 234, Photo 424
Ixora coccinea, 234
Ixora coccinea f. *lutea*, 234
Ixora stricta, 234

J

Jacaranda, 188
Jacaranda acutifolia, 188
Jacaranda mimosifolia, 188, Photo 336
Jacobinia carnea, 183
Jacquemontia, 58
Jacquemontia paniculata, 59, Photos 112, 113
Jacquemontia parviflora, 59
Jacquemontia violacea, 59
Jasminanthes, 37
Jasminanthes mucronata, 37, Photo 64
Jasminum, 125
Jasminum amplexicaule, 127
Jasminum elegans, 127
Jasminum elongatum, 127
Jasminum lanceolaria, 126, Photos 230, 231
Jasminum lanceolaria var. *puberulum*, 126
Jasminum laurifolium, 127
Jasminum mesnyi, 126, Photo 229
Jasminum multiflorum, 128, Photo 234
Jasminum nervosum, 127
Jasminum nervosum var. *elegans*, 127
Jasminum nervosum var. *villosum*, 127
Jasminum oblongum, 34
Jasminum pachyllum, 126
Jasminum paniculatum, 126
Jasminum primulinum, 126
Jasminum sambac, 127, Photo 233
Jasminum shimadai, 126
Jasminum sinense, 127, Photo 232
Jasminum undulatum, 127
Justicia, 181
Justicia adhatoda, 183
Justicia austrosinensis, 184
Justicia brandegeana, 182
Justicia carnea, 183
Justicia championii, 183, Photo 325
Justicia chinensis, 178, 183
Justicia ciliata, 181
Justicia gangetica, 173
Justicia gendarussa, 184, Photo 327
Justicia glauca, 185
Justicia gutta, 182
Justicia hayatai, 181
Justicia hayatai var. *ciliata*, 181
Justicia lancea, 168
Justicia nastus, 180
Justicia nervosum, 177
Justicia nutans, 175
Justicia paniculata, 166
Justicia pectinata, 179
Justicia procumbens, 182, Photo 324
Justicia procumbens var. *hayatai*, 181
Justicia pulchellum, 177
Justicia purpurea, 174
Justicia tubaeformis, 176
Justicia ventricosa, 184, Photo 326

K

Kalimeris, 315
Kalimeris indica, 315
Kleinia ruderalis, 309
Knoxia, 222
Knoxia corymbosa, 222, Photo 398
Kopsia, 22
Kopsia arborea, 22
Kopsia lancibracteolata, 22
Kopsia officinalis, 22

L

LABIATAE, 97
Lactuca, 254
Lactuca brevirostris, 253
Lactuca chinensis, 257
Lactuca debilis, 256
Lactuca denticulata, 258
Lactuca gracilis, 257
Lactuca indica, 253
Lactuca raddeana, 254
Lactuca repens, 255
Lactuca sativa, 255, Photo 461
Lactuca stolonifera, 256
Lactuca versicolor, 257
Lagenophora, 311
Lagenophora billardieri, 312
Lagenophora stipitata, 312
Laggera, 282
Laggera alata, 283
LAMIACEAE, 97
Lamium coronatum, 120
Lantana, 84
Lantana camara, 84, Photo 156
Lantana camara 'Snow White', 85
Lantana montevidensis, 84, Photo 155
Lantana trifolia, 84
Lapsana japonica, 256
Lasianthus, 227
Lasianthus attenuatus, 227, Photo 409
Lasianthus chinensis, 228, Photo 411
Lasianthus curtisii, 228
Lasianthus cyanocarpus, 228
Lasianthus fordii, 229, Photo 412
Lasianthus hirsutus, 228, Photo 410
Lasianthus kwangtungensis, 228
Lasianthus obliquinervis, 229
Lasianthus trichophlebus, 229
Lasianthus verticillatus, 229, Photo 413
Lasianthus wallichii, 227
Launaea, 252
Launaea pinnatifida, 253
Launaea sarmentosa, 252, Photo 458
Laurentia, 197
Laurentia longiflora, 197, Photo 351
LENTIBULARIACEAE, 191
Leonurus, 118
Leonurus artemisia, 118

Leonurus japonicus, 118, Photo 219
Leonurus sibiricus, 118
Lepidagathis, 172
Lepidagathis incurva, 173, Photo 312
Lepidogathis hyalina, 173
Lepistemon decurrens, 72
Lepistemon glaber, 71
Lettsomia capitata, 60
Lettsomia capitiformis, 60
Lettsomia chalmersii, 59
Lettsomia championii, 60
Lettsomia nervosa, 61
Lettsomia strigosa, 60
Leucanthemum, 320
Leucanthemum vulgare, 320
Leucas, 119
Leucas flaccida, 119
Leucas lavandulifolia, 119
Leucas linifolia, 119
Leucas mollissima var. chinensis, 119, Photo 220
Leucas mollissimum, 119
Leucas zeylanica, 119
Ligularia, 294
Ligularia japonica, 294, Photo 521
Ligustrum, 131
Ligustrum amamianum, 132
Ligustrum japonicum, 133
Ligustrum japonicum var. *pubescens*, 132
Ligustrum liukiuense, 132, Photos 242, 243
Ligustrum longipedicellatum, 133, Photo 248
Ligustrum lucidum, 133, Photo 249
Ligustrum nepalense, 133
Ligustrum punctifolium, 132, Photos 244, 245
Ligustrum quihoui, 132
Ligustrum sinense, 132, Photos 246, 247
Ligustrum sinense var. *luodianense*, 133
Ligustrum tsoongii, 131
Limnanthemum cristatum, 75
Limnanthemum peltatum, 74
Limnophila, 135
Limnophila aromatica, 136, Photos 253, 254
Limnophila aromaticoides, 136
Limnophila chinensis, 136, Photo 255
Limnophila gratissima, 136
Limnophila heterophylla, 135
Limnophila hirsuta, 136
Limnophila punctata, 136
Limnophila roxburghii, 135
Limnophila rugosa, 135, Photo 252
Limnophila sessiliflora, 135
Lindernia, 149
Lindernia anagallis, 151, Photo 279
Lindernia angustifolia, 151
Lindernia antipoda, 152, Photo 282
Lindernia ciliata, 153
Lindernia cordifolia, 151
Lindernia crustacea, 150, Photo 277
Lindernia hyssopioides, 151
Lindernia japonica, 149
Lindernia micrantha, 151
Lindernia oblonga, 152, Photo 281
Lindernia procumbens, 150, Photo 278
Lindernia pusilla, 151, Photo 280
Lindernia rotundifolia 'Aurea', 149, Photos 275, 276
Lindernia ruellioides, 152, Photos 283, 284
Linociera ramiflora, 130
Linociera ramiflora f. *pubisepala*, 130
Linum usitatissimum, 186
Lippia nodiflora, 82
Lobelia, 198
Lobelia affinis, 199
Lobelia alsinoides, 198
Lobelia alsinoides subsp. hancei, 198, Photo 353
Lobelia chinensis, 198, Photo 352
Lobelia chinensis var. *cantonensis*, 198
Lobelia hancei, 198
Lobelia longiflora, 197
Lobelia nummularia, 199
Lobelia pumilus, 149
Lobelia radicans, 198
Lobelia taccada, 201
Lobelia trigona, 199
Lobelia zeylanica, 199, Photo 354
LOGANIACEAE, 10
Lonicera, 241
Lonicera confusa, 242, Photo 446
Lonicera japonica, 241, Photo 443
Lonicera longiflora, 242, Photo 444
Lonicera macrantha, 242, Photo 445
Lonicera multiflora, 242
Lonicera reticulata, 241
Lonicera rhytidophylla, 241, Photo 442
Lycianthes, 54
Lycianthes biflora, 54, Photo 106
Lycimnia suaveolens, 25
Lycium, 45
Lycium chinense, 45, Photos 81, 82
Lycium foetidum, 220
Lycium japonicum, 220
Lycopersicon, 53
Lycopersicon esculentum, 53, Photo 105
Lycopus dianthera, 103
Lysimachia monnieri, 145

M

Macfadyena unguis-cati, 186
Mananthes austrosinensis, 184
Manulea indiana, 137
Markhamia, 190
Markhamia cauda-felina, 190
Markhamia stipulata var. kerrii, 190
Marsdenia, 39
Marsdenia lachnostoma, 40, Photos 68, 69
Marsdenia tinctoria, 39
Mazus, 149
Mazus japonicus, 149
Mazus pumilus, 149, Photos 273, 274
Mazus rugosus, 149
Medicia elegans, 13
Melanthera biflora, 271
Melodinus, 25
Melodinus fusiformis, 26, Photos 38, 39
Melodinus monogynus, 25
Melodinus suaveolens, 25, Photos 36, 37
Mentha, 107
Mentha arvensis, 107
Mentha auricularia, 105
Mentha canadensis, 107
Mentha haplocalyx, 107
Mentha stellata, 106
MENYANTHACEAE, 74
Menyanthes cristata, 75
Menyanthes nymphoides, 74
Mephitidia chinensis, 228
Mephitidia wallichii, 227
Merremia, 70
Merremia chryseides, 71
Merremia convolvulacea, 71
Merremia decurrens, 72
Merremia dissecta, 70
Merremia hastata, 69
Merremia hederacea, 71, Photo 133
Merremia hirta, 72
Merremia quinata, 70
Merremia tridentata, 69
Merremia tridentata subsp. *hastata*, 69
Merremia tuberosa, 70, Photo 131
Merremia turpethum, 61
Merremia umbellata subsp. orientalis, 71, Photo 132
Merremia umbellata var. *orientalis*, 71
Mesona, 110
Mesona chinensis, 111, Photo 205
Meyenia erecta, 161
Micrechites jacquetii, 29
Microcarpaea, 139
Microcarpaea minima, 139

Microcarpaea muscosa, 139
Microglossa, 314
Microglossa pyrifolia, 314
Microglossa volubilis, 314
Mikania, 303
Mikania micrantha, 304, Photo 531
Mirasolia diversifolia, 262
Mitracarpus, 225
Mitracarpus hirtus, 225
Mitracarpus villosus, 225
Mitrasacme, 10
Mitrasacme alsinoides, 10
Mitrasacme alsinoides var. *indica*, 10
Mitrasacme capillaris, 11
Mitrasacme chinensis, 11
Mitrasacme indica, 10
Mitrasacme nudicaulis, 11
Mitrasacme polymorpha 11
Mitrasacme pygmaea, 11, Photos 1, 2
Morinda, 219
Morinda cochinchinensis, 219
Morinda parvifolia, 220, Photos 391, 392
Morinda umbellata, 219, Photo 390
Morinda umbellata subsp. *obovata*, 219
Morinda villosa, 219
Mosla, 102
Mosla dianthera, 103
Mosla lanceolata, 103
Mosla scabra, 102, Photo 195
Mussaenda, 208
Mussaenda erosa, 208, Photo 369
Mussaenda erythophylla, 208, Photo 368
Mussaenda kwangtungensis, 209
Mussaenda pubescens, 209, Photo 370
MYOPORACEAE, 153
Myoporum, 153
Myoporum bontioides, 153, Photo 285
Myriogyne minuta, 322

N

Nauclea, 206
Nauclea officinalis, 206, Photo 366
Nauclea orientalis, 206
Nauclea tetrandra, 204
Neanotis, 216
Neanotis boerhaavioides, 217
Neanotis thwaitesiana, 216
Nepeta incana, 81
Nerium, 20
Nerium divaricatum, 23
Nerium indicum, 20
Nerium odorum, 20
Nerium oleander, 20, Photo 24
Nicandra, 52
Nicandra physalodes, 52
Nicotiana, 51
Nicotiana tabacum, 51, Photos 98, 99
Nintooa confusa, 242
Nyctanthes elongata, 127
Nyctanthes multiflora, 128
Nyctanthes sambac, 127
Nymphoides, 74
Nymphoides cristatum, 75, Photos 137, 138
Nymphoides peltatum, 74

O

Ocimum, 111
Ocimum acutum, 104
Ocimum aristatum, 107
Ocimum basilicum, 112, Photo 206
Ocimum frutescens, 104
Ocimum sanctum, 112
Ocimum scabrum, 103
Ocimum scutellarioides, 108
Ocimum tenuiflorum, 112
Odontonema, 176
Odontonema strictum, 176
Odontonema tubiforme, 176, Photo 315
Oldenlandia acutangula, 215
Oldenlandia angustifolia, 210
Oldenlandia auricularia, 212
Oldenlandia biflora, 213
Oldenlandia bodinieri, 215
Oldenlandia bracteosa, 213
Oldenlandia consanguinea, 214
Oldenlandia corymbosa, 211
Oldenlandia diffusa, 211
Oldenlandia effusa, 214
Oldenlandia herbacea, 211
Oldenlandia herbacea var. *uniflora*, 211
Oldenlandia loganioides, 216
Oldenlandia matthewii, 216
Oldenlandia paniculata, 213
Olea, 131
Olea brevipes, 131
OLEACEAE, 124
Olea dioica, 131
Olea fragrans, 128
Olea marginata, 129
Olea tsoongii, 131, Photo 241
Operculina, 61
Operculina dissecta, 70
Operculina turpethum, 61
Ophiorrhiza, 217
Ophiorrhiza cantoniensis, 218, Photo 389
Ophiorrhiza eryei, 218
Ophiorrhiza japonica, 218, Photo 388
Ophiorrhiza pumila, 218, Photo 387
Oreocharis, 159
Oreocharis benthamii, 159, Photo 293
OROBANCHACEAE, 154
Oroxylum, 189
Oroxylum indicum, 189, Photo 337
Orthosiphon aristatus, 107
Orthosiphon stamineus, 107
Osmanthus, 128
Osmanthus fragrans, 128, Photos 235, 236
Osmanthus longibrateatus, 128
Osmanthus marginatus, 129, Photo 237
Osmanthus matsumuranus, 129, Photos 238, 239
Osmanthus maximus, 129
Osmanthus minor, 129
Osmanthus obouatifolius, 129
Oxyceros, 236
Oxyceros sinensis, 237, Photo 431

P

Pachystachys, 180
Pachystachys lutea, 180, Photo 322
Paederia, 226
Paederia pertomentosa, 227, Photos 407, 408
Paederia scandens, 226, Photos 404, 405
Paederia scandens var. tomentosa, 226, Photo 406
Paederia tomentosa, 226
Paederota minima, 139
Pandorea ricasoliana, 186
Parabarium micranthum, 27
Paraixeris, 258
Paraixeris denticulata, 258, Photo 466
Paraphlomis, 120
Paraphlomis javanica, 120, Photos 221, 222
Parasitipomoea formosana, 66
Paulownia fortunei, 133, Photo 250
Pavetta, 234
Pavetta hongkongensis, 234, Photos 425, 426
Pavetta indica, 234
PEDALIACEAE, 185
Pentacoelium bontioides, 153
Pentas, 217
Pentasachme, 32
Pentasachme caudatum, 32, Photos 53, 54
Pentasachme championii, 32
Pentas lanceolata, 217
Pentas lanceolata, 217, Photo 386
Pergularia divaricatus, 26
Pergularia sinensis, 35
Perilla, 104

Perilla arguta, 105
Perilla frutescens, 104, Photo 197
Perilla frutescens var. *acuta*, 105
Perilla frutescens var. *arguta*, 105
Perilla frutescens var. crispa, 105
Perilla frutescens var. purpurascens, 104
Perilla lanceolata, 103
Perilla nankinensis, 105
Perilla ocymoides, 104
Perilla ocymoides var. *purpurascens*, 105
Periploca sylvestris, 38
Peristrophe purpurea, 174
Pertusadina, 207
Pertusadina hainanensis, 208
Pertusadina metcalfii, 208
Pertya, 276
Pertya pungens, 276, Photo 489
Petitmenginia matsumurae, 143
Petunia, 51
Petunia hybrida, 51
Pharbitis hispida, 67
Pharbitis indica, 66
Pharbitis insularis, 66
Pharbitis learii, 66
Pharbitis nil, 67
Pharbitis purpurea, 67
Phlebophyllum apricum, 170
Phlomis linifolia, 119
Phlomis rugosa, 120
Phyla, 81
Phyla chinensis, 82
Phyla nodiflora, 82, Photo 150
Physalis, 52
Physalis angulata, 52, Photos 100, 101
Picria, 146
Picria felterrae, 146
Piddingtonia nummularia, 199
Piloselloides hirsuta, 279
PLANTAGINACEAE, 122
Plantago, 122
Plantago lanceolata, 122, Photo 223
Plantago major, 122, Photo 224
Platycodon, 196
Platycodon grandiflorus, 196, Photo 350
Plectranthus amethysoides, 109
Plectranthus coetsa, 110
Plectranthus striatus, 110
Plectranthus ternifolius, 109
Pluchea, 286
Pluchea indica, 286, Photos 497, 498
Pluchea pteropoda, 287
Plumeria, 18
Plumeria acuminata, 18
Plumeria acutifolia, 18
Plumeria rubra, 18, Photos 18, 19
Pogostemon, 105
Pogostemon auricularius, 105, Photo 198
Pogostemon championii, 106, Photo 199
Pogostemon parviflorus, 106
Polycoelium chinense, 153
Porophyllum, 309
Porophyllum ruderale, 309
Porphyra dichotoma, 87
Pottsia, 28
Pottsia cantonensis, 28
Pottsia grandiflora, 28
Pottsia laxiflora, 28, Photo 45
Pratia, 199
Pratia begonifolia, 199
Pratia nummularia, 199, Photo 355
Praxelis, 306
Praxelis clematidea, 307, Photo 539
Premna, 97
Premna corymbosa, 97
Premna integrifolia, 97
Premna integrifolia var. *obtusifolia*, 97
Premna obtusifolia, 97
Premna serratifolia, 97, Photos 184, 185
Prenanthes chinensis, 257
Prenanthes denticulata, 258
Prenanthes japonica, 252
Prenanthes laciniata, 253
Prenanthes repens, 255
Prenanthes sarmentosa, 253
Pseudelephantopus, 302
Pseudelephantopus spicatus, 302
Pseuderanthemum, 177
Pseuderanthemum atropurpureum, 178
Pseuderanthemum atropurpureum 'Variegatum', 178
Pseuderanthemum carruthersii, 178
Pseuderanthemum carruthersii 'Variegatum', 178, Photo 317
Pseuderanthemum carruthersii var. *atropurpureum*, 178
Pseuderanthemum pulchellum, 177
Psychotria, 230
Psychotria asiatica, 230, Photos 416, 417
Psychotria elliptica, 230
Psychotria herbacea, 225
Psychotria rubra, 230
Psychotria serpens, 231, Photo 419
Psychotria tutcheri, 230, Photo 418
Psydrax dicoccos, 230
Pterocypsela, 253
Pterocypsela indica, 253, Photos 459, 460
Pterocypsela laciniata, 253
Pterocypsela raddeana, 254
Pteroptychia dalziellii, 171
Pterostigma capitatum, 137
Pterostigma grandiflorum, 137
Pycnanthemum decurrens, 113
Pyrostegia, 187
Pyrostegia ignea, 187
Pyrostegia venusta, 187, Photo 332

Q

Quamoclit pennata, 63

R

Rabdosia amethystoides, 109
Rabdosia coetsa, 110
Rabdosia lophanthoides, 110
Rabdosia ternifolia, 109
Radermachera sinica, 186
Randia acuminatissima, 239
Randia acutidens var. *laxiflora*, 239
Randia canthioides, 238
Randia cochinchinensis, 239
Randia densiflora, 239
Randia dumetorum, 236
Randia henryi, 239
Randia leucocarpa, 239
Randia pycnantha, 239
Randia sinensis, 237
Randia spinosa, 236
Rauvolfia, 21
Rauvolfia chinensis, 21
Rauvolfia perakensis, 21
Rauvolfia verticillata, 21, Photos 27, 28
Razumovia tranquebarica, 142
Rhinacanthus, 180
Rhinacanthus communis, 180
Rhinacanthus nasutus, 180, Photo 323
Rhynchospermum jasminoides, 28
Rhynchotechum, 155
Rhynchotechum ellipticum, 155, Photo 287
Rhynchotechum formosanum, 155
Richardia, 224
Richardia brasiliensis, 224
Richardia scabra, 224, Photo 401
Rivea nervosa, 61
Roettlera obtusa, 157
Rostellularia hayatai, 181
Rostellularia procumbens, 182
Rostellularia procumbens var. *ciliata*, 181
Rubia, 223
RUBIACEAE, 203
Rubia cordifolia, 224
Rubia wallichiana, 224, Photo 400
Ruellia, 167
Ruellia anagallis, 151

Ruellia angustifolia, 167
Ruellia antipoda, 152
Ruellia brittoniana, 167
Ruellia coerulea, 167, Photo 304
Ruellia erecta, 169
Ruellia repens, 168
Ruellia salicifolia, 168
Ruellia spectabils, 167
Ruellia tetrasperma, 172
Rungia, 179
Rungia chinensis, 179, Photo 319
Rungia parviflora subsp. *pectinata*, 179
Rungia parviflora var. *pectinata*, 179
Rungia pectinata, 179, Photos 320, 321
Russelia, 144
Russelia equisetiformis, 145, Photo 264

S

Salvia, 100
Salvia chinensis, 101, Photo 193
Salvia coccinea, 102
Salvia fortunei, 101
Salvia japonica, 101
Salvia plebeia, 100, Photos 191, 192
Salvia splendens, 102, Photo 194
Sambucus, 240
Sambucus chinensis, 240, Photos 440, 441
Sambucus javanica, 240
Sanchezia, 165
Sanchezia nobilis, 166
Sanchezia parvibracteata, 166
Saussurea, 275
Saussurea affinis, 275
Saussurea carthamoides, 275
Saussurea japonica, 275
Saussurea linearis, 275
Scaevola, 201
Scaevola hainanensis, 201, Photos 359, 360
Scaevola koenigii, 202
Scaevola lobelia, 201
Scaevola sericea, 201
Scaevola taccada, 201, Photos 361, 362
Sceura marina, 84
Scoparia, 134
Scoparia dulcis, 134, Photo 251
SCROPHULARIACEAE, 133
Scutellaria, 116
Scutellaria barbata, 116, Photos 212, 213
Scutellaria formosana, 116, Photos 214, 215
Scutellaria indica, 117, Photo 216
Scutellaria rivularis, 116
Scutellaria tayloriana, 117
Senecio, 292
Senecio chinensis, 292
Senecio divaricatus, 297
Senecio japonicus, 294
Senecio scandens, 292, Photo 518
Senecio sonchifolia, 295
Senecio stauntonii, 292, Photo 519
Senecio valerianifolius, 291
Serissa, 220
Serissa foedida, 220
Serissa japonica, 220
Serissa serissoides, 220
Serratula japonica, 275
Sesamum, 185
Sesamum indicum, 185, Photos 328, 329
Sesamum orientale, 185
Shutereia sublobata, 58
Siegesbeckia, 264
Siegesbeckia orientalis, 264, Photo 473
Silphium trilobatum, 271
Sinobacopa aquatica, 146
Siphonostegia, 143
Siphonostegia chinensis, 144, Photo 263
Siphonostegia laeta, 144
Soanum incanum, 50
SOLANACEAE, 43
Solanum, 46
Solanum americanum, 48, Photo 90
Solanum biflorum, 54
Solanum capsicoides, 49, Photos 93, 94
Solanum chinense, 50
Solanum coagulans, 50
Solanum cumingii, 50
Solanum decemdentatum, 54
Solanum erianthum, 47, Photos 86, 87
Solanum ferox, 49
Solanum indicum, 50
Solanum lasiocarpum, 49
Solanum mammosum, 48, Photos 91, 92
Solanum melongena, 50, Photo 97
Solanum nigrum, 48, Photos 88, 89
Solanum photeinocarpum, 48
Solanum sanctum, 50
Solanum surattense, 49
Solanum torvum, 49, Photo 95
Solanum tuberosum, 47, Photo 85
Solanum undatum, 50, Photo 96
Solanum verbascifolium, 47
Solanum violaceum, 50
Solanum wrightii, 49
Solenostemon scutellarioides, 108
Solidago, 309
Solidago chinensis, 272
Solidago decurrens, 309, Photo 540
Solidago virgaurea, 309
Solidago virgaurea var. *leiocarpa*, 309
Soliva, 327
Soliva anthemifolia, 327, Photo 559
Sonchus, 250
Sonchus arvensis, 250, Photo 454
Sonchus oleraceus, 251, Photo 455
Sopubia, 143
Sopubia lasiocarpa, 143
Sopubia matsumurae, 143
Sopubia stricta, 143
Spathodea, 191
Spathodea campanulata, 191, Photos 339, 340
Spathodea cauda-felina, 190
Spermacoce, 221
Spermacoce articularis, 221, Photo 395
Spermacoce costata, 212
Spermacoce hirta, 225
Spermacoce hispida, 221
Spermacoce latifolia, 222, Photos 396, 397
Spermacoce mauritiana, 221, Photo 394
Spermacoce stricta, 221, Photo 393
Spermacoce villosa, 225
Sphaeromorphaea australis, 282
Sphenoclea, 194
Sphenoclea zeylanica, 195, Photo 347
Spilanthes, 268
Spilanthes acmella, 270
Spilanthes grandiflora, 269, Photo 481
Spilanthes paniculata, 268, Photos 479, 480
Spiranthera turpethum, 61
Stachys, 114
Stachys artemisia, 118
Stachys asper, 114
Stachys geobombycis, 114, Photo 208
Stachytarpheta, 83
Stachytarpheta jamaicensis, 83, Photo 152
Staurogyne, 163
Staurogyne concinnula, 163
Stemodia hirsuta, 136
Stenolobium stans, 190
Stephanotis chinensis, 37
Stephanotis mucronata, 37
Striga, 141
Striga asiatica, 141, Photos 260, 261
Striga asiatica var. *humilis*, 141
Striga hirsuta, 141
Striga hirsuta var. *humilis*, 141
Striga lutea, 141
Striga masuria, 141
Strobilanthes, 169
Strobilanthes apricus, 170, Photo 307
Strobilanthes calycina, 171
Strobilanthes championi, 172
Strobilanthes cusia, 171, Photo 310
Strobilanthes dalzielii, 171, Photo 309

Strobilanthes dimorphotricha, 170, Photo 308
Strobilanthes divaricatus, 171
Strobilanthes flaccidifolius, 172
Strobilanthes penstmonoides, 171
Strobilanthes pentastemonoides, 171
Strobilanthes radicans, 172
Strobilanthes tetraspermus, 172, Photo 311
Strophanthus, 26
Strophanthus chinensis, 26
Strophanthus divaricatus, 26, Photos 40, 41
Strophanthus divergens, 26
Strychnos, 11
Strychnos angustiflora, 12, Photos 5, 6
Strychnos cathayensis, 12, Photos 7, 8
Strychnos paniculata, 11
Strychnos umbellata, 11, Photos 3, 4
STYLIDIACEAE, 200
Stylidium, 200
Stylidium roseum, 200
Stylidium sinicum, 200
Stylidium tenellum, 200, Photos 357, 358
Stylidium tenellum var. *minimum*, 201
Stylidium uliginosum, 200, Photo 356
Stylocoryna attenuata, 233
Stylocoryna mollissima, 234
Stylocoryna webera, 233
Synedrella, 267
Synedrella nodiflora, 267, Photo 478

T

Tabebuia, 188
Tabebuia argentea, 186
Tabebuia chrysantha, 188, Photos 334, 335
Tabebuia chrysotricha, 188
Tabebuia heterophylla, 186
Tabernaemontana, 23
Tabernaemontana divaricata, 23, Photo 30
Tagetes, 308
Tagetes erecta, 308
Tagetes patula, 309
Tagetes tenuifolia, 308
Taraxacum, 249
Taraxacum dens-leonis, 249
Taraxacum mongolicum, 250
Taraxacum officinale, 249, Photo 453
Tarenna, 233
Tarenna attenuata, 233, Photo 422
Tarenna brevicymigera, 233
Tarenna mollissima, 233, Photo 423
Tecoma, 190
Tecoma capensis, 186
Tecoma chinensis, 187
Tecoma stans, 190, Photo 338
Tectona, 89
Tectona grandis, 89
Telosma, 38
Telosma cordata, 39, Photo 67
Teucrium, 99
Teucrium japonicum, 99
Teucrium quadrifarium, 99, Photos 187, 188
Teucrium stoloniferum, 99
Teucrium viscidum, 99, Photo 186
Thevetia, 19
Thevetia peruviana, 19, Photo 20
Thevetia peruviana 'Aurantiana', 19, Photo 21
Thunbergia, 161
Thunbergia alata, 162, Photo 297
Thunbergia bodinier, 162
Thunbergia erecta, 161, Photo 296
Thunbergia fragrans, 162
Thunbergia grandiflora, 163, Photo 298
Thunbergia grandiflora var. *laurifolia*, 162
Thunbergia harrisii, 162
Thunbergia laurifolia, 162
Thyrsacanthus strictus, 176
Thyrsacanthus tubaeformis, 176
Thysanospermum diffusum, 231
Tithonia, 262
Tithonia diversifolia, 262, Photo 470
Torenia, 146
Torenia asiatica, 148
Torenia benthamiana, 147, 148, Photos 266, 267
Torenia biniflora, 147, Photo 268
Torenia concolor, 148, Photo 272
Torenia flava, 147
Torenia fordii, 148, Photo 271
Torenia fournieri, 148, Photos 269, 270
Torenia glabra, 148
Torenia hirsuta, 147
Torenia oblonga, 152
Torenia rubens, 148
Torenia rubens var. *grandiflora*, 148
Tournefortia, 77
Tournefortia brachyantha, 77
Tournefortia montana, 77, Photo 141
Tournefortia sampsonii, 77
Toxocarpus, 35
Toxocarpus fuscus, 36
Toxocarpus ovalifolius, 35
Toxocarpus wightianus, 35, Photos 60, 61
Trachelospermum, 28
Trachelospermum jasminoides, 28, Photo 46
Trachelospermum jasminoides cv. *Variegatum*, 28
Trachelospermum jasminoides var. *heterophyllum*, 28
Tricalysia dubia, 238
Tridax, 260
Tridax procumbens, 260, Photo 469
Triosteum hirsutum, 228
Tripterospermum, 14
Tripterospermum nienkui, 14, Photos 13, 14
Tsiangia hongkongensis, 234
Tussilago japonica, 293
Tylophora, 41
Tylophora hispida, 41
Tylophora ovata, 41, Photos 71, 72

U

Uncaria, 205
Uncaria hirsuta, 205, Photo 365
Uncaria homomalla, 206
Uncaria macrophylla, 205, Photo 364
Uncaria tonkinensis, 206
Urceola, 27
Urceola micrantha, 27, Photo 42
Urceola rosea, 27, Photos 43, 44
Uricularia exoleta, 192
Utricularia, 192
Utricularia affinis, 193
Utricularia aurea, 192, Photo 341
Utricularia bifida, 193, Photo 343
Utricularia caerulea, 193, Photo 345
Utricularia diantha, 192
Utricularia flexuosa, 192
Utricularia gibba, 192, Photo 342
Utricularia harlandii, 194
Utricularia orbiculata, 194
Utricularia racemosa, 193
Utricularia striatula, 194, Photo 346
Utricularia uliginosa, 193, Photo 344

V

Vallaris laxiflora, 28
Vandellia angustifolia, 151
Vandellia crustacea, 150
Vandellia oblonga, 152
Vandellia pedunculata, 151
Vandellia scabra, 151
Varronia sinensis, 78
Verbena, 82
Verbena × *hybrida*, 82
Verbena bonariensis, 82
VERBENACEAE, 80
Verbena jamaicensis, 83
Verbena nodiflora, 82

Verbena officinalis, 83, Photo 151
Verbena rigida, 82
Verbena tenuisecta, 82
Verbesina acmella, 270
Verbesina alba, 269
Verbesina biflora, 271
Verbesina chinensis, 280
Verbesina lavenia, 303
Verbesina nodiflora, 267
Verbesina prostrata, 269, 272
Vernonia, 297
Vernonia andersonii, 299
Vernonia chinensis, 298
Vernonia cinerea, 298, Photo 526
Vernonia cumingiana, 299, Photo 528
Vernonia elliptica, 300
Vernonia gratiosa, 300
Vernonia kawakami, 299
Vernonia maritima, 299
Vernonia patula, 298, Photo 527
Vernonia saligna, 297
Vernonia solanifolia, 300
Veronica, 138
Veronica Anagallis, 138
Veronica anagallis-aquatica, 138
Veronica didyma, 138
Veronica javanica, 139
Veronica persica, 138, Photo 257
Veronica tournefortii, 138
Veronica undulata, 138
Viburnum, 243
Viburnum dielsii, 88
Viburnum fordiae, 243, 244
Viburnum hanceanum, 243, Photo 448
Viburnum luzonicum, 244
Viburnum odoratissimum, 244, Photos 449, 450
Viburnum sempervirens, 244, Photos 451, 452
Viburnum venulosum, 244
Villarsia cristata, 75
Vinca rosea, 17
Vitex, 94
Vitex agnus-castus, 94
Vitex agnus-castus 'Alba', 94
Vitex cannabifolia, 96
Vitex heterophylla, 95
Vitex loureiri, 95
Vitex negundo, 95, Photo 182
Vitex negundo f. *intermedia*, 96
Vitex negundo var. cannabifolia, 96
Vitex ovata, 94
Vitex quinata, 95, Photo 180
Vitex rotundifolia, 94, Photo 179
Vitex trifolia, 95, Photo 181
Vitex trifolia var. *simplicifolia*, 94
Vitex trifolia var. *unifoliolata*, 94
Vitex tripinnata, 94, Photo 178
Volkameria inermis, 90
Volkameria japonica, 92
Volkameria kaempferi, 92
Volkameria pumila, 91
Volvulus hederaceus, 57

W

Wahlenbergia, 197
Wahlenbergia agrestis, 197
Wahlenbergia gracilis, 197
Wahlenbergia grandiflora, 196
Wahlenbergia marginata, 197
Webera attenuata, 233
Webera densiflora, 239
Webera mollissima, 234
Wedelia, 270
Wedelia biflora, 271, Photo 485
Wedelia calendulacea, 272
Wedelia chinensis, 272, Photo 486
Wedelia prostrata, 272, Photo 487
Wedelia trilobata, 271, Photo 484
Wedelia urticifolia, 271
Wedelia wallichii, 271
Wollastonia biflora, 271
Wollastonia prostrata, 272
Wrightia, 22
Wrightia hainanensis, 23
Wrightia hainanensis var. *variabilis*, 23
Wrightia laevis, 23, Photo 29

X

Xanthium, 259
Xanthium sibiricum, 259, Photo 467
Xanthium strumarium, 259
Xenostegia, 69
Xenostegia tridentata, 69

Y

Youngia, 251
Youngia denticulata, 258
Youngia heterophylla, 251, Photo 456
Youngia japonica, 252, Photo 457

Z

Zinnia, 261
Zinnia bidens, 267
Zinnia elegans, 261
Zinnia violacea, 261

INDEX TO THE FAMILIES FOR THE *FLORA OF HONG KONG*

Family		Family No.	Volume No.
Acanthaceae	爵床科	304	3
Aceraceae	槭樹科	259	2
Acoraceae	菖蒲科	343	4
Actinidiaceae	獼猴桃科	89	1
Agavaceae	龍舌蘭科	379	4
Aizoaceae	番杏科	70	1
Alangiaceae	八角楓科	206	2
Alismataceae	澤瀉科	326	4
Aloeaceae	蘆薈科	378	4
Amaranthaceae	莧科	74	1
Anacardiaceae	漆樹科	261	2
Annonaceae	番荔枝科	8	1
Apiaceae (Umbelliferae)	傘形科	274	2
Apocynaceae	夾竹桃科	278	3
Aponogetonaceae	水蕹科	328	4
Aquifoliaceae	冬青科	228	2
Araceae	天南星科	344	4
Araliaceae	五加科	273	2
Araucariaceae	南洋杉科	G2	1
Arecaceae (Palmae)	棕櫚科	340	4
Aristolochiaceae	馬兜鈴科	22	1
Asclepiadaceae	蘿藦科	279	3
Asteraceae (Compositae)	菊科	323	3
Balanophoraceae	蛇菰科	218	2
Balsaminaceae	鳳仙花科	272	2
Basellaceae	落葵科	76	1
Begoniaceae	秋海棠科	133	1
Berberidaceae	小檗科	32	1
Bignoniaceae	紫葳科	306	3
Bixaceae	紅木科	112	1
Bombacaceae	木棉科	104	1
Boraginaceae	紫草科	290	3
Brassicaceae (Cruciferae)	十字花科	137	1
Bromeliaceae	鳳梨科	362	4
Buddlejaceae	醉魚草科	297	3
Burmanniaceae	水玉簪科	387	4
Burseraceae	橄欖科	260	2
Buxaceae	黃楊科	234	2
Cactaceae	仙人掌科	72	1
Caesalpiniaceae	蘇木科	184	2
Callitrichaceae	水馬齒科	294	3
Calycanthaceae	臘梅科	15	1
Campanulaceae	桔梗科	311	3
Cannabaceae	大麻科	52	1
Cannaceae	美人蕉科	369	4
Capparaceae	白花菜科	136	1
Caprifoliaceae	忍冬科	318	3
Caricaceae	番木瓜科	127	1
Caryophyllaceae	石竹科	78	1
Casuarinaceae	木麻黃科	66	1
Celastraceae	衛矛科	223	2
Cephalotaxaceae	三尖杉科	G9	1

Family		Family No.	Volume No.
Ceratophyllaceae	金魚藻科	29	1
Chenopodiaceae	藜科	73	1
Chloranthaceae	金粟蘭科	19	1
Clusiaceae (Guttiferae)	山竹子科	100	1
Combretaceae	使君子科	204	2
Commelinaceae	鴨跖草科	349	4
Compositae (see Asteraceae)	菊科	323	3
Connaraceae	牛栓藤科	160	2
Convolvulaceae	旋花科	283	3
Cornaceae (incl. Nyssaceae)	山茱萸科	207	2
Costaceae	閉鞘薑科	368	4
Crassulaceae	景天科	174	2
Cruciferae (see Brassicaceae)	十字花科	137	1
Cucurbitaceae	葫蘆科	130	1
Cupressaceae	柏科	G6	1
Cuscutaceae	菟絲子科	284	3
Cycadaceae	蘇鐵科	G12	1
Cyperaceae	莎草科	357	4
Daphniphyllaceae	交讓木科	47	1
Dilleniaceae	第倫桃科	81	1
Dioscoreaceae	薯蕷科	385	4
Droseraceae	茅膏菜科	109	1
Ebenaceae	柿科	152	1
Elaeagnaceae	胡頹子科	186	2
Elaeocarpaceae	杜英科	101	1
Ericaceae	杜鵑花科	147	1
Eriocaulaceae	穀精草科	350	4
Euphorbiaceae	大戟科	237	2
Fabaceae (Papilionaceae)	蝶形花科	185	2
Fagaceae	殼斗科	63	1
Flacourtiaceae	大風子科	110	1
Fumariaceae	荷包牡丹科	39	1
Gentianaceae	龍膽科	276	3
Geraniaceae	牻牛兒苗科	269	2
Gesneriaceae	苦苣苔科	303	3
Ginkgoaceae	銀杏科	G1	1
Gnetaceae	買麻藤科	G17	1
Goodeniaceae	草海桐科	315	3
Gramineae (see Poaceae)	禾本科	358	4
Grossulariaceae	鼠刺科	169	2
Guttiferae (see Clusiaceae)	山竹子科	100	1
Haloragaceae	小二仙草科	189	2
Hamamelidaceae	金縷梅科	45	1
Hernandiaceae	蓮葉桐科	18	1
Hydrangeaceae (incl. Philadelphaceae)	繡球花科	167	2
Hydrocharitaceae	水鱉科	327	4
Icacinaceae	茶茱萸科	229	2
Illiciaceae	八角科	23	1
Iridaceae	鳶尾科	376	4
Ixonanthaceae	黏木科	243	2
Juglandaceae	胡桃科	59	1

Family		Family No.	Volume No.
Juncaceae	燈心草科	355	4
Labiatae (see Lamiaceae)	唇形科	292	3
Lamiaceae (Labiatae)	唇形科	292	3
Lardizabalaceae	木通科	34	1
Lauraceae	樟科	17	1
Lemnaceae	浮萍科	345	4
Lentibulariaceae	狸藻科	308	3
Liliaceae (incl. Amaryllidaceae)	百合科	375	4
Loganiaceae	馬錢科	275	3
Loranthaceae	桑寄生科	215	2
Lythraceae	千屈菜科	192	2
Magnoliaceae	木蘭科	6	1
Malpighiaceae	金虎尾科	246	2
Malvaceae	錦葵科	105	1
Marantaceae	竹芋科	370	4
Melastomataceae	野牡丹科	203	2
Meliaceae	楝科	265	2
Menispermaceae	防己科	35	1
Menyanthaceae	荇菜科	286	3
Mimosaceae	含羞草科	183	2
Molluginaceae	粟米草科	77	1
Moraceae	桑科	53	1
Musaceae	芭蕉科	365	4
Myoporaceae	苦檻藍科	301	3
Myricaceae	楊梅科	60	1
Myrsinaceae	紫金牛科	157	1
Myrtaceae	桃金娘科	199	2
Najadaceae	茨藻科	333	4
Nelumbonaceae	蓮科	25	1
Nepenthaceae	豬籠草科	108	1
Nyctaginaceae	紫茉莉科	69	1
Nymphaeaceae	睡蓮科	26	1
Nyssaceae	藍果樹科	202	2
Olacaceae	鐵青樹科	211	2
Oleaceae	木犀科	298	3
Onagraceae	柳葉菜科	201	2
Opiliaceae	山柑子科	212	2
Orchidaceae	蘭科	389	4
Orobanchaceae	列當科	302	3
Oxalidaceae	酢漿草科	268	2
Palmae (see Arecaceae)	棕櫚科	340	4
Pandaceae	攀打科	236	2
Pandanaceae	露兜樹科	342	4
Papaveraceae	罌粟科	38	1
Papilionaceae (see Fabaceae)	蝶形花科	185	2
Passifloraceae	西番蓮科	125	1
Pedaliaceae	胡麻科	305	3
Pentaphylacaceae	五列木科	91	1
Philydraceae	田葱科	371	4
Phytolaccaceae	商陸科	67	1
Pinaceae	松科	G3	1
Piperaceae	胡椒科	21	1
Pittosporaceae	海桐花科	165	2
Plantaginaceae	車前草科	296	3
Platanaceae	懸鈴木科	44	1
Plumbaginaceae	白花丹科	80	1
Poaceae (Gramineae)	禾本科	358	4
Podocarpaceae	羅漢松科	G8	1
Podostemaceae	川苔草科	188	2

Family		Family No.	Volume No.
Polemoniaceae	花葱科	287	3
Polygalaceae	遠志科	250	2
Polygonaceae	蓼科	79	1
Pontederiaceae	雨久花科	372	4
Portulacaceae	馬齒莧科	75	1
Potamogetonaceae	眼子菜科	331	4
Primulaceae	報春花科	158	1
Proteaceae	山龍眼科	187	2
Punicaceae	安石榴科	200	2
Ranunculaceae	毛茛科	30	1
Rhamnaceae	鼠李科	238	2
Rhizophoraceae	紅樹科	205	2
Rosaceae	薔薇科	177	2
Rubiaceae	茜草科	316	3
Ruppiaceae	川蔓藻科	332	4
Rutaceae	芸香科	266	2
Sabiaceae	清風藤科	37	1
Salicaceae	楊柳科	134	1
Santalaceae	檀香科	213	2
Sapindaceae	無患子科	257	2
Sapotaceae	山欖科	151	1
Sargentodoxaceae	大血藤科	33	1
Saururaceae	三白草科	20	1
Saxifragaceae	虎耳草科	176	2
Schisandraceae	五味子科	24	1
Scrophulariaceae	玄參科	299	3
Simaroubaceae	苦木科	263	2
Smilacaceae	菝葜科	384	4
Solanaceae	茄科	282	3
Sonneratiaceae	海桑科	191	2
Staphyleaceae	省沽油科	253	2
Stemonaceae	百部科	383	4
Sterculiaceae	梧桐科	103	1
Strelitziaceae	旅人蕉科	363	4
Stylidiaceae	花柱草科	312	3
Styracaceae	安息香科	153	1
Symplocaceae	山礬科	155	1
Taccaceae	蒟蒻薯科	382	4
Tamaricaceae	檉柳科	119	1
Taxodiaceae	杉科	G5	1
Theaceae	山茶科	88	1
Thymelaeaceae	瑞香科	197	2
Tiliaceae	椴樹科	102	1
Triuridaceae	霉草科	339	4
Tropaeolaceae	旱金蓮科	271	2
Typhaceae	香蒲科	361	4
Ulmaceae	榆科	51	1
Umbelliferae (see Apiaceae)	傘形科	274	2
Urticaceae	蕁麻科	55	1
Verbenaceae	馬鞭草科	291	3
Violaceae	堇菜科	118	1
Viscaceae	槲寄生科	216	2
Vitaceae	葡萄科	240	2
Xanthophyllaceae	黃葉樹科	251	2
Xyridaceae	黃眼草科	347	4
Zamiaceae	澤米蘇鐵科	G14	1
Zingiberaceae	薑科	367	4
Zosteraceae	大葉藻科	337	4