
**APOCYNACEAE**

夹竹桃科 jia zhu tao ke

Li Ping-tao¹; Antony J. M. Leeuwenberg², David J. Middleton³

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, 5- or 4-merous, actinomorphic. Calyx 5- or rarely 4-partite, quinuncial, basal glands usually present. Corolla 5- or rarely 4-lobed, salverform, funnelform, urceolate, or rarely rotate, lobes overlapping to right or left, rarely valvate. Stamens 5 or rarely 4; 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; disc ringlike or cup-shaped, 2–5-lobed, or absent. Ovaries superior, rarely half-inferior, connate or distinct, 1- or 2-locular; ovules (1 or) 2–numerous per locule. Style 1; pistil head capitulate, conical, or lamphadate-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. Of the 44 genera and 145 species present in China, one genus and 38 species are endemic, and nearly 95% of the taxa grow in the southern and southwestern portions of the country.

Fruit type is highly diversified in the family, and it is diagnostic of many genera. Genera 1–4 produce 1, 2-celled berries from a flower; genus 5 produces 2, 1-celled berries from a flower; 6 and 7 produce mostly fleshy follicles containing deeply indented seeds with ruminate endosperm; 8 has follicles and winged seeds; 9 produces follicles and seeds with 2 comas; 10–12 have drupes mostly with fleshy mesocarp; 13–18 have drupes mostly wingless; 19 has samaroid fruit; 20 has spiny capsules with seeds winged all around; and 21–44 have free or fused follicles and comose seeds. Double flowers are known only from cultivated forms of *Nerium oleander, Tabernaemontana diversifolia*, and *Wrightia religiosa*.

Plants of the Apocynaceae are often poisonous and are rich in alkaloids or glycosides, especially in the seeds and latex. Some species are valuable sources of medicine, insecticides, fibers, and rubber.


1a. Herbs, sometimes with a woody base.
   2a. Plants with stolons; corolla violet .......................... 12. Vinca
   2b. Plants without stolons; corolla mostly pink or white, sometimes bluish.
      3a. Leaf blade with pale venation; corolla tube narrow, 2–3 cm ...................................................... 11. Catharanthus
      3b. Leaf blade without pale venation; corolla tube narrow or broad, up to 1 cm.
         4a. Corolla salverform, lobes overlapping to left; all leaves alternate .................. 10. Amsonia
         4b. Corolla campanulate or basin-shaped, lobes overlapping to right; usually opposite .... 36. Aprocynum

1b. Trees, shrubs, or woody climbers.
   5a. Shrubs or climbers with straight spines ............................................. 1. Carissa
   5b. Plants without spines.
      6a. Leaves alternate.
         7a. Branchlets mostly 2–3 cm in diam.; flowers waxy; fruit a follicle; seeds winged ............ 8. Plumeria
         7b. Branchlets less than 1 cm in diam.; flowers not waxy; fruit a drupe; seeds wingless.
            8a. Corolla white, often with a deep pink-red or yellow throat, tube cylindric or nearly so; fruit subglobose ........................................................................... 18. Cerbera
            8b. Corolla yellow, tube funnelform; fruit rhomboid or nearly so ......................................... 17. Thevetia
         6b. Leaves opposite or whorled.
            9a. Leaves whorled, at least toward tips of branches.
               10a. Corolla yellow, tube at least 4 cm; fruit globose, prickly ............................................ 20. Allamanda
               10b. Corolla variously colored, usually not yellow, tube up to 2.2 cm; fruit globose or not, smooth.
                  11a. Corolla tube funnelform, 1.2–2.2 cm, with corona; leaves thick, lanceolate, with dark reticulate venation abaxially; fruit a united pair of follicles ........................................... 28. Nerium
                  11b. Corolla tube almost cylindric, mostly up to 1 cm, if longer then without a corona; leaves often not very thick, variously shaped; fruit a pair of drupes or free follicle.
                     12a. Climbers, if erect shrubs then fruit moniliform with 1–4 drupelike articles.
                        13a. Leaves with hairy domatia; fruit follicular, constricted; seeds comose .............. 39. Parameria
                        13b. Leaves without hairy domatia; fruit moniliform, sometimes globose,
transversely constricted into 2–5 drupelike articles .................................................... 14. Alyxia

12b. Erect trees or shrubs, fruit not moniliform.

14a. Fruit slender follicles; seeds hairy; disc of 2 separate glands alternating with
carpsels, small annular, or absent; often big trees .................................................... 9. Alstonia

14b. Fruit drupes; seeds not hairy; disc ringlike, cup-shaped, or absent; small trees
or shrubs.

15a. Corolla lobes overlapping to right, often suberect; disc absent; drupes
mostly more than 3 cm; mesocarp fibrous .................................................................. 16. Ochrosia

15b. Corolla lobes overlapping to left, spreading; disc ringlike or cup-shaped;
drupes up to 2 cm; mesocarp fleshy ........................................................................ 13. Rauvolfia

9b. All leaves opposite.

16a. Corolla lobes overlapping to left.

17a. Climbers.

18a. Corolla tube cylindric or narrowed at throat; fruit berrylike.

19a. Disc absent; calyx without colleters inside; corolla with faucal corona
scales, tube almost cylindric ...................................................................................... 3. Melodinus

19b. Disc cylindric, thick, fleshy; calyx with basal colleters inside; corolla
without faucal corona scales, tube inflated at base, contracted at mouth ............... 4. Bousigonia

18b. Corolla tube funnelform or nearly so, not narrowed at throat; fruit follicular.

20a. Corolla tube 2–2.5 mm; follicles moniliform ..................................................... 39. Parameria

20b. Corolla tube ca. 12 mm; follicles narrowly fusiform ....................................... 42. Parepipigynum

17b. Trees or shrubs.

21a. Leaf blades with numerous parallel secondary veins; fruit samaroid follicles .......... 19. Cameraria

21b. Leaf blades with secondary veins clearly separate from each other and usually
with tertiary veins; fruit berries or wingless follicles.

22a. Stamens well exserted; corona usually present; fruit long dry follicles;
seeds comose .............................................................................................................. 29. Wrightia

22b. Stamens included or barely exserted; corona absent; fruit mostly berrylike;
seeds not comose.

23a. Inflorescences fascicled, axillary; fruit of united carpels ............................. 2. Acokanthera

23b. Inflorescences corymbose, terminal, at branch forks, or sometimes
axillary; fruit of at least partly separated carpels.

24a. Branching not dichotomous; submarginal leaf veins present;
corolla tube ca. 7 × as long as calyx ........................................................................ 5. Hunteria

24b. Branching dichotomous; submarginal leaf veins absent or obscure;
corolla tube long or short.

25a. Corolla tube slightly shorter or longer than calyx; calyx shed
before fruit develops, lobes recurved ..................................................................... 6. Voacanga

25b. Corolla tube at least 4 × as long as calyx; calyx
persistent at fruit base, lobes erect in fresh flowers ........................................ 7. Tabernaemontana

16b. Corolla lobes overlapping to right.

26a. Trees or shrubs; corolla lobes not caudate.

27a. Corolla tube 2.3–5 cm, very narrow; fruit drupaceous; seeds not comose ............. 15. Kopsia

27b. Corolla tube up to 1.9 cm; fruit follicular; seeds comose.

28a. Peduncle 0.9–1.7 cm; sepals mostly pubescent outside; corolla tube
0.9–1.9 cm; seeds not beaked .................................................................................... 35. Holarrhena

28b. Peduncle absent or to 0.8 cm; sepals glabrous or sparsely puberulent
outside; corolla tube up to 1.3 cm; seeds beaked.

29a. Stamens exserted; pedicel 1.5–3 cm; corolla lobes 1.2–1.8 × as long
as tube; domatia mostly absent ............................................................................... 33. Kibatalia

29b. Stamens included; pedicel 2–8 mm; corolla lobes 0.4–0.9 × as long
as tube; domatia consisting of pits ....................................................................... 34. Funtumia

26b. Climbers, if plants erect, corolla lobes caudate (Strophanthus).

30a. Corolla funnelform to subcampanulate and/or tube more than 2 cm, nearly
urceolate (Urceola) or subrotate (Vallaris).

31a. Corolla with corona, lobes caudate or sometimes (S. gratus) not;
seeds beaked .......................................................................................................... 32. Strophanthus

31b. Corolla without corona, lobes not caudate; seeds mostly not beaked.
32a. Stamens exserted.
33a. Filaments long, without a dorsal gland; corolla broadly funnelform .... 30. Beaumontia
33b. Filaments short, with a dorsal gland; corolla subrotate .......................... 31. Vallaris
32b. Stamens included.
34a. Corolla tube 1–4 mm, nearly urceolate; inflorescences many flowered, lax ................................................................. 38. Urceola
34b. Corolla tube at least 20 mm; inflorescences usually few flowered, not lax.
35a. Plants glabrous or nearly so ............................................................... 21. Mandevilla
35b. Plants conspicuously hairy.
36a. Corolla tube cylindric, limb spreading horizontally, often very wide; follicles more than 5 × as long as wide .... 24. Chonemorpha
36b. Corolla tube clearly widened toward throat, limb probably not horizontal; follicles ca. 3 × as long as wide ....... 25. Amalocalyx
30b. Corolla salverform, tube up to 1.4 cm (1.5–2.5 cm in Aganosma benthamiana).
37a. Stamens exserted.
38a. Corolla tube 7–13 mm; filaments straight; follicles very slender, of separate carpels ................................................................. 27. Pottsia
38b. Corolla tube to 5 mm; filaments strongly twisted; follicles rather thick, of united carpels .................................................. 26. Parsonsia
37b. Stamens included.
39a. Anther apex with long soft hairs.
40a. Corolla tube 5–15 mm, 3–8.7 × as long as sepals ......................... 44. Sindechites
40b. Corolla tube 1.6–2.5 mm, 1.3–2.3 × as long as sepals .................. 43. Cleghornia
39b. Anther apex glabrous.
41a. Disc divided into 5 erect segments or 5 free scales.
42a. Corolla tube ca. 5 × as long as sepals, 1.5–1.7 cm; inflorescences terminal ................................................................. 41. Epigynum
42b. Corolla tube mostly to 3 × as long as sepals, to 1.4 cm; inflorescences axillary and/or terminal.
43a. Corolla tube 4.5–14 mm, lobes 5–14 mm, forming in bud a large, rather narrowly ovoid, subacuminate head much wider than tube which is clearly widened around or above middle of stamens ............. 22. Trachelospermum
43b. Corolla tube 2.5–3 mm, lobes 3–5 mm, forming in bud a small subglobose or ovoid, rounded or blunt head not or slightly wider than tube which is ± barrel-shaped ......................................................... 40. Ichnocarpus
41b. Disc entire or shortly 5-lobed.
44a. Sepals more than twice as long as wide, acuminate or acute, often spreading and longer than corolla tube, if about half as long, then leaf blade with a submarginal vein
(A. marginata) ........................... 23. Aganosma
44b. Sepals less than twice as long as wide, acute to rounded, erect or apically slightly spreading, up to half as long as corolla tube.
45a. Corolla lobes neither twisted nor forming a head in bud; bud rounded, almost cylindric ............................................. 40. Ichnocarpus
45b. Corolla lobes twisted in bud, forming a large ovoid head; bud subacute.
46a. Corolla tube bottle-shaped, clearly narrowed at apex; follicles cylindric ................................................. 24. Chonemorpha
46b. Corolla tube cylindric or nearly so; follicles very narrowly ovoid ................................................................. 37. Anodendron

1. CARISSA Linnaeus, Mant. Pl. 1: 52. 1767, nom. cons.

假虎刺属 jia hu ci shu
Shrubs, climbers, or small trees, mostly spiny. Branches dichotomous. Leaves opposite; petiole 2–3 mm. Cymes terminal or axillary, dichotomous, pedunculate, usually many flowered. Flowers 5- or [4]-merous. Calyx without glands or rarely with many basal glands inside. Corolla salverform, tube cylindric, dilated at staminal insertion, lobes overlapping to left or to right. Stamens included in throat; anthers lanceolate, obtuse or apiculate, base not appended; disc absent. Ovary 2-loculed; ovules 1–4 in each locule, rarely numerous, biseriate. Style filiform; pistil head narrowly oblong or fusiform, apex shortly 2-cleft. Berries 1- or 2-loculed. Seeds 2 or more, peltate; endosperm fleshy; cotyledons ovate, radicle inferior.

About 30 species: tropics and sub tropics of Africa, Asia, and Australia; four species in China.

1a. Corolla lobes overlapping to left, as long as or longer than tube ................................. 1. C. macrocarpa
1b. Corolla lobes overlapping to right, shorter than tube.

2a. Lateral veins of leaf blade ca. 8 pairs; corolla puberulent inside; fruit ellipsoid, 1.5–2.5 × 1–2 cm ......... 4. C. carandas
2b. Lateral veins of leaf blade 3–5 pairs; corolla glabrous or pubescent inside; fruit globose, 0.5–1.2 cm in diam.

3a. Secondary veins conspicuous on adaxial leaf surface; branches and abaxial leaf surface puberulent ................................................................................................................. 3. C. spinarum
3b. Secondary veins of leaf blade inconspicuous; branchlets and leaves glabrous in plants introduced into China .............................................................. 2. C. edulis


大花假虎刺 da hua jia hu ci


Shrubs or small trees to 5 m tall. Spines 1- or 2-forked, 2–4 cm, strong. Leaf blade broadly ovate, 2.5–7.5 × 2–5 cm, thick leathery, glabrous, base rounded to obtuse, apex mucronate, lateral veins obscure. Cymes terminal, (1–)3-flowered. Pedicel 2–3 mm. Flowers fragrant. Sepals very narrowly ovate, 3–6 mm. Corolla white or pink, tube 1.1–1.8 cm, pubescent inside; lobes oblong, 0.9–2.4 cm, overlapping to left. Ovules numerous. Berries bright red to violet, ovoid, 2–5 cm, ca. 16-seeded. Fl. Aug. 2n = 66.

S Fujian and S Guangdong [introduced from S Africa].

Cultivated for its edible fruit.


甜假虎刺 tian jia hu ci

Antura edulis Forsskål, Fl. Aegypt.-Arab. 63. 1775; Arduina edulis (Forsskål) Spreng; Carandas edulis (Forsskål) Hiern; Jasminomerium edule (Forsskål) Kuntze.

Plants small trees or climbing in the wild, much branched shrubs to 5 m in cultivation; spines usually simple, straight or recurved, 2.5–5 cm. Leaf blade ovate to obovate or suborbicular, 2–5 × 2–4 cm, leathery, glabrous; lateral veins 3–5 pairs, inconspicuous. Sepals very narrowly oblong, 2–4.5 mm, ciliolate, glabrous outside. Corolla white or tinged with pink, glabrous outside, slightly hairy at mouth and on inner lobe surface, tube 0.9–2 cm; lobes ovate or oblong, 3–9 mm, convergent, anastomosing near margin. Cymes terminal, usually 3-flowered; peduncle 1.5–2.5 cm; bracteoles minute. Flowers fragrant. Pedicel about as long as calyx or slightly longer. Sepals 2.5–7 mm, with many basal glands inside. Acute at apex, overlapping to right. Berries purple to red, globose, 7–10 mm in diam. Seeds 2–4. 2n = 22.

S Yunnan [native of tropical Africa and S Arabia].

Cultivated for its edible fruit.


假虎刺 jia hu ci

Carissa diffusa Roxburgh; C. yunnanensis Tsang & P. T. Li.

Shrubs or small trees to 5 m tall; spines simple or forked, 1.2–6 cm. Leaf blade ovate to elliptic, 0.5–5.5 × 0.3–2.5 cm, leathery, finely puberulent abaxially, base rounded or acute, apex acute or short acuminate; lateral veins 3–5 pairs, conspicuous. Cymes terminal or axillary, 3–7-flowered, finely puberulent. Sepals ca. 2.5 × 1 mm, without glands. Corolla white, tube ca. 1 cm, lobes 5–7 mm, overlapping to right; ovules 1 in each locule. Berries shining black, subglobose, 5–12 mm. Seeds 3–5 mm. Fl. Mar-May, fr. Sep–Dec. 2n = 22.

Bushes, roadsides, forest edges. Guizhou, Sichuan, Yunnan [India, Myanmar, Sri Lanka, Thailand].

The roots are used to treat hepatitis and rheumatoid arthritis.


刺黄果 ci huang guo

Arduina carandas (Linnaeus) K. Schumann; Damma-canthus esquirolii H. Léveillé.

Shrubs, small trees, or climbers to 5 m tall. Spines simple or forked, to 5 cm. Leaf blade broadly ovate to oblong, 3–7 × 1.5–4 cm, base broadly cuneate to rounded, apex short apiculate; lateral veins ca. 8 pairs, ascending, Corolla white or pale rose; tube to 2 cm, puberulent inside; lobes lanceolate, ca. 1 cm, acute, overlapping to right, puberulent, ciliate. Ovules numerous in each locule. Berries reddish purple, ellipsoid, 1.5–2.5 × 1–2 cm. Fl. Mar-Jun, fr.
July-December. $2n = 22.$

Fujian, Guangdong, Guizhou, Hainan, Taiwan [India, Indonesia, Malaysia, Myanmar, Sri Lanka, Thailand].

Cultivated for its edible fruit, which can be eaten raw, made into jelly, or used for pies.


长药花属  chang yao hua shu

Shrubs or small trees, latex white. Leaves opposite. Corymbbs short pedunculate or sessile, axillary, often fascicled. Flowers subsessile, usually sweet scented. Calyx small, without glands inside. Corolla white or pink tinged, salverform, tube slightly widened near mouth; lobes short, overlapping to left; corona absent. Stamens inserted in widened part of corolla tube; anthers ovate to oblong, connective produced into a short, minutely pilose point, shortly 2-lobed at base; disc absent. Ovary 1, 2-loculed; ovules 1 per locule. Style filiform; pistil head cylindric or short conical, base with a ring of papillae, apex minutely 2-lobed. Berry globose or elliptic. Seeds 1 or 2, not comose; endosperm bony; cotyledons broadly ovate or subcordate, radicle superior.

Five species: S and tropical E Africa, Arabia; one species in China.


长药花  chang yao hua


Shrubs to 5 m tall. Branchlets compressed when young, terete with age. Petiole 2–6 mm; leaf blade mostly obovate, occasionally elliptic, 4–10 × 2–7 cm, lateral veins 6–10 pairs. Inflorescences sessile or subsessile, clustered, glabrous or puberulent, usually many flowered; bracts brown or distal ones pinkish, ovate. Sepals ovate to very narrowly ovate. Corolla white to pink, tube 0.8–1.3 cm, glabrous or puberulent outside, hairy inside; lobes broadly ovate, 2–4.5 mm. Berry purplish black, globose, 2.5–3 cm in diam. Seeds semiglobose or semi-ellipsoid, 0.8–1.2 cm. $2n = 22.$

Beijing [native of S Africa]. Cultivated for medicine.


山橙属  shan chen shu

Plants 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; disc absent. Ovary 2-loculed; ovules numerous. Style short; pistil head apex dilated, 2-cleft. Berry large, pulpy. Seeds numerous; coma absent.

About 50 species: tropical or subtropical Asia and Australia; 12 species in China.

1a. Flowers always axillary; apex of flower bud acuminate ............................................................... 1. *M. axillaris*

1b. Flowers at least partly terminal; apex of flower bud rounded to subacute.

2a. Leaves pubescent, at least abaxially.

3a. Branchlets and leaf blade puberulent to glabrescent abaxially; lateral leaf veins ca. 15 pairs .......... 11. *M. fusiformis*

3b. Branchlets and leaf blade densely pubescent abaxially; lateral leaf veins 8–10 pairs.

4a. Leaf blade elliptic or oblong; sepals ca. 7 mm; corolla lobes narrowly elliptic, ca. 8 mm; berries ellipsoid; seeds narrowly elliptic, ca. 9 mm ......................................................... 10. *M. hemsleyanus*

4b. Leaf blade broadly ovate to orbicular; sepals 3–4 mm; corolla lobes oblong, falcate, ca. 13 mm; berries fusiform; seeds orbicular, ca. 6 mm ................................................. 12. *M. morsei*

2b. Leaves glabrous or sparsely hairy along midvein only.

5a. Leaf blade with lateral veins arcuate-ascending.

6a. Fruit ca. 1.8 × 0.7 cm; shrubs to 0.6 m ................................................................. 8. *M. chinensis*

6b. Fruit 5.5–10.5 × 2–10.5 cm; woody lianas to 10 m.

7a. Young branches and leaves scaly; sepals acute; fruit ca. 10.5 cm in diam. .......................... 2. *M. yunnanensis*

7b. Plant glabrous except for inflorescences; sepals rounded; fruit to 9 cm.

8a. Corolla lobes falcate with a distinct subterminal notch; fruit ± globose, to 8 cm in diam. ................................................................. 3. *M. suaveolens*

8b. Corolla lobes ovate; fruit cylindric-ellipsoid, ca. 5 cm wide .......................... 9. *M. cochinchinensis*

5b. Leaf blade with lateral veins closely parallel at 70–80° to midvein.

9a. Material with flowers.
10a. Corolla lobes orbicular.
11a. Leaf blade very narrowly elliptic, up to 2.1 cm wide; (100–1000 m; Taiwan) .......... 4. M. angustifolius
11b. Leaf blade elliptic, (3–4) cm wide; (1600–2900 m; Guizhou, Yunnan) ...................... 5. M. khasianus
10b. Corolla lobes oblanceolat, or obliquely obovate.
12a. Leaf blade thinly membranous; corolla exterior and corona scales glabrous .......... 6. M. tenuicaudatus
12b. Leaf blade somewhat leathery; corolla exterior and corona scales puberulent .......... 7. M. magnificus
9b. Material with fruit.
13a. Fruit ± fusiform, 2–3 cm wide, apex acuminate.
14a. Leaf blade very narrowly elliptic, ± leathery (100–1000 m; Taiwan) ......................... 4. M. angustifolius
14b. Leaf blade oblong to narrowly oblong, membranous (800–1800 m; Guanx, Guizhou, Yunnan) ................................................. 6. M. tenuicaudatus
13b. Fruit ovoid or ellipsoid, 3–4 cm wide, apex rounded to subacuminate.
15a. Fruit ca. 5.5 cm; petiole glabrous; leaf blade 0.5–4 cm wide .................................... 5. M. khasianus
15b. Fruit 6–8 cm; petiole pubescent; leaf blade 4–6.5 cm wide ................................. 7. M. magnificus


腋花山橙 ye hua shan chen

Lianas to 3 m. Branchlets angular, slightly pubescent. Petiole 5–9 mm; leaf blade oblong, 10–18 × 3.5–6 cm, papery, glabrous, base obtuse, apex acute; lateral veins 17–20 pairs, slightly prominent on both surfaces. Inflorescences axillary, 2–5-branched, 3.5–8 cm, pubescent; peduncle 2–3 cm; bracts and bracteoles narrowly elliptic, 2–3 mm, puberulent outside. Pedicel 2–3 cm. Flower buds narrowly oblong, short pubescent outside, acuminate. Sepals ovate, 3–3.5 × ca. 2 mm, glabrous outside, ciliate, apex obtuse. Corolla white, ca. 1.2 cm, tube pubescent inside; lobes oblong; corolla scales villous. Filaments pubescent. Ovary glabrous. Style filiform; pistil head conical. Fl. May.

- Humid forests; 1000 m. S Yunnan.

The generic placement of this species is uncertain because no fruits have been seen.


雷打果 lei hua shan chen

Lianas to 10 m. Branchlets angular, slightly pubescent. Petiole 5–9 mm; leaf blade oblong or narrowly elliptic, 7–18 × 2.5–5.2 cm, papery, base rounded, apex acuminate; lateral veins 10–15 pairs, nearly flat on both surfaces. Cymes umbellate, terminal and axillary, 5–6.5 cm, puberulent. Short peduncle 1.5–2 cm, glabrous; bracts and bracteoles 3–7 mm. Pedicel 5–7 mm, pubescent. Flower buds cylindric, ca. 2 cm, glabrous outside. Sepals broadly ovate, ca. 7 × 5 mm, ciliate, apex acute. Corolla white, tube ca. 1.2 cm, pubescent inside; lobes oblong, ca. 1 cm; corona scales linear, decurrent to lower part of corolla tube, included. Ovary glabrous. Style very short. Berries globose, ca. 10.5 cm in diam. Fl. May.

- Dense montane forests; 1500–2000 m. W Guangxi, S Yunnan.

Lianas to 10 m, glabrous except for inflorescences. Petiole 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 outside, apex rounded or obtuse. Corolla white, tube 1–1.4 cm; lobes 0.5–1 × 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. Fl. May-Nov, fr. Aug-Dec.

Open forests, humid brushwood; 100–800 m. Guangdong, Guangxi, Hainan [Vietnam].

A fine, strong bast fiber, obtained from the inner bark, is used in making ropes and sacks. The fruit is used to treat abdominal pain, infantile malnutrition due to intestinal parasites, indigestion, and hernia.


台湾山橙 tai wan shan chen

Lianas to 5 m. Petiole 2–5 mm; leaf blade narrowly elliptic, 5–10 × 1–2.1 cm, somewhat leathery, base rounded to cuneate, apex acuminate; lateral veins subparallel, prominent on both surfaces. Cymes terminal and axillary, 1.5–2.5 cm, 3–12-flowered; bracts and bracteoles ovate, ca. 2 mm. Pedicel 2–4 mm. Sepals triangular, 1–2 mm,

- Thickets, coral rocks; 100–1000 m. Taiwan.


景东山橙 jing dong shan chen
Lianas to 10 m, glabrous except for flowers. Petiole 6–7 mm; leaf blade narrowly elliptic, 6–12 × 0.5–4 cm, base cuneate, apex short acuminated; lateral veins subparallel. Cymes or fascicles axillary near branch apex, 2.5–6.5 cm, few flowered; bracts ca. 3 mm. Sepals orbicular, ca. 3 mm, ciliate. Corolla white, tube ca. 6 mm; lobes orbicular, ca. 5.5 mm in flowered; bracts ca. 3 mm. Sepals orbicular, ca. 3 mm, ciliate. Cymes or fascicles axillary near branch apex, 2.5 cm, cuneate, apex shortly 2-cleft. Berries ellipsoid, 1.5–4 cm. Fl. May-Sep, fr. Sep-Dec. Petiole 6–8 mm, puberulent outside; bracteoles sublinear, 3 pairs, subparallel, pubescent. Cymes terminal, shorter than leaves; racemes sublinear, 3–5 mm, short pubescent. Sepals pubescent, obtuse. Corolla white, puberulent outside; tube 1.5–1.7 cm, pubescent inside; lobes obliquely obovate, 1.5–1.8 cm; corona scales thick, indistinct, minutely pilose, adnate to corolla throat, apex shortly 2-cleft. Berries ellipsoid, 6–8 × 3–4 cm. Fl. Jun-Aug, fr. Oct-Dec.


Shrubs to 60 cm tall. Branchlets yellowish gray, glabrous. Petiole ca. 5 mm; leaf blade narrowly elliptic, 5–9 × 1.5–3 cm, base cuneate, apex acuminate, midvein elevated abaxially; lateral veins numerous, nearly flat on both surfaces, glabrous. Cymes dichotomous, ca. 3-flowered; peduncle ca. 1 cm, glabrous; bracteoles 2, triangular, ca. 1.5 × 1.5 mm, pubescent. Pedicel 7–outside 10 mm, pubescent. Sepals ovate to triangular, ca. 3 mm, pubescent, glabrous inside, apex subacute to rounded. Berries ellipsoid, ca. 1.8 cm × 7 mm. Fl. May.

- Montane limestone brushwoods; 800 m. SE Guizhou (Lipo).


The fruit are used to treat infantile meningitis and fractures.

### nai zi shu

Lianas woody, latex white. Leaves opposite, veins parallel. Cymes axillary or terminal, long pedunculate. Flowers 5-merous. Calyx deeply divided, with basal glands inside. Corolla salverform, tube cylindric, swollen at base, throat without corona scales; lobes overlapping to left. Stamens inserted at middle of corolla tube; filaments stout; anthers included, narrowly oblong, free from pistil head, short cylindric, fleshy, thick, apex entire or emarginate. Ovary 1-loculed, placentas 2; ovules 2 on each placenta. Style filiform; pistil head thickened, apex minute, 2-cleft. Berry 1- or 2-seeded. Seeds orbicular, ca. 6 mm in diam. Fl. Aug-Oct, fr. Sep-Dec.

- Montane forests. N Guangdong, SW Guangxi.

### men nai guo

Lianas to 3 m. Branchlets tomentose. Petiole ca. 5 mm; leaf blade broadly ovate or orbicular, 4.5–9 × 2–7 cm, leathery, glabrescent and shiny adaxially, tomentose abaxially, base rounded or truncate, apex short acuminate; lateral veins 8–10 pairs, flat adaxially, slightly prominent abaxially. Cymes terminal, 6–8-flowered; peduncle 1–2 cm, tomentose. Pedicel ca. 3 mm. Sepals ovate, 3–4 × 2–2.5 mm, ciliate, villous outside, acute. Corolla white, tube ca. 1.5 cm, minutely tomentose; lobes oblong, falcate, ca. 13 × 4 mm; corona scales 5, oblong, pilose, apex 2-cleft. Filaments pilose. Ovary glabrous. Berries fusiform, ca. 8.5 × 2 cm, acuminate at both ends. Seeds orbicular, ca. 6 mm in diam. Fl. Aug-Oct, fr. Sep-Dec.

- Montane forests. N Guangdong, SW Guangxi.

1a. Lateral veins of leaf blade 8–12 pairs; disc puberulent .................................................. 1. *Bousigonia mekongensis*

1b. Lateral veins of leaf blade 20–25 pairs; disc glabrous .................................................. 2. *Bousigonia angustifolia*


**Nai zi teng**

Lianas to 10 m. Young branches puberulent. Petiole 1.5–1.8 cm; leaf blade oblong, 6–15 × 2–4.8 cm, somewhat leathery, apex short acuminate, acumens less than 5 mm; lateral veins 8–12 pairs, subparallel, subhorizontally spreading. Cymes terminal and axillary, shorter than leaves; peduncle 5–11 cm; bracts and bracteoles triangular, ca. 1 mm. Pedicel 2–10 mm, puberulent. Sepals ovate, ca. 1.5 mm, ciliate. Corolla white, tube ca. 7 mm; lobes ovate, ca. 2 mm. Disc shorter than ovary, apex puberulent. Fruit globose or subglobose, 3–5 × 3–4 cm. Fl. Apr-Jun, fr. Aug-Dec.

Mixed forests or brushwoods; 500–1000 m. S Yunnan [Vietnam].


**Men nai guo**

Lianas to 8 m, glabrous. Petiole 1–1.5 cm; leaf blade oblong or narrowly so, 7–15 × 2–4 cm, apex caudate-acuminate, acumens 5–10 mm; lateral veins 20–25 pairs, subparallel, subhorizontally spreading. Cymes 4–5.5 cm; peduncle 3–4 cm; bracts and bracteoles triangular, ca. 2 mm. Pedicel 2–3 mm. Sepals ovate, ca. 3 mm, subacute. Corolla white, tube ca. 7 mm; lobes broadly ovate, ca. 3 × 3 mm. Anthers oblong-lanceolate, ca. 2 mm; disc glabrous. Fruit ovoid, 2–3 × 1.5–3 cm. Fl. spring-summer.

Mixed forests, forest edges; 800–1400 m. S Yunnan [Laos, Thailand, Vietnam].

5. **HUNTERIA** Roxburgh, Fl. Ind. ed. 1832 1: 695. 1832.

### zi lan shu shu

Trees or shrubs, latex present. Branches slender, terete. Leaves deciduous, leathery, glabrous, with a conspicuous marginal vein and numerous, straight lateral veins. Cymes corymbose or subpaniculate, terminal or axillary. Flowers 5-merous. Calyx small, without glands. Corolla salverform, tube cylindric, inflated in distal half; lobes shorter than tube, overlapping to left; corolla absent. Stamens inserted in inflated portion of corolla tube, included; anthers narrowly ovate; disc absent. Ovary 5-locular or connate at base; ovules 2–4 per locule. Style filiform; pistil head thickened, apex minute, 2-cleft. Berry 1- or 2-seeded. Seeds ovate or oblong.
without coma; cotyledons leaflike, radicle erect.

Ten species: tropical Africa, one extending into tropical Asia, including China.


仔榄树  zi lan shu


Trees to 15 m tall. Trunk often fluted; branches slender, glabrous. Petiole 1–1.5 cm; leaf blade oblong, elliptic, or narrowly ovate, 5–18 × 1–9 cm, base broadly cuneate to rounded, apex acuminate; lateral veins more than 30 pairs, subparallel, joining marginal veins. Flowers strongly fragrant, white. Pedicel usually longer than calyx. Sepals ovate, 1.5–1.7 mm, acute. Corolla tube 7–10 mm, pubescent inside. Berries yellow, globose, usually paired, 1–2 cm in diam. Seeds brownish, ovoid, ca. 1.2 cm × 8 mm. Fl. Apr-Sep; fr. May-Dec. 2n = 22.

Trees to 15 m tall. Trunk often fluted; branches slender, glabrous. Petiole 1–1.5 cm; leaf blade oblong, elliptic, or narrowly ovate, 5–18 × 1–9 cm, base broadly cuneate to rounded, apex acuminate; lateral veins more than 30 pairs, subparallel, joining marginal veins. Flowers strongly fragrant, white. Pedicel usually longer than calyx. Sepals ovate, 1.5–1.7 mm, acute. Corolla tube 7–10 mm, pubescent inside. Berries yellow, globose, usually paired, 1–2 cm in diam. Seeds brownish, ovoid, ca. 1.2 cm × 8 mm. Fl. Apr-Sep; fr. May-Dec. 2n = 22.

Dense montane forests; low to middle altitudes. Hainan [India, Indonesia, Laos, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam; E Africa].

The leaves are used externally for the treatment of wounds and cuts, the fruit are edible, and the wood is used for making chopsticks in Hainan.


马铃果属  ma ling guo shu

Trees or robust erect shrubs, latex present, branches dichotomous. Leaves opposite; petioles or leaf bases of a node often connate into a short ocrea, with a single row of colleters in axils. Cymes terminal, pedunculate. Flowers often fragrant. Calyx campanulate to cylindric, with many basal glands inside. Corolla white or yellow, salverform, large, tube widened at base and at or above middle, shorter or only slightly longer than calyx, throat with a fleshy ring, not scaly, lobes spreading or recurved, overlapping to left. Stamens inserted in distal widening of corolla tube, exserted or included; anthers sessile, sagittate, coherent to pistil head; disc ringlike or of five lobes adnate to ovaries. Ovaries 2, free or fused basally; ovules numerous. Pistil head lampshade-shaped, apex shortly 2-cleft. Follicles 2, pendulous. Seeds numerous, embedded in pulp, not comose.

Twelve species: seven in Africa, five in SE Asia; two species cultivated in China.

1a. Calyx (when lobes erect) 5–7 mm, lobes 1.5–2.5 × as long as tube, 2.5–3.5 × as long as wide; follicles partly united, transversely broad ellipsoid, green or yellow; leaf blade with fishbone-like venation ............ 2. **V. chalotiana**

1b. Calyx (when lobes erect) 7–19 mm, lobes 0.8–1.3 × as long as tube, 0.7–1.3(–1.7) × as long as wide; follicles free, obliquely subglobose; with pale green spots; leaf blade with less regular venation .................... 1. **V. africana**


非洲马铃果  fei zhou ma ling guo

Trees to 10(–25) m tall. Bark pale gray-brown; branches lenticellate. Petiole short or absent; leaf blade oblong-oblong or obovate-elliptic, 7–41 × 3–20 cm, base cuneate or decurrent, apex obtuse or acute, glabrous on both surfaces or pubescent abaxially; lateral veins 8–22 pairs. Cymes 6–25 cm, usually many flowered. Calyx 0.7–1.9 mm, lobes broadly ovate to oblong. Corolla yellow or white, tube 0.7–1.5 cm, twisted; lobes obovate or elliptic, recurved, twisted in bud. Follicles obliquely subglobose, with pale green spots. Seeds dark brown, obliquely ellipsoid, 7–10 × 3.5–5 mm. 2n = 22.

S Yunnan [introduced from W Africa].

Cultivated for its latex which is used as rubber adulterant.


马铃果  ma ling guo

Trees to 35 m tall, glabrous throughout except for corolla. Trunk to 80 cm in diam.; bark pale gray-brown; branches with some large lenticels. Petiole 1–3 mm; leaf blade elliptic to narrowly elliptic, 5.5–21 × 1.5–6.5 cm, base obtuse, apex acuminate; lateral veins 10–25 pairs. Pedicel 0.6–1.5 cm. Calyx lobes narrowly triangular, recurved. Corolla white, throat pale ochre; tube 5–7 mm, appressed pubescent inside, not twisted; lobes obliquely oblong, spreading, recurved later, not twisted in bud. Fruit green or yellow and yellow spotted, transversely broadly ellipsoid, 2.5–3 × 4.5–6.5 cm, 2–3 cm in diam., follicles fused at base. Seeds dark brown.

S Guangdong [native of Africa].

Cultivated for wood.


狗牙花属  gou ya hua shu

*Ervatamia* (A. de Candolle) Stapf; *Pagiantha* Markgraf; *Rejoua* Gaudichaud-Beaupré.
Shrubs or small trees, latex white. Stems repeatedly dichotomously branched. Leaves opposite; adaxial surface of petiole often with a basal semicircular or semiamplexicaulis cupula. Cymes corymbose or umbellate, at branch forks, many or rarely 1-flowered. Calyx divided halfway down or deeper, with few to many basal glands inside. Corolla salverform, widened at or near middle, lobes sharply overlapping to left [or right]. Stamens inserted in widened part of corolla tube; filaments short or almost none; anthers oblong or narrowly triangular, free from pistil head, base sagitate or deeply cordate and not spurred; disc absent. Ovaries 2, free; ovules numerous. Style filiform; pistil head with a subglobose or lampshade-shaped basal part and stigmoid, 2-cleft apical part. Follicles 2, divaricate. Seeds with a red or orange fleshy aril; coma absent.

Ninety-nine species: Africa, Asia, North America, Pacific Islands, South America; five species in China.

1a. Corolla double; plants cultivated ........................................................................................................ 4. T. divaricata
1b. Corolla single.

2a. Corolla lobes pubescent inside all over or only in basal half, ciliate, often pubescent outside .......... 3. T. corymbosa
2b. Corolla lobes glabrous inside or pubescent only at extreme base, mostly not ciliate.

3a. Corolla tube not twisted; stamens inserted at lower 1/4–1/3 of corolla tube ........................................ 4. T. divaricata
3b. Corolla tube mostly twisted; stamens inserted at middle or upper half of corolla tube.

4a. Sepals rounded, obtuse or sometimes acute; corolla tube 8–23 × as long as calyx (see also T. bufalina).

5a. Corolla tube glabrous inside, twisted 0.25–0.5 turn just below anthers, up to 11 × as long as calyx; fruit 1.2–7.1 cm, 2–40-seeded, if smaller and few seeded then with a lateral ridge along each side ................................................................................................................................. 5. T. pandacaqui
5b. Corolla tube pubescent or pilose inside around anthers, if twisted, 10–23 × as long as calyx; fruit 1–1.6 cm, 1–3-seeded, not ridged when mature (see also T. corymbosa) .................................................................................. 1. T. bovina

6a. Corolla of mature bud with a subglobose or broadly ovoid, rounded or obtuse head, glabrous inside; midvein and secondary veins mostly paler than blade on both leaf surfaces .......... 5. T. pandacaqui
6b. Corolla of mature bud with an ovoid, acuminate or acute head, hairy or glabrous inside; veins not paler than blade.

7a. Peduncle rather robust; bracts scalelike; corolla head of mature bud 6–12 mm ............................... 4. T. divaricata
7b. Peduncle slender; bracts not scaly; corolla head of mature bud mostly up to 5 mm ............... 2. T. bufalina


Li; *T. kwangsiensis* (Tsiang) P. T. Li; *T. kweichowensis* (Tsiang) P. T. Li; *T. tsiangiana* P. T. Li; *T. yunnanensis* (Tsiang) P. T. Li; *T. yunnanensis* var. *heterosepala* (Tsiang) P. T. Li.

Shrubs or small trees 0.8–8 m tall, glabrous except for flowers. Petiole 0.3–2 cm; leaf blade ovate to obovate, 7–30 × 2–14 cm, papery, apex acuminate; lateral veins 6–16 pairs. Cymes shorter or longer than leaves; di- or trichotomous. Flower buds with a globose head, rounded at apex. Calyx lobes ovate, ciliate. Corolla white, puberulent to glabrous, tube 1.8–3.1 cm; lobes obliquely elliptic, mostly falcate, 9–16 × 4–10 mm. Stamens inserted above middle of corolla tube. Follicles obliquely ellipsoid, 2–4.5 × 0.6–3 cm, beaked or rounded, sometimes stipitate. Fl. May-Sep, fr. Jul-Nov. 2n = 22.

Montane brushwoods, sparse forests; 100–1600 m. S Yunnan (cultivated in Fujian, Guangdong, Guangxi, Hainan, Taiwan, Yunnan) [Bangladesh, Bhutan, India, Myanmar, Nepal, Thailand, cultivated in tropical and subtropical Asia].

All parts of the plant are poisonous. The roots, leaves, and flowers are used in Guangdong and Guangxi against snake and scorpion poisoning. In modern medicine, the roots are used to treat hypertension, headache, and scabies.


平脉狗牙花 ping mai gou ya hua

*Ervatamia mucronata* (Merrill) Markgraf; *E. pandacaqui* (Lamarck) Pichon; *E. puberula* Tsiang & P. T. Li; *Pagiantha pandacaqui* (Lamarck) Markgraf; *Tabernaemontana guangdongensis* P. T. Li; *T. mollis* Hooker & Arnott; *T. mucronata* Merrill; *T. subglobosa* Merrill; *T. thailandensis* P. T. Li.

Shrubs or small trees 1–14 m tall. Branchlets pubescent to glabrous. Petiole 0.3–2 cm; leaf blade elliptic or narrowly so, 3–25 × 1–10 cm, sometimes pubescent abaxially, apex acuminate, caudate, or obtuse; lateral veins 4–16 pairs. Cymes 3–16 cm. Flower buds with a broadly ovate head, apex rounded or obtuse. Corolla white, tube 0.8–2.2 cm; lobes obliquely oblong, falcate, 0.6–1.9 cm. Stamens inserted at or above middle of corolla tube. Ovary glabrous. Follicles obliquely ellipsoid, 1.2–7 × 0.5–3 cm, apex beaked or rounded. Fl. May-Jul, fr. Jul-Nov.

Open forests, brushwoods; low to middle altitudes. S Guangdong, Taiwan, S Yunnan [Indonesia, Malaysia, Philippines, Thailand; Australia, Pacific Islands].


鸡蛋花属 ji dan hua shu

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; disc absent. Ovaries 2, distinct; ovules numerous, multisericate on each placenta. Style short; pistil head with obtusely 2-cleft apex. Follicles 2. Seeds many, flat proximally, with a membranous wing; endosperm fleshy; cotyledons oblong, radicle short.

Seven species: tropical America, two cultivated in China.

1a. Leaf blade acute or acuminate at apex, matte adaxially, glaucous ................................................................. 1. *P. rubra*  
1b. Leaf blade rounded at apex, shiny adaxially, dark green ................................................................. 2. *P. obtusa*


鸡蛋花 ji dan hua

*Plumeria acuminata* Aiton; *P. acutifolia* Poiret; *P. rubra* var. *acutifolia* (Poiret) L. H. Bailey.

Trees to 8 m tall. Bark pale green, smooth, thin. Petiole 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 pairs, slightly elevated abaxially. Corolla tinged with pink or purple at least outside, 4–6 cm in diam.; lobes pink, yellow, or white, with a yellow base, 3–4.5 × 1.5–2.5 cm,

Fujian, Guangdong, Guangxi, Hainan, Yunnan [native to Mexico and Central America].

Widely cultivated for medicine and as ornamental. The flowers are used for the treatment of dysentery. The small, white-flowered form is more valued medicinally in China than other forms of the species.


钝叶鸡蛋花 dun ye ji dan hua


鸡骨常山属 ji gu chang shan shu

*Blaberopus* A. de Candolle; *Winchia* A. de Candolle.

Trees or shrubs, latex present. Branches whorled, mostly 4 or 5 together. Leaves whorled, rarely opposite; lateral veins numerous, ending in a marginal vein. Cymes terminal, mostly 1–5 in thyrses or compound umbels, terminal. 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; disc absent or of scales. Ovaries 2, distinct or connate, ovules numerous. Follicles 2, free or connate. Seeds oblong or linear, long bearded at both ends; endosperm thin; cotyledons up to twice as long as radicle.

About 60 species: tropical Asia, Africa, C America, N Australia, Pacific Islands; eight species in China.

1a. Trees; disc absent or small annular.

2a. Lateral leaf veins widely spaced, (3–)5–12 mm apart, ascending; corolla lobes in bud overlapping to right; seeds acuminate at 1 end .......................................................... 2. *A. macrophylla*

2b. Lateral leaf veins close together, 1–6 mm apart, horizontal or almost so; corolla lobes in bud overlapping to left; seeds obtuse or rounded at both ends.

3a. Leaf apex long acuminate; ovary syncarpous; follicles solitary ........................................... 1. *A. rostrata*

3b. Leaf apex rounded to short acuminate; ovary of 2 separate carpels; follicles paired .................... 3. *A. scholaris*

1b. Shrubs; disc of 2 scales alternating with ovaries.

4a. Leaves sessile, blade thick, papery to ± leathery, lateral veins at almost 90° to midvein.

5a. Leaves pubescent abaxially; corolla to 3 cm .......................................................... 5. *A. neriifolia*

5b. Leaves glabrous abaxially; corolla ca. 1.1 cm .......................................................... 6. *A. rupestris*

4b. Leaves petiolate, blade thin, membranous, lateral veins at 45° to midvein.

6a. Leaves pubescent on both surfaces; corolla pink to red ......................................................... 4. *A. yunnanensis*

6b. Leaves glabrous; corolla white or yellow.

7a. Colleters few and inconspicuous; corolla white, to 3 cm, tube 1–2 cm; disc lower than ovary .... 7. *A. mairei*

7b. Colleters numerous, becoming ± indurated at base and persisting; corolla yellow, ca. 1 cm; tube ca. 0.8 cm; disc as long or ovary .......................................................... 8. *A. henryi*


盆架树 pen jia shu

*Alstonia glaucescens* (Wallich ex G. Don) Monachino; *Alstonia pachycarpa* Merrill & Chun; *Alyxia glaucescens* Wallich ex G. Don, not Wallich; *Winchia calophylla* A. de Candolle, not *Alstonia calophylla* Miquel; *W. glaucescens* (Wallich ex G. Don) K. Schumann.

Trees evergreen, glabrous, to 30 m tall. Branches greenish, angled when young. Leaves in whorls of 3 or 4, rarely opposite; petiole 1–2 cm; leaf blade narrowly elliptic, 7–20 × 2.5–4.5 cm, thick papery, lustrous adaxially, paler abaxially, apex caudate or acuminate; lateral veins 20–50 pairs, at 80–90° to midvein.

Trees to 5 m tall. Branchlets pale green, thick, fleshy. Petiole puberulent; leaf blade ovate to narrowly so, dark green and shiny adaxially, tertiary venation strongly prominent abaxially, apex rounded. Corolla white, ca. 4 cm in diam., throat yellow; lobes spreading, slightly recurved. Follicles to 15 × 1.5 cm. 2n = 36.

Guangdong, Guangxi, Hainan, S Yunnan [native of the Caribbean Islands].

Cultivated for medicine and as an ornamental.


大叶糖胶树 da ye tang jiao shu
Trees to 20 m tall. Bark smooth; branches nearly 4-angled. Leaves in whorls of 3 or 4; petiole 1–4 cm; leaf blade narrowly obovate or narrowly elliptic, 10–53 × 4–19 cm, leathery, pubescent abaxially, apex usually acuminate; lateral veins 16–33 pairs, at 60–70° to midvein. Cymes terminal. 3-branched, 5–9 together, pubescent; peduncle 4–6 cm. Pedicel 4–5 mm. Corolla tube slightly longer than lobes, 4.5–6 mm; lobes overlapping to right, ciliate; disc absent. Ovaries distinct, glabrous. Follicles linear, to 61 cm × 2–5 mm. Seeds pubescent, ends with deltoid wings, with long stiff hairs all around. Fl. Oct-Nov. 2n = 22.

S Guangdong, S Yunnan [Indonesia, Malaysia, Philippines, Thailand, Vietnam].

Cultivated for medicine.


Sugar tree tang jiao shu

**Echites scholaris** Linnaeus, Mant. Pl. 1: 53. 1767; **Pala scholaris** (Linnaeus) Roberty.

Trees to 40 m tall, glabrous. Bark gray; branchlets copiously lenticellate. Leaves in whorls of 3–10; petiole 1–3 cm; leaf blade narrowly obovate to very narrowly spatulate, 7–28 × 2–11 cm, leathery, base cuneate, apex usually rounded; lateral veins 25–50 pairs, at 80°–90° to midvein. Cymes dense, pubescent; peduncle 4–7 cm. Pedicel usually as long as or shorter than calyx. Corolla white, tube 6–10 mm; lobes broadly ovate or broadly obovate, 2–4.5 mm, overlapping to left. Ovaries distinct, pubescent. Follicles distinct, linear, to 57 cm × 2–5 mm. Seeds oblong, margin ciliate, ends with tufts of hairs 1.5–2 cm. Fl. Jun-Nov, fr. Oct-Dec. 2n = 22, 44*.

Mixed forests, village groves; 200–1000 m. SW Guangxi [India, Indonesia, Malaysia, Sri Lanka].

The bark and leaves are used to treat headache, influenza, bronchitis, and pneumonia. The wood is used for making coffins.


鸡骨常山 ji gu chang shan

**Alstonia esquirolii** H. Léveillé; **Acronychia esquirolii** H. Léveillé.

Shrubs erect, to 3 m tall. Branches conspicuously lenticellate, puberulent when young. Leaves in whorls of 3–5, petiolate; blade very narrowly obovate or oblong, 6–19 × 1.3–5 cm, thin papery, pubescent on both surfaces, apex acuminate; lateral veins 15–35 pairs, at 45° to midvein. Cymes puberulent; peduncle 0.5–2 cm. Pedicel to 8 mm. Corolla pink to red, tube 1–1.3 cm; lobes oblong, 2–6 mm, overlapping to left. Disc lobes 2, ligulate, as long as or longer than ovaries. Follicles distinct, linear, 3–5 cm × ca. 4 mm. Seeds oblong, ends with very short cilia. Fl. Mar-Jun, fr. Jun-Nov. 2n = 44*.

- Montane brush fields, 800–2400 m. Guangxi, Guizhou, Yunnan.

The roots are used to cure hypertension and the leaves to treat hemostasis and fracture. The seeds yield up to 18% industrial oil.


竹叶羊角棉 zhu ye yang jiao mian

**Alstonia guangxiensis** D. Fang & X. X. Chen.

Shrubs erect, to 2 m tall, glabrous except for leaves. Branches gray-brown, lenticellate. Leaves in whorls of 3 or 4, sessile; blade very narrowly elliptic or sublinear, 6–22 × 1–2.5 cm, thick papery, abaxially pubescent, apex acuminate; lateral veins 100–170 pairs, nearly at a right angle to midvein. Cymes to 10 cm. Calyx lobes ciliate. Corolla white, tube ca. 2 cm; lobes ca. 1 cm, overlapping to left. Stamens inserted at apex of corolla tube; disc shorter than ovaries. Follicles 6–13 × 2–4 cm. Seeds ciliate at ends, 5–10 mm.

Montane brush fields. SW Guangxi [India, Indonesia, Malaysia, Sri Lanka].

The leaves and roots are used to cure abscesses.


岩生羊角棉 yan sheng yang jiao mian

**Blaberopus rupestris** (Kerr) Pichon.

Shrubs erect, to 4 m tall, glabrous. Bark gray-brown; branches lenticellate. Leaves in whorls of 3–5, sessile; blade very narrowly elliptic or sublinear, 4.5–10 × 0.5–1.5 cm, thick papery, glabrous, apex acuminate; lateral veins 45–80 pairs, nearly at a right angle to midvein. Cymes crowded. Pedicel ca. 3 mm. Corolla white, tube 7–8 mm; lobes oblong, 2.5–3 mm, overlapping to left. Disc lobes as long as ovary. Ovaries distinct. Follicles red-brown, linear, 7–10 cm. Seeds with brown cilia. Fl. May-Oct.

Limestone rocks in brushwoods or forests; 500–1800 m. W Guangxi [Thailand].


羊角棉 yang jiao mian

**Alstonia paupera** Handel-Mazzetti; **Wikstroemia hemsleyana** H. Léveillé.

Shrubs erect, to 2 m tall, glabrous. Branchlets lenticellate. Leaves in whorls of 3–5; petiole 0.5–1.5 cm; leaf blade very narrowly obovate or elliptic, 4–14 × 0.8–3 cm, thin papery, glabrous, apex acuminate or ciliate; lateral veins 27–70 pairs, at 45–60° to midvein. Cymes longer than leaves; peduncle 1.5–3.5 cm. Pedicel to 2–15 mm. Corolla white, tube 1–2 cm; lobes oblong, 6–10 mm. Disc lobes shorter than ovary. Ovaries distinct, ca. 1.5 mm. Follicles distinct, linear, 5–10 cm × 3–5 mm. Seeds oblong, ca. 7 mm; cilia at seed apex cream, to 5 mm. Fl. May-Oct.
• Rocky places in open evergreen forests; 700–1500 m. Guizhou, Sichuan, Yunnan.

The roots and leaves are used to stop external bleeding.


黄花羊角棉 huang hua yang jiao mian


Shrubs erect, to 3 m tall, glabrous except for flowers.

Branchlets lenticellate. Leaves in whorls of 3 or 4; petiole to 1.2 cm; leaf blade very narrowly elliptic, 5–11 × 1–2.5 cm, papery, apex acuminate; lateral veins to 70 pairs, at 45–60° to midvein. Cymes 3-branched; peduncle 2–3 cm. Pedicel 0.8–1.2 cm. Calyx lobes ciliate. Corolla yellow; tube ca. 8 mm, dilated above middle, densely villous inside; lobes broadly ovate, ca. 2 mm. Disc lobes as long as ovary. Ovaries distinct. Fl. Jun.

• Montane forests, 1500 m. S Yunnan (Simao).


水甘草属 shui gan cao shu

Herbs annual or perennial, erect, with latex, without stolons. Leaves alternate, membranous. Cymes thyrsoid or corymbose, terminal. Flowers blue or bluish. Sepals narrowly acuminate, usually without glands. Corolla blue or bluish, salverform; tube cylindric, dilated above middle, villous inside; lobes overlapping to left. Stamens inserted inside dilated portion of corolla tube; anthers ovate or oblong, free from pistil head, base rounded. Carpels united by a filiform style; ovules numerous, biseriate on each placenta. Pistil head with a basal membranous appendage. Follicles 2, cylindric-fusiform, erect. Seeds cylindric, end obliquely truncate; coma absent.

About 20 species: North America, SE Asia; one species in China.


水甘草 shui gan cao

*Tabernaemontana elliptica* Thunberg ex Murray, Syst. Veg. ed. 14, 255. 1784; *Amsonia sinensis* Tsiang & P. T. Li.

Herbs perennial, to 40 cm tall, glabrous. Stems terete. Petiole 3–5 mm; leaf blade elliptic or narrowly so, 2.2–5 cm × 5–8 mm, base and apex acuminate, lateral veins almost flat on both surfaces. Inflorescences terminal, short thyrses. Pedicel ca. 4 mm. Sepals ca. 2 mm. Corolla bluish, tube ca. 1 cm, villous inside and densely so at throat; lobes oblong, ca. 6 mm. Anther apex included. Ovary glabrous. Style ca. 5 mm. Fl. Jun. 2n = 22.

Grasslands. Anhui, Jiangsu [Japan].

Decoction of all parts is used to cure chills and to induce sweat.


长春花属 chang chun hua shu

Herbs erect, perennial and often woody at base, juice watery. Leaves opposite; petiole short, intra- 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 in widened portion of corolla tube; anthers free, oblong, base obtuse; disc of 2 glands. Ovaries 2; ovules numerous. Style filiform; pistil head with a cylindric base and reflexed hyaline frill. Follicles 2, cylindric, apex acute. Seeds black, oblong, testa rugose.

Eight species: seven endemic to Madagascar, one restricted to India and Sri Lanka; one species cultivated in China.


长春花 chang chun hua

*Vinca rosea* Linnaeus, Syst. Nat. ed. 10. 944. 1759; *Ammocallis rosea* (Linnaeus) Small; *Catharanthus roseus* var. *albus* G. Don; *Lochnera rosea* (Linnaeus) Reichenbach ex Endlicher; *L. rosea* var. *alba* (G. Don) Hubbard; *L. rosea* var. *flava* Tsiang; *Pervinca rosea* (Linnaeus) Moench; *V. rosea* var. *alba* (G. Don) Sweet.

Subshrubs or perennial herbs to 1 m tall, erect or decumbent. Young stems puberulent. Leaves obovate or elliptic, 2.5–9 × 1–3.5 cm, herbaceous, apex minutely apiculate; lateral veins 7–11 pairs. Corolla red to pink or white and then mostly with a pink or less often yellow eye; tube 2.5–3 cm, pilose inside, throat villous; lobes broadly obovate, 1.2–2 cm. Follicles 2–3.8 cm × ca. 3 mm. Fl. spring-autumn. 2n = 16.

Fujian, Guizhou, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang [native to Madagascar, cultivated or naturalized in all tropical countries].

Cultivated for medicine. Decoction of all parts is used in the

蔓长春花属 man chang chun hua shu

Herbs with stolons and watery juice. Leaves opposite, entire, short petiolate, intra- and interpetiolar glands present. Flowers solitary or rarely in 2-flowered cymes, axillary. Calyx small, without glands. Corolla violet, funnelform, tube cylindric, hairy or with scales at throat; lobes obliquely obovate, spreading, shorter than tube, overlapping to left. Stamens inserted just below middle of corolla tube. Disc glands 2, ligulate, alternating with ovaries. Ovules 6–many. Style filiform; pistil head ringlike, apex densely hairy. Follicles 2, erect or spreading, cylindric, striate. Seeds glabrous.

About five species: W Asia, Europe; two species cultivated in China.

1a. Leaf blade truncate or subcordate at base, margin and calyx lobes ciliate; pedicel 3–5 cm .................................. 1. **V. major**

1b. Leaf blade narrow at base, margin and calyx lobes glabrous; pedicel 1–1.5 cm ................................................... 2. **V. minor**


蔓长春花 man chang chun hua

*Vinca major* var. *variegata* Loudon.

Herbs to 1 m tall, flowering stems to 30 cm. Leaf blade elliptic, ovate, or broadly ovate, 2–9 × 2–6 cm, base truncate or subcordate, margin ciliate with hairs 0.1–1 mm; lateral veins to 5 pairs. Pedicel 3–5 cm. Sepals narrowly triangular, ca. 9 mm, densely ciliate. Corolla bluish purple, tube 1.2–1.5 cm, limb 3–5 cm in diam., lobes obliquely truncate. Anthers short, applanate, apex puberulent. Follicles spreading, ca. 5 cm. Fl. Mar-May. 2n = 92.

Jiangsu, Taiwan, Yunnan, Zhejiang [native to Europe].

Cultivated for medicine.


花叶蔓长春花 hua ye man chang chun hua

Herbs perennial. Flowering stems to 20 cm. Leaf blade oblong, ovate, or elliptic, 1–4.5 × 0.5–2.5 cm, base rounded or cuneate, margin not ciliate. Pedicel 1–1.5 cm. Sepals narrowly elliptic, 3–5 mm. Corolla lilac-blue, tube 0.9–1.1 cm, limb 2.5–3 cm in diam., lobes obliquely truncate. Filaments longer than anthers; anthers puberulent at apex. Follicles erect. Fl. May. 2n = 46.

Jiangsu [introduced from Europe].

Cultivated for medicine.


萝芙木属 luo fu mu shu

Trees or shrubs with latex. Leaves whorled, rarely opposite, with glands axillary and sometimes on petiole. Cymes pedunculate, terminal or axillary, each branch ends in as many inflorescences and/or branches as leaves in a whorl. Calyx deeply divided, without glands. Corolla white, yellow, green, or pink, rarely with a red tube, salverform or campanulate; tube cylindric, swollen on 1 side at or above middle, villous inside distal half, throat not scaly, often with long hairs inside; lobes overlapping to left. Stamens inserted in widening of corolla tube; filaments very short; anthers ovate, free from pistil head, base rounded; disc ringlike or cup-shaped, entire or lobed at apex. Ovaries 2, free or connate. Style filiform; pistil head drum-shaped, with a pendulous ring, apex shortly 2-cleft. Drupes 2, distinct or connate. Seed 1, without coma.

About 60 species: Africa, Asia, America; seven species in China.

1a. Trees; lateral veins 30–45 pairs, subparallel, nearly at right angles to midvein ................................................... 1. **R. sumatrana**

1b. Shrubs; lateral veins 5–20 pairs, arcuate ascending.

2a. Ovaries and fruit of connate carpels, often only at base.

3a. Leaves ovate or elliptic, tomentose when young; corolla tube 2–3 mm; fruit entire at apex .............. 2. **R. tetraphylla**

3b. Leaves narrowly elliptic or obovate, glabrous; corolla tube 10–20 mm; fruit forked at apex.

4a. Leaves usually narrowly elliptic, 7–20 cm, membranous; petiole 10–15 mm; inflorescences solitary; peduncle, pedicel, calyx, and corolla tube 1.5–3.5 mm; stamens inserted at middle of corolla tube ................................................................................. 3. **R. serpentina**

4b. Leaves obovate, 1–6 cm, leathery; petiole 2–4 mm; peduncle, pedicel, and calyx green; corolla tube white, lobes 10–14 mm; stamens inserted at corolla throat ............................................................... 4. **R. cubana**

2b. Ovaries and fruit of free carpels.

5a. Corolla white, tube widened at middle; stamens inserted at middle of corolla tube ......................... 7. **R. verticillata**

5b. Corolla reddish, green, or yellow, tube widened at top; stamens inserted at corolla throat.

6a. Lateral veins of leaf blade prominent; inflorescences long, at least some branches puberulent;

苏门答腊萝芙木 su men da la luo fu mu

Trees to 20 m tall. Leaves in whorls of 3–5; petiole 2–3 cm; leaf blade oblong or narrowly obovate, 12–20 × 4–8 cm, leathery, glabrous, apex apiculate or nearly so; lateral veins 30–45 pairs, subparallel, nearly at a right angle to midvein. Inflorescences dense, 8–12 × 12–15 cm; peduncle 5–8 cm. Corolla white, tube cylindric, 4–6 mm; lobes broadly ovate, 1.2–1.7 mm; throat villous. Disc less than 0.5 mm. Ovaries distinct, ca. 1 mm. Drupes subglobose, 1.5–1.8 × 1.8–2.4 cm. Seeds 1 or 2.

S Guangdong [Indonesia, Malaysia, Philippines, Thailand].

Cultivated for medicine. The wood is used to make rapier scabbards in Java.


四叶萝芙木 si ye luo fu mu

Shrubs to 2 m tall, pubescent or tomentose when young, glabrescent with age. Leaves in whorls of 3–5; petiole 2–5 mm; leaf blade ovate, narrowly ovate, or oblong, 1–15 × 0.8–4 cm, membranous, base broadly cuneate to rounded, apex acute or obtuse; lateral veins 5–12 pairs. Peduncle 1–4 cm. Corolla white, tube urceolate, 2–3 mm, long hairy inside distal half; lobes ovate or suborbicular. Stamens inserted at corolla throat. Ovaries connate in basal half. Drupes subglobose, 5–10 mm in diam., glabrous, connate. Seeds 2. Fl. May, fr. Jun-Aug. 2n = 66.

S Guangdong, SW Guangxi, Hainan, S Yunnan [native to tropical America].

Cultivated for medicine.

The latex has been reported to be emetic, cathartic, and expectorant and is used for treating dropsy. The fruit juice is used as a substitute for ink.


蛇根木 she gen mu


Shrubs to 1 m tall, erect, glabrous. Stems usually unbranched, slender, straw colored. Leaves grouped near stem apex, in whorls of 3–5; petiole 1–1.5 cm; leaf blade narrowly elliptic or obovate, membranous, 7–17 × 2–9 cm, base cuneate, apex acuminate or rarely obtuse; lateral veins 7–15 pairs. Cymes congested; peduncle 5–13 cm, red or reddish. Pedicel and calyx red or reddish. Corolla white, tube cylindric, 1–1.8 cm, inflated at middle and pilose inside distal half; lobes obliquely suborbicular, 1.5–3.5 mm. Stamens inserted at middle of corolla tube. Ovaries connate in basal half. Drupes ellipsoid, ca. 8 mm, connate for half their length. Fl. Feb-Oct, fr. May-Dec. 2n = 22.

Montane forests; 800–1500 m. S Yunnan (Gengma, Jing-hong), cultivated in S Guangdong, S Guangxi, Hainan [India, Indonesia, Malaysia, Myanmar, Sri Lanka, Thailand].

The roots are used as a sedative and in the treatment of hypertension. The bark, leaves, and roots are used against snake and scorpion poisoning.


古巴萝芙木 gu ba luo fu mu

Shrubs to 5 m tall, glabrous. Leaves usually in whorls of 3; petiole 2–4 mm; leaf blade obovate, 1–6 × 1–2 cm, leathery; lateral veins inconspicuous. Peduncle 2–4 cm. Pedicel 6–11 mm. Corolla white, tube cylindric, ca. 2 cm; lobes obovate-elliptic, 1–1.4 cm. Stamens inserted at corolla throat. Ovaries connate in basal half. Drupes obovoid, 1–1.2 cm × 5–7 mm, connate along lower half, apex 2-forked. Seeds rugose. Fl. Jul.

S Yunnan [introduced from Cuba].

Cultivated for medicine.


催吐萝芙木 cui tu luo fu mu

Shrubs to 5 m tall, glabrous. Stems erect, stiff. Leaves whorled; leaf blade broadly ovate or ovate-elliptic, 5–12 × 3–6 cm; lateral veins 8–17 pairs. Cymes usually 4 together. Corolla greenish or pale green, tube subcylindric, 6–12 mm, inflated at throat, pubescent inside; lobes dolabriform, 1–2 mm. Stamens inserted at corolla throat; disc ringlike, shorter than ovaries. Ovaries distinct. Style filiform, pubescent at base; pistil head fleshy, base membranous. Drupes 2, distinct, ovoid or ellipsoid, 0.8–1.4 cm × 6–9 mm. Fl. Aug-Oct, fr. Oct-Dec. 2n = 22, 66.

S Guangdong, S Guangxi, S Yunnan [native to tropical Africa].

Cultivated for medicine. All parts are poisonous. The roots and leaves are reported to have emetic and cathartic properties, and the bark is used as a remedy for fever and indigestion.


吊罗山萝芙木 diao luo shan luo fu mu

Shrubs to 1 m tall. Stems dark brown. Leaves opposite or in whorls of 3 or 4; petiole ca. 8 mm; leaf blade elliptic to oblong, 8–17 × 1.6–4 cm, lateral veins inconspicuous. Cymes ca. 2 cm; peduncle ca. 6 mm. Calyx lobes ca. 2.5 mm. Corolla yellow, tube cylindric, ca. 8 × 2 mm, dilated at throat, pubescent inside; lobes oblong or obovate, ca. 3.5 × 2.5 mm. Stamens inserted at corolla throat; filaments short; anthers broadly ovate, base rounded, apex short acuminate; disc cup-shaped, shorter than ovary. Ovaries distinct. Style filiform; pistil head club-shaped to capitulate, base with a ringlike

- Montane forests; 300–600 m. Hainan (Baoting, Wanning).


萝芙木 luo fu mu

Dissoleona verticillata Loureiro, Fl. Cochinch. 1: 137. 1790; Cerbera chinensis Sprengel; Ophioxylon chinense Hance; Rauvolfia altiscifera Miu; R. brevisliya Tsang; R. cambodiana Pierre ex Pitard; R. chinensis (Sprengel) Hemsley; R. latifrons Tsang; R. perakensis King & Gamble; R. superaxillaris P. T. Li & S. Z. Huang; R. taiwanensis Tsang; R. verticillata var. hainanensis Tsang; R. verti-cillata var. oblancoelata Tsang; R. verticillata var. officinalis Tsang; R. yunnanensis Tsang.

Shrubs to 3 m tall, erect, glabrous. Branchlets pale gray, lenticellate. Lower leaves opposite, terminal leaves in whorls of 3 or 4; pediole 0.5–1.5 cm; leaf blade narrowly to broadly ovate or oblong, 3.5–25 × 5–13 cm, nearly papery to membranous; lateral veins 6 or 7 pairs. Cymes rather lax, 3–9 together; peduncle 2–15 cm. Pedicel 3–6 mm. Corolla white, tube cymbic, 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. Ovaries distinct. Drupes ellipsoid or ovoid, distinct, ca. 10 × 5 mm. Seed 1. Fl. Feb-Oct, fr. Apr-Dec. 2n = 22^*.

Lowland, montane rain forests, monsoon forests, brush fields, river banks, rice fields, seashores; 0–1700 m. Guangdong, Guangxi, Guizhou, Hainan, Taiwan, Yunnan [Cambodia, India, Indonesia, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam].

Used in China to treat snake poisoning, malaria, and typhus. The roots are used to treat hypertension and as a sedative.

14. ALYXIA Banks ex R. Brown, Prodr. 469. 1810, nom. cons.

链珠藤属 lian zhu teng shu

Plants woody lianas or erect to trailing shrubs, with latex. Leaves in whorls of 3 or 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; disc absent. Ovaries 2, distinct; ovules biseriate, 4–6 in each ovary. Style filiform; pistil head capitate, apex shortly 2-cleft. Fruit usually paired, moniliform, transversely constricted into 1–5 drupelike articles, or not jointed. Seeds ovate or oblong; endosperm horny, ruminate; cotyledons leaflike, erect or curved.

About 70 species: tropical Asia, Australia, Pacific Islands; 12 species in China.

1a. Leaves densely pubescent abaxially; cymes spicate ................................................................. 3. A. villilimba
1b. Leaves glabrous abaxially; cymes fascicled.

2a. Inflorescences 2–10.5 cm.
2b. Inflorescences 0.5–2 cm.

3a. Corolla pubescent .......................................................... 1. A. menglangensis
3b. Corolla glabrous.

4a. Inflorescences 8–10.5 cm ......................................................... 2. A. siamensis
4b. Inflorescences 3–5 cm ............................................................ 4. A. reinwardtii

5a. Leaf apex rounded, obtuse, or rarely retuse.
5b. Leaf apex caduate, acuminate, or acute.

6a. Leaves usually in whorls of 4; leaf blade 5.5–10 × 2.5–3.5 cm; pediole 10–15 mm; corolla tube 7–10 mm ...................................................... 5. A. insularis
6b. Leaves opposite or in whorls of 3; leaf blade 1.5–3.5 × 0.8–2 cm; pediole ca. 2 mm; corolla tube 2–3 mm .............................................. 6. A. sinensis

7a. Leaf apex caduate or acuminate, acumen ca. 1.5 cm .............................................................. 7. A. fascicularis
7b. Leaf apex acute or short acuminate.

8a. Leaf blade with marginal veins .......................................... 8. A. marginata
8b. Leaf blade without marginal veins.

9a. Ovary glabrous; articles of fruit ca. 6 × 4 mm ................................................................. 9. A. taiwanensis
9b. Ovary hairy; articles of fruit 7–22 × 5–10 mm.

10a. Articles of fruit 0.5 cm; corolla yellow .......................................................... 11. A. schlechteri
10b. Articles of fruit 10–22 mm; corolla greenish white or greenish yellow

11a. Sepals acuminate, 1.5–3 mm; corolla greenish white, tube ca. 3 mm; articles of fruit 10–13 × 8–10 .............................................................. 10. A. levinei
11b. Sepals obtuse or acute, 1.7–8 mm; corolla greenish yellow, tube 3–15 mm; articles of fruit 10–22 × 5–8 mm .................................................. 12. A. odorata

**Menglong Chain Zhu**

Lianas woody, to 4 m. Branchlets gray-green. Leaves opposite or in whorls of 3–4; petiole ca. 1 cm; leaf blade elliptic to narrowly so, 9–12 × 3–4.6 cm, papery, abaxially glabrous; lateral veins numerous, inconspicuous abaxially. Cymes terminal or axillary, solitary or umbellate in groups of 2 or 3, 2–5 cm, pubescent; peduncle 1–4 cm. Sepals ovate, ca. 2 mm, obtuse, densely pubescent. Corolla white, pubescent on both surfaces, tube ca. 6 mm; lobes ovate, ca. 2 mm. Stamens inserted at corolla throat. Ovary glabrous. Style filiform. Fl. Sep.

- Dense montane forests; 2000 m. S Yunnan.


**Changxu Chain Zhu Teng**

*Alyxia balansae* Pitard; *A. yunkuniana* Tsang.

Lianas stout, woody, to 8 m. Bark dull gray, glabrous, warty. Leaves opposite or in whorls of 3 or 4; petiole 1–1.5 cm; leaf blade elliptic to narrowly so, 7–19 × 3–4.4 cm, abaxially glabrous, base cuneate, margin revolute, apex short acuminate; lateral veins numerous, subparallel, slender, elevated on abaxial surface, obscure adaxially. Cymes fascicled, terminal or axillary, thyrsoid, 8–10 cm, puberulent. Sepals ovate, ca. 1 mm, acute or short acuminate, puberulent outside. Corolla yellow, glabrous, tube ca. 2 mm; lobes oblquiely ovate, ca. 1 mm. Stamens inserted above middle of corolla tube. Ovary pubescent. Style filiform, ca. 1.5 mm; pistil head subcapitulate. Fruit moniliform, paired or solitary, ellipsoid or ovoid-oblong, 3–4.5 × 1.2–1.5 cm. Fl. May-Jul.

Humid forests, valleys, brushwoods; 250–1000 m. Guangdong, Guangxi, Yunnan [Thailand, Vietnam].


**Mao Ye Chain Zhu Teng**

*Alyxia villilimba* var. *macrophylla* P. T. Li.

Shrubs to 3 m tall, densely pubescent. Leaves usually in whorls of 3; petiole 1–2 cm; leaf blade orbicular, elliptic, ovate, or obovate, 1.5–3.5 × 0.8–2 cm, leathery, abaxially glabrous, margin revolute, apex rounded or retuse; lateral veins inconspicuous. Cymes fascicled, 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 ellipsoid articles ca. 10 × 5 mm. Fl. Jul. 2n = 36*.

- Limestone in humid forests; 500–1000 m. W Guangxi, SE Yunnan.

4. **Alyxia reinwardtii** Blume, Catalogus 43. 1823.

**Changhua Chain Zhu Teng**

Lianas woody, to 3 m, glabrous except for inflorescences. Leaves opposite or in whorls of 3; petiole ca. 2 mm; leaf blade orbicular, elliptic, ovate, or obovate, 1.5–3.5 × 0.8–2 cm, leathery, abaxially glabrous, margin revolute, apex rounded or retuse; lateral veins inconspicuous. Cymes fascicled, 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 ellipsoid articles ca. 10 × 5 mm. Fl. Jul. 2n = 36*.

- Brushwoods, forest margins; 200–500 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Taiwan, Zhejiang.

The roots are used for the treatment of injury, toothache, and rheumatoid arthritis.


**Lan屿链珠藤**

Lianas woody, to 3 m tall, trailing, glabrous. Branchlets 4-angled. Leaves usually in whorls of 4; petiole 1–1.5 cm; leaf blade ovate or narrowly so, 5.5–10 × 2.5–3.5 cm, thick leathery, abaxially glabrous, apex obtuse or rounded; midrib elevated abaxially, lateral veins inconspicuous. Cymes fascicled, axillary; peduncle short. Sepals ovate to triangular, 3–4 mm, apex obtuse. Corolla tube 7–10 mm, densely pubescent inside at middle; lobes ovate, ca. 5 mm. Stamens inserted above middle of corolla tube. Ovary pubescent. Fruit ellipsoid, 1–2 × 0.6–1.5 cm. Seeds 1 or 2. Fl. May.

- Forests, brushwoods; 800–1700 m. S Yunnan [Indonesia, Malaysia, Philippines, Thailand, Vietnam].


**Chain Zhu Teng**

Lianas woody, to 3 m, glabrous except for inflorescences. Leaves opposite or in whorls of 3; petiole 2 cm; leaf blade orbicular, elliptic, ovate, or obovate, 1.5–3 × 0.8–2 cm, leathery, abaxially glabrous, margin revolute, apex rounded or retuse; lateral veins inconspicuous. Cymes fascicled, 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 ellipsoid articles ca. 10 × 5 mm. Fl. Jul. 2n = 36*.

- Brushwoods, forest margins; 300–500 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Taiwan, Zhejiang.


**Wei Jian Chain Zhu Teng**

Lianas woody, to 3 m, glabrous except for inflorescences. Leaves opposite or in whorls of 3; petiole 2 cm; leaf blade orbicular, elliptic, ovate, or obovate, 1.5–3 × 0.8–2 cm, leathery, abaxially glabrous, margin revolute, apex rounded or retuse; lateral veins inconspicuous. Cymes fascicled, 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 ellipsoid articles ca. 10 × 5 mm. Fl. Jul. 2n = 36*.
Lianas woody, to 2 m. Bark pale, warty; branchlets gray, glabrous. Leaves opposite or in whorls of 3; petiole 3–5 mm; leaf blade oblance-elliptic, oblong, or oblanceolate, 6–10 × 1.7–3 cm, glabrous, base broadly cuneate, apex crenate-acuminate, acumen ca. 1.5 cm; veins numerous, parallel, slender, raised. Cymes fascicled, short pedunculate, densely flowered, glabrous or puberulent. Sepals ovate. Corolla tube ca. 3 mm; lobes small, round. Fruit moniliform, articles or in whorls of 3; petiole 4–6 mm, densely pubescent, ciliate. Corolla white or creamy white; tube 5–10 mm, densely pubescent inside, lobes ovate, ca. 3 mm. Fruit puberulent. Fruit moniliform, articles subglobose, 1–1.6 × 0.8–1.1 cm. Fl. Sep-Nov, fr. Oct-Dec.

Mixed forests; 1800 m. SE Xizang (Motuo) [India (Khasia Mountain), Thailand].


**Alyxia funigenensis** Tsiang & P. T. Li

Lianas woody, to 3 m, glabrous except for inflorescences. Branchlets dark gray, warty. Leaves opposite or in whorls of 3; petiole 3–10 mm; leaf blade elliptic, narrowly elliptic, or obovate, 7–17 × 1.4–5 cm, papery, abaxially glabrous; lateral veins numerous, inconspicuous abaxially, marginal veins present; Cymes axillary, 1–2 cm, puberulent. Sepals ovate, 3–3.5 mm, acute, pubescent outside. Corolla white or creamy white, tube 5–10 mm, densely pubescent inside, lobes ovate, ca. 3 mm. Ovary puberulent. Fruit moniliform, articles subglobose, 1–1.6 × 0.8–1.1 cm. Fl. Sep-Nov, fr. Oct-Dec.

Dense forests, bushwood, forest borders; 200–1800 m. SW Guangxi, Yunnan [Cambodia, Laos, Vietnam].


**Alyxia euonymifolia** Tsiang; A. hainanensis Merrill & Chun; A. jasminea Tsiang & P. T. Li; A. lehtungensis Tsiang; A. nitens Kerr; A. vulgaris Tsiang.

Lianas woody, to 3 m. Branches gray, with many lenticels; branchlets puberulent, later glabrous. Leaves opposite or in whorls of 3 or 4, usually crowded on upper branchlets; petiole 2–4 mm, puberulent or pubescent; leaf blade narrowly to very narrowly elliptic, 2–12 × 0.5–1.5 cm, leathery, usually glabrous, base broadly cuneate, margin recurved, apex acuminate or acute; lateral veins inconspicuous abaxially. Cymes fascicled, axillary, 0.5–1 cm. Sepals narrowly elliptic, ca. 2.5 mm, keeled, minutely puberulent, apex long acute. Corolla yellow. Fruit with 2 or 3 ellipsoid articles ca. 7 × 5 mm.

Sparse woods, brushwoods; 500–1500 m. Guangxi, Guizhou, Yunnan [Thailand].


**Alyxia schlechteri** var. *salicifolia* P. T. Li.

Lianas woody, to 3 m. Branches gray, with many lenticels; branchlets puberulent, later glabrous. Leaves opposite or in whorls of 3 or 4, usually crowded on upper branchlets; petiole 2–4 mm, puberulent or pubescent; leaf blade narrowly to very narrowly elliptic, 2–12 × 0.5–1.5 cm, leathery, usually glabrous, base broadly cuneate, margin recurved, apex acuminate or acute; lateral veins inconspicuous abaxially. Cymes fascicled, axillary, 0.5–1 cm. Sepals narrowly elliptic, ca. 2.5 mm, keeled, minutely puberulent, apex long acute. Corolla yellow. Fruit with 2 or 3 ellipsoid articles ca. 7 × 5 mm.

Sparse woods, bushwoods; 500–1500 m. Guangxi, Guizhou, Yunnan [Thailand].

15. **KOPSI**A Blume, Catalogus 12. 1823, nom. cons.
Trees or shrubs with white latex. Leaves opposite. Cymes terminal, 3- to 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; disc scales alternate with ovaries. Ovaries 2, distinct; ovules 2 per locule. Style filiform; pistil head thickened, with a short basal collar and apiculate apex. Drupes 1 or 2, ellipsoid, 1- or 2-seeded. Seeds oblong, testa membranous, not comose.

About 20 species: SE Asia, three in China.

1a. Flowers many, ± crowded into corymbose, several-branched cymes; peduncle to 14 cm; disc longer than ovary; mature drupes blue-black
1b. Flowers few, in little-branched, ± monochasial cymes; peduncle up to 1 cm; disc up to as long as ovary; mature drupe orange or red (color not known in K. fruticosa).

2a. Lateral veins of leaf blade more than 20 pairs; corolla white; calyx and ovary glabrous
2b. Lateral veins of leaf blade 10–15 pairs; corolla pink; calyx and ovary pubescent

1. **Kopsia arborea** Blume, Catalogus 13. 1823.

2. **Kopsia hainanensis** Tsiang, Sunyatsenia 2: 111. 1934.

3. **Kopsia fruticosa** (Ker Gawler) A. de Candolle, Prodr. 8: 352. 1844.

endocarp thick, hard. Seeds 2–4 per locule, flat, not comose; endosperm none; cotyledons large, flat.

About 25 species: Malaysia, W Pacific Islands; three species cultivated in China.

1a. Sepals minutely ciliate; leaf apex usually rounded  ................................................................. 1. O. borbonica
1b. Sepals mostly not ciliate; leaf apex abruptly acuminate or obtuse.
  2a. Corolla tube longer than lobes; leaves narrowly obovate to broadly elliptic  ............................................. ..  2. O. elliptica
  2b. Corolla tube as long as lobes; leaves elliptic  .......................................................................... ....................  3. O. coccinea

玫瑰树  mei gui shu

Trees to 15 m tall. Trunk to 40 cm in diam. Terminal leaves in whorls of 3 or 4, others opposite; petiole 0.5–3.5 cm; leaf blade obovate or elliptic, 8–25 × 3–5 cm, rounded, minutely ciliate. Cymes many flowered; peduncle 2–12 cm. Flowers fragrant, short pedicellate or sessile. Sepals ovate, 2.5–3 mm, rounded, minutely ciliate. Corolla throat white, pink, or red, tube 7.5–10 mm; lobes oblong, 4–9 mm. Drupes 2, red, ca. 4.5 × 3.5 cm. Fl. throughout the year but mainly Jan-Jun.

S Guangdong [Indonesia, Malaysia, Singapore, Sri Lanka, Vietnam; Africa (Mascarenes)].

Cultivated for medicine.

古城玫瑰树  gu cheng mei gui shu

Trees to 6 m tall, glabrous. Petiole 1.5–2 cm; leaf blade obovate to broadly elliptic, 8–15 × 3–5 cm, apex obtuse or short acuminate. Cymes corymbose. Flowers sessile. Sepals ovate, ca. 2 mm, not ciliate, apex obtuse. Corolla white, cylindrical, tube ca. 1 cm; lobes linear, ca. 6 mm. Anthers narrowly oblong. Drupes ellipsoid, 2–4 × ca. 1 cm. Seeds suborbicular, narrow margined. Fl. Jun.

S Guangdong, Taiwan [introduced from Australia].

Cultivated for medicine.

光萼玫瑰树 guang e mei gui shu


Trees to 6 m, glabrous. Branchlets subangular, smooth. Leaves opposite or whorled; blade elliptic, 7–20 × 3–5 cm, apex abruptly acuminate. Cymes repeatedly dichasial, ending monochasial, many flowered; peduncle to 3 cm. Pedicel 2–4 mm. Sepals ovate, ca. 2 mm, glabrous, apex rounded. Corolla white, tube ca. 4 mm, as long as lobes. Stamens inserted near mouth of corolla tube. Ovaries distinct, oblong. Drupes 2, bright red, ellipsoid, 2.5–5 × 2–2.5 cm, spreading horizontally. Seeds 2 on each placenta. 2n = 22.

S Guangdong [Malaysia, New Guinea, Singapore].

Cultivated for medicine.

17. THEVETIA Linnaeus, Opera Var. 212. 1758, nom. cons.

黄花夹竹桃属 huang hua jia zhu tao shu

Cascabela Rafinesque; Plumeriopsis Rusby & Woodson.

Trees or much-branched shrubs, evergreen, erect, latex white. Leaves alternate, rather densely together on slender branchlets. Cymes terminal and leaf opposite. Calyx deeply divided, with many basal glands inside. Corolla yellow, funnelform, lobes overlapping to left, throat with 5, narrow, long-hairy scales. Stamens inserted in distal narrow part of corolla tube; filaments very short; anthers narrowly oblong, small, free from pistil head, cells not appended proximally; disc absent. Ovary 2-loculed, placenta prominent. Style filiform; pistil head disclike, thick, dilated, apex shortly 2-cleft. Drupes depressed globose; endocarp hard, woody or fleshy. Seeds 2 per locule, wingless, not comose, without endosperm; cotyledons suborbicular, fleshy, radicle short.

Eight species: tropical America, two species cultivated in China.

1a. Leaves narrowly obovate; corolla tube longer than lobes  .................................................................................. 1. T. ahouai
1b. Leaves very narrowly oblong; corolla tube shorter than lobes  .............................................................................. 2. T. peruviana

1. Thevetia ahouai (Linnaeus) A. de Candolle, Prodr. 8: 345. 1844.

阔叶竹桃  kuo ye zhu tao


Shrubs to 3 m tall. Wood with an offensive smell. Leaf blade narrowly obovate, glabrous adaxially, pubescent abaxially, apex obtuse. Sepals ovate, reflexed, glabrous, apex
acute. Corolla tube dilated distally, longer than lobes, closed at mouth, marked with 5 deep grooves; lobes oval, oblique or overlapping, with undulate margin; corona scales absent. Stamens inserted at apex of corolla tube, included. Style filiform; pistil head turbinate, apex 2-cleft. Fl. almost throughout the year.

S Guangdong [introduced from Brazil].

Cultivated for medicine. The sap and seeds are deadly poisonous to domestic animals.


黄花夹竹桃  huang hua jia zhu tao
Cascabela thevetia (Linnaeus) Lippold; Cerbera thevetia Linnaeus; Thevetia linearis A. de Candolle; T. neriifolia Jussiau ex Steudel; T. neriifolia Jussiau ex A. de Candolle; T. thevetia (Linnaeus) Millspaugh.

Trees with latex. Branches stout. Leaves opposite, with numerous, parallel secondary veins. Cymes terminal, long pedunculate. Calyx deeply divided, without glands inside. Corolla white, funneliform, throat slightly dilated, ridged, 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; disc absent. Ovaries 2, free, ovules numerous on each placenta. Style short or long, filiform; pistil head conical, 2-partite. Drupes 1 or 2, large, ellipsoid or globose, 1- or 2-loculed, with a thick, woody-fibrous endocarp.

Trees to 6 m tall. Bark chocolate-brown, lenticellate; lower branches pendulous, young branches greenish gray. Petiole 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. Pedicel 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 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 gray, lenticular, ca. 2 × 3.5 cm. Fl. May-Dec. 2n = 20.

Fujian, Guangdong, Guangxi, Hainan, Taiwan, Yunnan [native to Central and South America].

Cultivated for medicine. The sap and seeds are deadly poisonous to domestic animals. The seeds yield oil for industry and soap making. The bark is a powerful antiperiodic and febrifuge. A handsome ornamental.


海芒果属 hai mang guo shu

Trees with latex. Branches stout. Leaves opposite, lateral veins 20–30 pairs, diverging almost at right angles to midvein. Cymes terminal, long pedunculate, without glands inside. Corolla white, funneliform, throat slightly dilated, ridged, 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; disc absent. Ovaries 2, free, ovules 4 in each locale. Style filiform, dilated distally; pistil head shortly 2-cleft. Drupes 1 or 2, large, ellipsoid or globose, 1- or 2-loculed, with a thick, wooly-fibrous endocarp. Seeds 1 or 2 per locule, wingless, not comose, without endosperm; cotyledons thin, radicle very short.

Three species: Africa, tropical Asia, Australia, Pacific Islands; one species in China.


海芒果 hai mang guo

Trees to 8 m tall. Bark gray-brown; branches whorled, marked with leaf scars. Petiole 2.5–6 cm; leaf blade narrowly ovate, 6–37 × 2.3–7.8 cm, base cuneate, apex acuminate. Peduncle stout, 5–21 cm. Pedicel terete, 1–2 cm. Flowers 4–7 cm wide. Corolla white, pinkish in center; 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. Fl. Mar-Oct, fr. Jul-Dec. 2n = 40.

Seashore, tidal river banks. S Guangdong, S Guangxi, Hainan, S Taiwan [Cambodia, Indonesia, Japan (Ryukyu Islands), Laos, Malaysia, Myanmar, Thailand, Vietnam; Australia, Pacific Islands].

The fruit, and especially the seed, are very poisonous and contain hydrocyanic acid and the cardiac glycosides thevetin and cerberin. The wood is used for fine charcoal, and the seeds are used in Hainan to stupefy fish. The bark, latex, and leaves are sometimes used as an emetic and a purgative.


鸭蛋花属 ya dan hua shu

Trees or shrubs. Leaves opposite, with numerous, parallel secondary veins. Cymes corymbose, axillary, terminal, or at branch forks, 1- to many flowered. Calyx small, without glands; lobes ovate, apex acute. Corolla yellow or white, funnelform or salverform; tube long, cylindric, swollen on 1 side at base or apex, throat not scaly; lobes unequal sided, overlapping to left. Stamens inserted above middle of corolla tube; anthers subse ssile, acuminate, free from pistil head, exerted or included, connective extending into a long, bristly appendage. Ovaries 2, distinct; ovules numerous on each placenta. Style short or long, filiform; pistil head conical, 2-partite. Follicles 2, samaroid, reflexed or horizontal, obtuse. Seeds numerous, ovate.

Four species: Caribbean, one species cultivated in China.


鸭蛋花 ya dan hua
Trees to 10 m tall. Branches forked. Leaves elliptic or ovate, ca. 4 cm, membranous, lateral veins numerous, densely parallel. Cyms corymbose, terminal, few flowered. Sepals 1–1.5 mm. Corolla white, yellow at base, salverform; tube cylindrical, 5–8 mm; lobes obovate, 0.6–1.5 cm. Anthers oblong, as long as appendages. Style filiform. Follicles 1 or 2, 4–5 cm. Seeds ovate, with a membranous wing at proximal end.

Guangdong [introduced from Cuba].

Cultivated for medicine and frequently used in the preparation of poultice.

20. **ALLAMANDA** Linnaeus, Mant. Pl. 2: 146. 1771.

**黃蝉属 huang chan shu**

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; disc cup-shaped, obscurely 5-lobed or entire, fleshy, thick. Ovary 1-loculed, with two parietal placentae; ovules numerous. Style filiform; pistil head thick, with a membranous, reflexed rim, apex conical, shortly 2-lobed. Capsules globose, glabrous, sharply spiny, 2-valved. Seeds numerous, imbricate, compressed, winged or with a membranous margin; radicle short.

Fourteen species: tropical America, two cultivated in China.

1a. Erect shrubs with clear sap; lateral veins elevated on abaxial leaf surface; corolla tube ca. 3 cm, distinctly swollen at base .......................................................... 1. *Allamanda schottii*  

1b. Climbing shrubs with white latex; lateral veins flattened on abaxial leaf surface; corolla tube 4–8 cm, not swollen at base .................................................................................. 2. *Allamanda cathartica*


**黄蝉 huang chan**  

*Allamanda nerifolia* Hooker.

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 swollen 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. Fl. May-Aug, fr. Oct-Dec. 2n = 18.

Fujian, Guangdong, Guangxi, Hainan, Taiwan [introduced from Brazil].

Cultivated for medicine and as an ornamental.


**软枝黄蝉 ruan zhi huang chan**  

*Allamanda hendersonii* Bulliard ex Dombrain; *A. cathartica* var. *hendersonii* (Bulliard ex Dombrain) L. H. Bailey & Raffill.

Shrubs trailing, to 4 m, with white latex. Stems glabrous. Leaves opposite or in whorls of 3–5; petiole 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. Flowers 7–14 cm. Corolla yellow; tube 4–8 cm, 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, with spines to 1 cm. Seeds compressed, winged or with a membranous margin. Fl. spring-summer. 2n = 18.

Fujian, Guangdong, Guangxi, Hainan, Taiwan [native to South America].

Cultivated for medicine.


**文藤属 wen teng shu**

Lianas usually glabrous, with latex. Leaves opposite; stipules interpetiolar, reduced to many linear segments. Racemes axillary, few flowered. Flowers large. Calyx deeply divided, with many basal glands inside. Corolla funnelform; tube narrow, more than 2 cm, limb campanulate; faucal scales absent; lobes overlapping to right. Stamens inserted and included in widened part of corolla tube; filaments short; anthers oblong, adherent at middle to pistil head, cells obtusely caudate; disc 5-cleft. Ovaries free, glabrous; ovules numerous. Style glabrous; pistil head with a 2-cleft mucro. Follicles long, slender. Seeds narrowly oblong, not beaked, comose.

About 120 species: Central and South America, one species cultivated in China.


**软枝文藤 ruan zhi wen teng**  

Branchlets glabrous. Petiole long; leaf blade narrowly cordate, herbaceous, glabrous adaxially, glaucous and bearded at vein axils abaxially, apex acuminate. Racemes long pedunculate, nodding, simple, many flowers. Flowers fragrant. Sepals narrow, 0.7–1.3 cm, acute. Corolla white or pale pink, limb 10-folded inside; lobes oblong, undulate at margin, apiculate. Filaments broad, pubescent, much shorter than glabrous anthers; disc apex obtuse or truncate, glabrous.

S Guangdong [native of Argentina].
Cultivated for medicine.


络石属 路石属 洛石属

Lianas woody, latex white. Leaves opposite. Cymes lax, terminal, pseudoaxillary, or axillary. Flowers white or purplish, 5-merous. Calyx small, deeply divided, basal glands 5–10, apex usually denticate, Corolla salverform; tube cylindric, 5-angled, dilated at staminal insertion, throat constricted; lobes sharply overlapping to right. Stamens inserted at lower third of corolla tube; anthers sagittate, connivent, adherent to pistil head, anther tips included or exerted, cells spurred at base; disc scales 5, free. Ovaries 2, free, usually longer than disc; ovules numerous in each ovary. Style short; pistil head conical. Follicles 2, linear or fusiform, divergent or parallel. Seeds linear-oblong, not beaked, coma silky white; endosperm copious; cotyledons linear, flat, radicle short.

About 15 species: one in North America, the others in Asia; six species in China.

1a. Anther apex exerted or slightly so .......................................................... 1. T. asiaticum
1b. Anther apex included or reaching corolla mouth.
   2a. Corolla tube dilated at throat or middle.
      3a. Stamens inserted at corolla throat ...................................................... 2. T. bodinieri
      3b. Stamens inserted at middle of corolla tube ........................................... 3. T. jasminoides
   2b. Corolla tube dilated at base.
      4a. Follicles divergent, linear, 3–5 mm in diam. ......................................... 4. T. brevistylum
      4b. Follicles parallel, cylindric to fusiform, 10–15 mm in diam.
      5a. Leaves usually obovate or narrowly so; flowers purplish; ovaries and fruit glabrous ............ 5. T. axillare
      5b. Leaves oblong, narrowly ovate, or elliptic; flowers white; ovaries and fruit pubescent ...... 6. T. dunnii


亚洲络石 路石


Lianas woody, to 10 m, glabrous or pubescent when young. Petiole 2–10 mm; leaf blade elliptic, narrowly ovate, or subobovate, 2–10 × 1–5 cm, membranous to papery, base acute or broadly cuneate, apex obtuse to acute, rarely ciliate; lateral veins 6–10 pairs. Cymes terminal and axillary. Sepals appressed to corolla tube, 1.5–3 mm, puberulent to glabrous outside, apex obtuse to subacute; basal glands 10. Corolla white, tube 6–10 mm, dilated at throat, glabrous or puberulent inside facing stamens; lobes obvate, as long as tube. Stamens inserted at or near corolla throat; anther apex exerted or slightly so; disc scales shorter than to as long as ovary. Ovary glabrous. Follicles linear, 10–30 cm × 3–5 mm. Seeds oblong, 2–2.5 cm, coma to 3.5 cm. Fl. Apr-Jul, fr. Aug-Nov. 2n = 20.

Dense or open montane forests, brushwoods, often clinging to trees; 100–1000 m. Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan [India, Japan, Korea, Thailand].


贵州络石 路石


Lianas woody, to 15 m, minutely tomentose to glabrous or glabrescent. Petiole 3–10 mm long; leaf blade elliptic, narrowly ovate, or narrowly obovate, 3–10 × 1–4 cm, thick papery; lateral veins 8–13 pairs. Cymes paniculate, terminal or axillary, to 10 cm. Sepals narrowly elliptic, 2–3 mm, glabrous, ciliate, apex appressed to corolla or slightly spreading, acute or obtuse. Corolla white, tube 5–14 mm; throat dilated, pilose, glabrous outside; lobes obliquely obovate or narrowly obovate, as long as tube. Anthers apex reaching corolla throat; disc

- Mixed woods, brushwoods; 500–2600 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang.


络石 luzuo shi

Rhynchospermum jasminoides Lindley, J. Hort. Soc. London 1: 74. 1846; Trachelospermum adenascens Hance; T. jasminoides var. heterophyllum Tsiang; T. jasminoides var. variegatum W. T. Miller.

Lianas woody, to 10 m. Stem brownish, lenticellate; young branchlets pubescent, glabrous when older. Petiole 3–12 mm long; 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 outside, ciliate, apex obtuse or acute. Corolla white, tube dilated at middle, 5–10 mm, throat glabrous or pilose facing stamens; lobes obvate, 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. Fl. Mar-Aug, fr. Jun-Dec. 2n = 20.

Sunny edges of forests, brushwoods; 200–1300 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shandong, Shanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Japan, Korea, Vietnam].

A strong bast fiber obtained from the inner bark is used in making rope, sacks, and paper. The stem is used for the treatment of rheumatism and injury. The flowers yield perfumed oil. The whole plant is used in Guangxi as medicine for the treatment of injury, pulmonary tuberculosis, bronchitis, and rheumatalgia.


短株络石 duanzhuluozhi

Trachelospermum cuneatum Tsiang; T. suaveolens Chun.

Lianas woody, to 5 m, glabrous. Branches lenticellate. Petiole 5–8 mm; leaf blade narrowly elliptic, 5–10 × 1.2–3 cm, base obtuse, apex acuminate or caudate-acuminate; lateral veins 10–14 pairs. Cymes terminal and axillary; peduncle 1–2 cm. Pedicel 5–7 mm. Sepals narrowly elliptic, 1–2 mm, glabrous, apex acute, slightly spreading. Corolla white, tube ca. 4.5 mm, stigmos-pilose inside; lobes obliquely obovate, 6–7 mm. Stamens included, inserted near base of corolla tube; disc rectangular, 5-lobed, free. Ovary glabrous. Follicles linear, divergent, 11–24 cm × 3–5 mm. Seeds oblong, 1–3 cm, coma ca. 3 cm. Fl. Apr-Jul, fr. Aug-Dec.

- Open forests, often climbing on trees; 600–1100 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Sichuan, Xizang.


紫花络石 zhihuoluo shi

Maesa scandens H. Léveillé; Melodinus chaffanjonii H. Léveillé; Periploca astacus H. Léveillé.

Lianas woody, to 10 m, glabrous except for young shoots and inflorescences. Stems densely lenticellate. Petiole 3–5 mm; leaf blade obovate, narrowly obovate, or narrowly elliptic, 8–15 × 3–4.5 cm, leathery, base cuneate or rounded, apex acute, abruptly caudate, or acuminate; lateral veins to 15 pairs. Cymes axillary or sometimes subterminal, to 3 cm. Pedicel 3–8 mm. Sepals appressed to corolla tube, ovate, obtuse, basal glands ca. 10. Corolla purplish, tube ca. 5 mm; lobes narrowly obovate, 5–7 mm. Stamens inserted at base of corolla tube, included. Follicles connate, cylindric to fusiform, 10–15 × 1–1.5 cm, glabrous. Seeds broadly ovate, ca. 1.5 cm, coma ca. 5 cm. Fl. May-Jul, fr. Aug-Oct.

- Brushwoods, sunny open forests; 500–1500 m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Jiangxi, Sichuan, Xizang, Yunnan, Zhejiang.

A fine, strong fiber is obtained from the inner bark and used in making paper. The whole plant is used in Guangxi as medicine for the treatment of injury, pulmonary tuberculosis, bronchitis, and rheumatalgia.


绣毛络石 xiuzhaoluozhi


Lianas woody, to 20 m, rust colored tomentose. Petiole 3–5 mm; leaf blade oblong, elliptic, or narrowly so, 6–10 × 2–3 cm, base obtuse or subcordate to subauriculate-cordate, apex short acuminate or acute, lateral veins 10–14 pairs. Cymes terminal or axillary; peduncle 1.2–1.5 cm. Pedicel 1–2.5 cm. Sepals slightly spreading, narrowly elliptic, 3–4 mm, tomentose, apex acute, recurved. Corolla white, tube 5–6 mm, pilose; lobes obliquely obovate or elliptic, falcate, 8–9 mm. Stamens inserted near base of corolla tube; disc 5-lobed, as long as ovary. Follicles connate, cylindric to fusiform, 8–9 × 1.2 cm, pubescent. Seeds ca. 1 cm, coma 3–4 cm. Fl. Mar-Aug, fr. Jun-Dec.

Open forests, brushwoods; 300–1600 m. Guangxi, Guizhou, Hunan, Yunnan, Zhejiang [Vietnam].

The young leaves are used in Guangxi as medicine for injury.

23. AGANOSMA (Blume) G. Don, Gen. Hist. 4: 77. 1837.

香花藤属 xianguotengshu

Lianas woody, with white latex. Leaves opposite, interpetiolar line evident. Cymes terminal or axillary, corymbose; bracts and bracteoles sepal-like. Flowers large. Calyx divided halfway or deeper, with 5 or more basal glands inside, sepals usually longer than corolla tube. Corolla white, salverform; tube long cylindric, widened at base; lobes overlapping to right. Stamens inserted at lower third of tube; anthers included, sagittate, adherent to pistil head, cells with a rigid, empty basal tail; disc ringlike or tubular, lobed or dentate, surrounding ovary. Ovaries 2, distinct; ovules numerous. Style short; pistil head conical, apex 2-cleft. Follicles linear, terete. Seeds flat, not beaked, coma early deciduous.

About 12 species: tropical and subtropical Asia, five species in China.

1. Aganosma marginata (Roxburgh) G. Don, Gen. Hist. 4: 77. 1837.

Aganosma xiang hua teng

_Echites marginata_ Roxburgh, Fl. Ind. ed. 1832 2: 15. 1832; _Aganosma acuminata_ (Roxburgh) G. Don; _Amphi-neurion acuminatum_ (Roxburgh) Pichon; _E. acuminata_ Roxburgh.

Lianas to 8 m. Stems and branches lenticellate. Petiole ca. 1 cm; leaf blade oblong, 4.5–12 × 2–4 cm, abaxially pubescent especially along veins, base acute to rounded, apex acuminate or caudate; lateral veins 12–15 pairs, elevated abaxially. Cymes axillary, 3-branched; peduncle puberulent; bracts and bracteoles sublinear. Pedicel puberulent. Calyx with a continuous row of numerous basal glands inside; sepals sublinear, 5–7 mm, puberulent outside. Corolla white or yellowish, tube 8–10 mm, densely villous inside; lobes very narrowly elliptic, 1.5–2 cm × 2–3.5 mm. Stamens inserted below middle of corolla tube; disc ringlike, shorter than ovary. Ovary glabrous. Follicles 2, cylindric, 15–40 × ca. 1 cm. Seeds oblong, flat, ca. 1 cm, coma 2.7 cm. Fl. Mar-Sep, fr. Jun-Dec.

Montane forests, seashore brushwoods. Guangdong, Hainan [Cambodia, India, Indonesia, Laos, Malaysia, Philippines, Thailand, Vietnam].

2. Aganosma cymosa (Roxburgh) G. Don, Gen. Hist. 4: 77. 1837.

云南香花藤  _yun nan xiang hua teng_

_Echites cymosa_ Roxburgh, Fl. Ind. ed. 1832 2: 16. 1832; _Aganosma cymosa var. fulva_ Craib; _A. cymosa var. glabra_ A. de Candolle; _A. cymosa var. lanceolata_ J. D. Hooker; _A. harmandiana_ Pierre in Spire & A. Spire.

Lianas to 10 m, pale brownish tomentose. Petiole 1–2 cm; leaf blade broadly ovate or orbicular, 5–16 × 4–12 cm, base rounded or obtuse, apex acuminate or obtuse, rarely retuse; lateral veins 8–10 pairs. Cymes terminal, many flowered; peduncle to 6 cm; bracts and bracteoles very narrowly elliptic, 0.9–1.1 cm. Pedicel ca. 5 mm. Calyx with several glands inside margin of sepals; sepals very narrowly elliptic, 0.9–1.1 cm, pubescent on both surfaces. Corolla white, minutely tomentose outside, glabrous at throat; tube shorter than sepals, 6–7 mm; lobes oblong, as long as tube. Disc longer than ovary. Ovary pubescent at apex. Follicles 2, cylindric, to 30 × 0.8–1.2 cm, yellow hirsute. Seeds oblong, 1–2 cm × ca. 5 mm, comma 2–4.5 cm. Fl. May-Aug, fr. Sep-Dec.

Open woods in humid valleys. SW Guangxi, S Yunnan [Bangladesh, Cambodia, India, Laos, Myanmar, Thailand, Vietnam].

The species is represented in China by var. _cymosa_. _Aganosma cymosa var. elegans_ (G. Don) J. D. Hooker, which is readily distin-guished by its densely pubescent corolla throat and smaller leaves, is restricted to southern India and Sri Lanka.


广西香花藤 _guang xi xiang hua teng_

_Agonosma kwangsiensis_ Tsiang.

Lianas to 10 m. Juvenile branchlets and inflorescences pubescent. Petiole 1–1.5 cm; leaf blade dark green adaxially, greenish abaxially, elliptic or narrowly so, 5–10(–15) × 1.7–5(–6.7) cm, papery, glabrescent, base obtuse, apex acute or acuminate; lateral veins (6 or) 7–10 pairs, obliquely ascending, flattened abaxially. Cymes terminal, ca. 10 cm, 9–15-flowered. Pedicel 0.5–1.6 cm. Calyx with several basal glands inside margin of sepals; sepals unequal, sublinear, 1.5–2(–2.8) cm, longer than corolla tube. Corolla white, tube 7–12 mm, dilated at base, pubescent on both surfaces; lobes oblong, falcate, 2.4–3.5 cm. Stamens inserted at base of corolla tube. Ovary pubescent. Style short; pistil head conical. Follicles ca. 14 cm × 7 mm, appressed strigillose. Fl. May-Jun.

Dense montane forests, moist sparse woods; 300–1500 m.

**Gard.** (Peradeniya) 11: 203. 1929.

- **Description**: Lianas to 9 m. Young branchlets puberulent, soon glabrous. Petiole 1–1.5 cm; leaf blade elliptic, narrowly elliptic, or ovate, 6–14 × 2.5–5.5 cm, leathery, glabrous or puberulent when young, base cuneate or broadly so, apex acute to acuminate; lateral veins ca. 10 pairs. Cymes terminal, 3-branched, 4–9 × 6.5–15 cm, pubescent. Calyx pubescent, with several basal glands inside margin of sepals; sepals 1–1.2 cm, longer than corolla tube. Corolla white, tube 5–9 mm, slightly dilated at base, glabrous at throat; lobes obovate, 4–16 mm, apex rounded to obtuse. Stamens inserted at base of corolla tube; disc cup-shaped or 5-lobed. Follicles 2, cylindric, to 30 cm × 5 of corolla tube; anthers sagittate, connivent, adherent to pistil head, cells spurred at base; disc ringlike, fleshy, shorter or racemose, terminal or subaxillary. Flowers large. Calyx tubular, shortly 5-toothed or 5-partite, basal glands large, denticulate. Ovary pubescent when young, glabrous when older. Seeds oblong, shorter than disc. Follicles 2, cylindric, to 30 cm × 5 of corolla tube; style often hairy.

**Habitat**: Sparse woods, montane forests, brushwoods; 200–1800 m.

**Distribution**: Guangxi, Guizhou, Hainan, Sichuan, Yunnan [India, Myanmar, Thailand, Vietnam].


**Gard.** (Peradeniya) 11: 203. 1929.

**Description**: Stems sparsely strigose when young, glabrescent. Leaf blade elliptic, 5.5–10.6 × 2.2–4.9 cm, glabrous or sparsely strigose along petiole and midvein abaxially, base cuneate to obtuse, apex acuminate; lateral veins 5–10 pairs. Inflorescences terminal panicles 5.3–8 cm. Pedicel 3–10 mm. Corolla with several basal glands inside margin of sepals; sepals linear, 1–1.5 cm, pubescent, with narrow colleters at corners. Corolla white, glabrous at throat, tube 6.7–12 mm; lobes narrowly elliptic, acuminate, 5–11 × 1.8–2.6 mm. Stamens inserted in corolla tube 2–2.8 mm from base; disc narrow at top, 5-dentate. Ovary pubescent. Follicles unknown.

**Habitat**: Sparse woods, montane forests, brushwoods; 200–1800 m.

**Distribution**: Guangxi, Guizhou, Hainan, Sichuan, Yunnan [India, Myanmar, Thailand, Vietnam].

### 24. CHONEMORPHA G. Don, Gen. Hist. 4: 76. 1837, nom. cons.

**Rhynchodia** Bentham.

**Description**: Lianas stout, woody, with latex. Leaves large, opposite; interpetiolar lines and colleters present. Cymes lax, paniculate or racemose, terminal or subaxillary. Flowers large. Calyx tubular, shortly 5-toothed or 5-partite, basal glands large, denticulate. Corolla white or reddish, funnelform, tube cylindric, throat not scaly; lobes ovate-oblong, flat, short beaked, beak with a long coma.

**Habitat**: About 15 species: tropical and subtropical Asia, eight species in China.


**Description**: Stems sparsely strigose when young, glabrescent. Leaf blade elliptic, 5.5–10.6 × 2.2–4.9 cm, glabrous or sparsely strigose along petiole and midvein abaxially, base cuneate to obtuse, apex acuminate; lateral veins 5–10 pairs. Inflorescences terminal panicles 5.3–8 cm. Pedicel 3–10 mm. Corolla with several basal glands inside margin of sepals; sepals linear, 1–1.5 cm, pubescent, with narrow colleters at corners. Corolla white, glabrous at throat, tube 6.7–12 mm; lobes narrowly elliptic, acuminate, 5–11 × 1.8–2.6 mm. Stamens inserted in corolla tube 2–2.8 mm from base; disc narrow at top, 5-dentate. Ovary pubescent. Follicles unknown.

**Habitat**: Sparse woods, montane forests, brushwoods; 200–1800 m.

**Distribution**: Guangxi, Guizhou, Hainan, Sichuan, Yunnan [India, Myanmar, Thailand, Vietnam].

- **Corolla white, o r reddish, funn elform, tube cylindric, throat not scal y; lobes overlapping to rig ht. Stamens ins erted near base of corolla tube; disc cup-shaped or 5-lobed. Follicles 2, cylindric, to 30 cm × 5 of corolla tube; anthers sagittate, connivent, adherent to pistil head, cells spurred at base; disc ringlike, fleshy, shorter than ovary, apex 2-cleft. Ovaries 2, free; ovules numerous in each ovary. Style filiform; pistil head club-shaped, slightly thickened, apex 2-cleft. Follicles 2, elongated, cylindric. Seeds ovate-oblong, flat, short beaked, beak with a long coma.

#### 2. Chonemorpha parviflora Moon, Cat. Pl. Ceylon 20. 1824;

**Echites fragrans** Moon, Cat. Pl. Ceylon 20. 1824;

**Chonemorpha grandiflora** G. Don; **C. macrophylla** G. Don; **C. mollis** Miquel; **C. rheedei** Ridley; **E. macrophylla**

The stem is used in Yunnan as a medicine to treat hemostasis.


The separation of this species from Chonemorpha megacalyx is not that clear.


The stem is used in Yunnan as a medicine for rheumatism.


The stem is used in Guangxi as medicine for rheumatalgia.


The stem is used in Guangxi as medicine for rheumatalgia.

Amalocalyx burmanicus Chatterjee; A. yunnanensis Tsian.


Lianas woody, latex white. Leaves opposite. Cymes axillary, long pendunculate, with 2 or 3 monochasial branches. Calyx deeply divided, with basal glands inside. Corolla subcampanulate, tube cylindric, slightly inflated distally, throat without scales, lobes overlapping to right. Stamens inserted at middle of corolla tube; filaments densely pubescent; disc ringlike, shallowly divided at apex, shorter than ovary. Ovary glabrous; style puberulent at apex. Follicles cylindric, glabrous, ca. 34 × 1.2 cm. Fl. spring-summer.

Dense montane forests, moist valleys; 900–1600 m. E Xizang, S Yunnan [India, Myanmar, Nepal, Thailand].

The stem is used in Yunnan as medicine for the treatment of fractures and rheumatalgia.


jenis藤 jian zi teng


毛车藤属 mao che teng shu

Lianas woody, latex white. Leaves opposite. Cymes axillary, long pendunculate, with 2 or 3 monochasial branches. Calyx deeply divided, with basal glands inside. Corolla subcampanulate, tube cylindric, slightly inflated distally, throat without scales, lobes overlapping to right. Stamens inserted at middle of corolla tube; filaments densely pubescent; disc ringlike, shallowly divided at apex, shorter than ovary. Ovary glabrous; style puberulent at apex. Follicles cylindric, glabrous, ca. 34 × 1.2 cm. Fl. spring-summer.

Dense montane forests, moist valleys; 900–1600 m. E Xizang, S Yunnan [India, Myanmar, Nepal, Thailand].

93. 1905.


毛车藤 mao che teng

Amalocalyx burmanicus Chatterjee; A. yunnanensis Tsian.

Lianas to 10 m, densely rust colored villous when young, glabrous when older. Stems sometimes with coppery wings. Petiole 1–3 cm; leaf blade broadly obovate or elliptic, 5–15 × 2–10.5 cm, base truncate or subauriculate to cordate; lateral veins 8 or 9 pairs. Cymes longer than leaves, 15–30-flowered; peduncle 7–14 cm; bracts and bracteoles narrowly elliptic, ca. 1 cm. Pedicel 0.5–1.5 cm. Corolla whitish out-side, pink to purple inside, glabrous, tube ca. 2.2 cm; lobes ovate, shorter than tube. Disc apex 5-lobed. Ovary glabrous. Follicles 8–10 × 1.2–1.5 cm. Seeds ovate, ca. 10 × 3 mm, coma ca. 4 cm. Fl. Apr-Oct, fr. Sep-Dec.

Sparse woods, often clinging to trees; 800–1000 m. S Yunnan (Siamo, Jinghong) [Laos, Myanmar, Thailand, Vietnam].

1000 m. Guangdong, Hainan, S Yunnan [Bhutan, India, Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam].


同心结属 tong xin jie shu

Lianas woody, latex white. Leaves opposite. Cymes corymbose or paniculate, dichotomous, terminal or axillary, pendunculate. Flowers small. Calyx with basal glands inside or 5-scaled. Corolla salverform, tube short, hairy inside distally, faucal scales absent, lobes overlapping to right. Stamens inserted at corolla throat; filaments densely pubescent; disc ringlike, as long as ovary, apex entire or 5-lobed. Ovaries 2, free. Style filiform; pistil head thickened, apex entire or 2-cleft. Follicles 2, terete, parallel or divergent. Seeds linear or oblong, apex crowned with coma; endosperm scanty; cotyledons very narrowly oblong, flat, radicle superior.

About 50 species: SE Asia, Pacific Islands; two species in China.

1a. Leaf blade ovate to subelliptic; petiole 2–4 cm; stamens inserted at middle of corolla tube .......................... 1. P. alboflavescens 1b. Leaf blade narrowly or very narrowly elliptic; petiole 0.5–1 cm; stamens inserted at corolla throat ........... 2. P. goniostemon

海南同心结  hai nan tong xin jie

*Periplaca alboflavescens* Dennstedt, Schlüssel Hortus Malab. 12, 23, 35. 1818; *Echites laevigata* Moon; *Heligme spiralis* (Wallich ex G. Don) Thwaites; *Parsonsia helicandra* Hooker & Arnott; *P. howii* Tsiang; *P. laevigata* (Moon) Alston; *P. spiralis* Wallich ex G. Don.

Lianas woody, to 10 m, glabrous except for inflorescences. Branches pale gray. Petiole 2–4 cm; leaf blade ovate or subelliptic, 4–12 × 3–7.5 cm, base cuneate to shallowly cordate; lateral veins 5–7 pairs. Cymes 8–15 × 8–11 cm; peduncle 3–9 cm. Sepals ca. 2 mm, glands broadly triangular, membranous. Corolla white or greenish, tube ca. 5 mm, limb 1–2 cm wide, lobes ca. 6 mm. Anthers ca. 3.5 × 0.6 mm, inserted at middle of corolla tube. Ovary as long or slightly shorter than disc, glabrous. Follicles 2, linear-cylindric, parallel, 7–16 × 1–2 cm. Seeds oblong 1.5–1.8 cm × ca. 2 mm, coma 2–4.5 cm. Fl. Apr-Oct, fr. Sep-Dec.


广西同心结  guang xi tong xin jie

Lianas woody, to 13 m, glabrous except for inflorescences. Branches slender, lenticellate. Petiole 5–10 mm; leaf blade narrowly elliptic, 6–10 × 2–3 cm, base cuneate to narrowly rounded; lateral veins 5–7 pairs. Cymes to 7 × 7 cm; peduncle 2–3.5 cm. Pedicel 4–10 mm. Calyx ca. 1.5 mm, broader at base. Corolla greenish, ca. 5 mm. Stamens inserted at corolla throat; disc cupular. Ovary obscurely 2-lobed. Style long; pistil head ovoid. Follicles ca. 12 cm, connate, narrowly fusiform, glabrous. Seed coma ca. 4 cm. Fl. May-Aug, fr. Aug-Dec.

1a. Corolla ca. 7 mm, lobes spreading; style thickened at middle; ovary pilose ............................................ 1. *P. laxiflora*

1b. Corolla ca. 13 mm, lobes reflexed; style thickened near base; ovary glabrous ............................................ 2. *P. grandiflora*


帘子藤属  lian zi teng shu

*Vallaris laxiflora* Blume, Bijdr. 1043. 1826; *Potsia cantonensis* Hooker & Arnott; *P. hookeriiana* Wight; *P. laxiflora* var. *pubescens* (Tsiang) P. T. Li; *P. ovata* A. de Candolle; *P. pubescens* Tsiang.

Lianas to 10 m. Branches and branchlets slender, pubescent or glabrous. Petiole 1.5–4 cm; leaf blade ovate, narrowly elliptic, 6–12 × 3–7 cm, base obtuse to rounded or subcordate, pubescent or glabrous on both surfaces; lateral veins 4–6 pairs. 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 at middle. Follicles linear, to 55 mm × 3–5 mm, pubescent to gla-brous. Seeds linear, ca. 2 cm, coma 2.5–3 cm. Fl. Apr-Aug, fr. Aug-Oct.

Open forests, forest borders, brushwoods; 200–1000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Yunnan, Zhejiang [Cambodia, India, Indonesia, Laos, Malaysia, Thailand, Vietnam].

The stem and leaves are used to treat fractures and injury and the latex and roots for anemia and rheumatism.


大花帘子藤  da hua lian zi teng

Lianas to 5 m. Branches and branchlets greenish, terete. Petiole 1–2.2 cm; leaf blade ovate to subovate, 6.5–12 × 3–7 cm, somewhat leathery, base rounded, sometimes decurrent into petiole, glabrous; lateral veins ca. 6 pairs. Cymes up to 20 cm, glabrous, long pedunculate, many flowered. Corolla ca. 1.3 cm, purple or rose, glabrous, tube ca. 6 mm; lobes obovate, slightly longer than tube, reflexed. Ovary glabrous. Style ca. 6 mm, thickened near base; pistil head conical. Follicles 2, linear, to 42 cm × 6 mm. Seeds linear, coma yellowish, to 4.5 cm. Fl. Apr-Aug, fr. Aug-Dec.

- Montane forests, brushwoods; 400–1100 m. Fujian, Guang-dong, Guangxi, Hunan, Yunnan, Zhejiang.

Mixed montane woods; 200–500 m. Fujian, Guangdong, Hainan, Taiwan [Cambodia, India, Indonesia, Japan (Ryukyu Islands), Laos, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam].


窗帘藤属  lian zi teng shu

夹竹桃属  jia zhu tao shu

Trees or shrubs, evergreen, juice watery. Leaves in whorls of 3, midvein prominent abaxially, lateral veins numerous, parallel. Inflorescences corymbose, terminal. 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; disc absent. Ovaries 2, distinct; ovules numerous in each locule. Follicles united until just before dehiscence. Seeds numerous, densely pilose, coma at truncate apex.

One species: Asia, Europe, North Africa.


夹竹桃  jia zhu tao

*Nerium indicum* Miller; *N. odorum* Solander.

Stem to 6 m tall. Leaves very narrowly elliptic, 5–21 × 1–3.5 cm, leathery, base cuneate or decurrent on petiole, apex acuminate or acute. Flowers showy, fragrant. Sepals narrowly elliptic to 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. Fl. spring-autumn. 2n = 22.

Yunnan, widely cultivated and naturalized in tropical, sub-tropical, and temperate parts [Asia, Europe, North America].

All parts of the plant are extremely toxic. The seed-oil content is up to 58.5%.


倒吊笔属  dao diao bi shu

Trees or shrubs with latex. Leaves opposite, petiolate; glands axillary. Cymes terminal or subterminal, dichasial, few to many flowered. Sepals quincuncial, with 5 triangular to narrowly ovate, 3–5 mm; leaf blade elliptic to broadly so, 6–18 × 3–8.5 cm, pubescent to glabrescent adaxially, tomentose abaxially; lateral veins 10–15 pairs. Cymes pubescent; peduncle to 2 cm. Pedicel 1–1.5 cm. Sepals ovate or broadly so, ca. 3 mm. Corolla yellowish, pinkish, or salmon, rotate or subrotate; tube 3–7 mm, glabrous; lobes narrowly elliptic to ovate, 0.8–1.6 cm, papillate; corona scales 10, shorter than anthers, glabrous inside, apex dentate. Ovaries connate. Follicles connate, cylindric, 14–21 × 3–4 cm, lenticellate. Seeds linear-fusiform, ca. 2 cm, coma ca. 3.5 cm. Fl. May-Oct, fr. Aug-Dec. 2n = 22.

Deciduous or mixed forests; stream banks; 200-1500 m. Guangxi, Guizhou, Yunnan [India, Laos, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam].

One species: tropical Africa, Asia, Australia; six species in China.

1a. Shrubs; corona obsolete; seeds (excluding coma) ca. 0.8 cm .................................................. 6. *W. religiosa*
1b. Trees; corona scales present; seeds (excluding coma) 1–2 cm.

2a. Leaves densely pubescent or tomentose abaxially.
2b. Leaves glabrous or minutely pubescent abaxially along veins.

3a. Corona lobes much shorter than stamens, glabrous inside; fruit lenticellate, usually glabrous .......... 1. *W. arborea*
3b. Corona lobes about as long as stamens, puberulent inside; fruit not lenticellate, usually minutely puberulent ................................................................. 2. *W. pubescens*

4a. Ovaries and fruit connate.
4b. Ovaries and fruit distinct.

5a. Apex of leaf blade short acuminate; corona with 10 scales, longer than anthers ......................... 2. *W. pubescens*
5b. Apex of leaf blade caudate-acuminate; corona cup-shaped, shorter than anthers ..................... 3. *W. coccinea*


倒吊笔  dao diao bi

*Periploca arborea* Dennstedt, Schlüssel Hortus Malab. 13, 23, 25. 1818; *Nerium tomentosum* Roxburgh; *Wrightia tomentosa* (Roxburgh) Roemer & Schultes.

Trees to 20 m tall. Branches gray or brown, pubescent, lenticellate. Petiole 2–10 mm; leaf blade elliptic to broadly so or obovate, 6–18 × 3–8.5 cm, pubescent to glabrescent adaxially, tomentose abaxially; lateral veins 10–15 pairs. Cymes pubescent; peduncle to 2 cm. Pedicel 1–1.5 cm. Sepals ovate or broadly so, ca. 3 mm. Corolla yellowish, pinkish, or salmon, rotate or subrotate; tube 3–7 mm, glabrous; lobes narrowly elliptic to ovate, 0.8–1.6 cm, papillate; corona scales 10, shorter than anthers, glabrous inside, apex dentate. Ovaries connate. Follicles connate, cylindric, 14–21 × 3–4 cm, lenticellate. Seeds linear-fusiform, ca. 2 cm, coma ca. 3.5 cm. Fl. May-Oct, fr. Aug-Dec. 2n = 22.

Deciduous or mixed forests; stream banks; 200-1500 m. Guangxi, Guizhou, Yunnan [India, Laos, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam].

Anasser laniti Blanco; Wrightia annamensis Eberhardt & Dubard; W. kwangtungensis Tsiang; W. laniti (Blanco) Merrill; W. pubescens subsp. laniti (Blanco) Ngan.

Trees to 35 m tall. Trunk to 60 cm in diam.; bark yellowish brown; young branchlets yellowish pubescent, glabrate with age, densely lenticillate. Petiole ca. 1 cm; leaf blade narrowly oblong, ovate, or narrowly ovate, 5–10 × 3–6 cm, papery, puberulent to glabrous adaxially, densely pubescent to puberulent or glabrescent except along veins abaxially, veins 8–15 pairs. Cymes ca. 5 cm, pubescent. Sepals ovate to broadly so, 2–5 mm. Corolla white or pinkish white, funnelform, tube 5–6.5 mm; lobes oblong, 1–2 cm; corona fringed, scales 10, as long as or longer than anthers, puberulent inside. Stamens pubescent, inserted at mouth of corolla; anthers exerted. Ovaries conolate, glabrous. Follicles conolate, sublinear, 15–30 × 1–2 cm, not lenticillate. Seeds narrowly fusiform, coma to 3.5 cm. Fl. Apr-Aug, fr. Jul-Dec. 2n = 22.

Montane forests, valley thickets: 200–1000 m. Guangdong, Guangxi, Guizhou, Hainan, Yunnan [India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam; N Australia].

The roots and leaves are used to treat injury and cuts, and the fruits are used to cure pulmonary tuberculosis. A blue dye is extracted from the leaves.


云南倒吊笔 yun nan dao diao bi

Wrightia hainanensis Merrill var. chingii Tsiang; W. schlechteri H. Léveillé.

Trees to 12 m tall. Branchlets dark brown, puberulent to glabrous. Petiole ca. 5 mm; leaf blade ovate to obovate, 6–17 × 3–6 cm, glaucous, glabrescent except along veins on abaxial surface, apex caudate- acuminate; lateral veins 9–15 pairs. Cymes puberulent; peduncle to 3 cm. Pedicel ca. 1 cm. Sepals ovate, ca. 2.5 mm. Corolla yellowish, rotate or subrotate, tube 2–2.5 mm; lobes oblong or narrowly obvate, 1.2–1.4 cm, papillate; corona scales 10, the 5 inserted at base of corolla lobes ca. 6 mm, entire at apex, the 5 at corolla throat ca. 2.5 mm, 2-cleft at apex. Anthers puberulent, exerted. Ovaries distinct. Follicles cylindric, distinct, to 35 cm × 4–7 mm, lenticillate. Seeds narrowly fusiform, 1.5–2 cm, coma to 4 cm. Fl. Apr-Jun, fr. Jun-Dec.

Secondary rain forests, valleys, limestone brushwoods; 500–1500 m. Guangxi, Guizhou, Hainan, Yunnan [NE India, Sikkim, Vietnam].


Nerium coccineum Loddiges, Bot. Cab. 9: t. 894. 1824.

Trees to 20 m tall. Bark pale gray to brownish; branchlets lenticillate, glabrous. Petiole ca. 5 mm; leaf blade elliptic to ovate, 5–17 × 3–8 cm, glabrous or puberulent along veins abaxially, base obtuse to acute, apex acuminate; lateral veins 8–14 pairs. Flowers solitary or in cymes, 2–3.5 cm. Sepals broadly ovate, 5–9 mm. Corolla reddish, funnelform; tube campanulate, shorter than calyx; lobes broadly obvate, papillate; corona crimson, cup-shaped, apex incised. Anthers exerted. Ovaries conolate. Follicles conolate, linear, 14–20 cm, conspicuously lenticillate. Seeds linear, ca. 2 cm, coma to 4 cm. Fl. Jan-May, fr. Jun-Dec. 2n = 22.

Dense montane forests; 300–1800 m. SE Guangxi, S Yunnan [India, Myanmar, Pakistan, Thailand].


Nan shu

Wrightia hainanensis Merrill; W. hainanensis var. variabilis Tsiang; W. tinctoria R. Brown var. laevis (J. D. Hooker) Pichon.

Trees to 40 m tall, glabrous except for flowers. Bark dark gray, branchlets brownish, lenticillate. Petiole 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 pairs. Cymes ca. 6 cm; peduncle ca. 1 cm, puberulent to glabrous. Pedicel 1–1.5 cm. Sepals broadly ovate, ca. 1 mm, pubescent outside, apex obtuse 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. Ovaries 2, distinct. Follicles cylindric, distinct, 20–35 cm × ca. 7 mm, lenticillate. Seeds sublinear, 1.5–2 cm, coma to 4 cm. Fl. Apr-Aug, fr. Jul-Dec. 2n = 22.

Montane forests, valley thickets: 200–1000 m. Guangdong, Guangxi, Guizhou, Hainan, Yunnan [India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam; N Australia].

The roots and leaves are used to treat injury and cuts, and the fruits are used to cure pulmonary tuberculosis. A blue dye is extracted from the leaves.


无冠倒吊笔 wu guan dao diao bi


Shrubs to 3 m tall. Branchlets thin, terete, often with many lateral short branchlets, minutely puberulent. Petiole 2–4 mm; leaf blade elliptic, ovate, or narrowly oblong, 2.5–7.5 × 1.5–3 cm, pubescent along midvein; lateral veins 5–7 pairs. Cymes often on short, few-leaved branches, short pedunculate, 1–13-flowered. Pedicel 1.5–2 cm, thin, finely hairy. Sepals ovate, ca. 1.5 mm. Corolla white, subrotate; tube 3–4 mm, glabrous; lobes ovate, ca. 7 mm, densely pubescent on both surfaces; corona obsolete. Stamens inserted at mouth of corolla tube. Ovaries free. Follicles linear, free, 12–17 cm. Seeds narrowly fusiform, ca. 8 mm, coma to 3.5 cm. Fl. all year. 2n = 22.

S Guangdong [Cambodia, Laos, Malaysia, Thailand, Vietnam].

Cultivated for medicine.

Lianas woody, robust, with latex. Leaves opposite, usually with petiolar glands. Inflorescences terminal or axillary cymes; bracteoles leafy, large. Flowers large, fragrant. Sepals free, bearing many basal glands inside; lobes leafy, large. Corolla white, funnelform, tube short or long, limb widely campanulate, throat not scaly, lobes overlapping to right. Stamens inserted at distal narrow portion of corolla tube; filaments arcuate, long, thickened distally; anthers sagittate, usually exerted, connivent, adherent to pistil head, cells spurred at base; disc ringlike, shallowly 5-lobed. Ovaries 2, connate, surrounded by disc; ovules numerous in each locule. Style long; pistil head fusiform. Follicles elongated, thick, hard. Seeds compressed, apex attenuate, coma silky; cotyledons leaffike or thick, radicle short.

Nine species: E and SE Asia, five species in China.

1a. Leaves densely pubescent abaxially; corolla tube 1–2.7 cm, lobes rounded at apex ........................................ 1. Beaumontia khasiana

1b. Leaves pubescent abaxially when young, glabrous or glabrescent when older; corolla tube 4–13 cm, lobes acute or short acuminate at apex.

2a. Corolla tube puberulent inside.

3a. Sepals broadly elliptic or obovate, 3.5–5.3 × 2–3.3 cm; corolla ca. 12 cm in diam. ........................................ 2. Beaumontia brevituba

3b. Sepals narrowly elliptic, 1.5–2.5 × 0.3–0.6 cm; corolla ca. 5 cm in diam. ........................................... 3. Beaumontia pitardii

2b. Corolla tube glabrous inside.

4a. Corolla funnelform, limb attenuate at base; stamens white, filaments 3.2–6 cm ........................................ 4. Beaumontia grandiflora

4b. Corolla broadly campanulate, limb abruptly constricted at base; stamens yellow or orange, filaments 1.5–2.5 cm ........................................... 5. Beaumontia murtonii


云南清明花 yun nan qing ming hua

Beaumontia yunnanensis Tsiang & W. C. Chen.

Lianas to 15 m. Trunk stout; branches lenticellate, branchlets densely dark brown pubescent. Petiole 1–4 cm; leaf blade elliptic or obovate, 8–25 × 5–13.5 cm, sparsely puberulent or glabrescent adaxially, densely tomentose or velvety abaxially; midvein and lateral veins densely hairy. Cymes 13–20 cm, 9–13-flowered, densely pubescent; peduncle 6.5–12 cm. Pedicel 3.5–6 cm. Sepals narrowly ovate, 1–1.6 cm. Corolla white, tube 1–2.7 cm, cylindric proximally, broadly campanulate distally; lobes broadly ovate, 2.5–4 cm, rounded at apex. Stamens exerted; filaments 2–3 cm. Ovary pubescent. Style 2–3 cm, pubescent. Fl. spring-summer.

Dense montane forests; 1500–1800 m. SW Yunnan (Longling, Cangyuan) [India, Myanmar].

2. Beaumontia brevituba Oliver, Hooker’s Icon. Pl. 16: t. 1582. 1887.

断肠花 duan chang hua

Lianas to 12 m. Branchlets pale yellow or gray, pubescent when young, glabrescent, lenticellate. Petiole 1 cm; leaf blade narrowly obovate, 7–25 × 3–11 cm, base cuneate, apex acuminate to cuspidate, glabrous or sometimes pubescent along veins or when young. Cymes 13.5–21.5 cm, 3–6-flowered, puberulent; peduncle to 4 cm. Pedicel to 6 cm. Sepals pale yellow, broadly elliptic or obovate, 3.5–5.5 × 2–3.2 cm, puberulent on both surfaces. Corolla white, ca. 12 cm in diam.; tube 6–8.5 cm, puberulent, cylindric proximally, broadly obconical distally; lobes 4–5.5 × 3.5–5 cm, acute. Stamens exerted; filaments 5.5–6 cm; disc cup-shaped, apex sparsely puberulent. Ovary tomentose. Style 5.5–7 cm, glabrous. Follicles oblong, to 16 × 4 cm. Seeds brown, oblong, ca. 1.5 cm, coma to 4 cm. Fl. spring-summer.


清明花 qing ming hua

Echites grandiflora Roxburgh.

Lianas to 20 m. Bark corky; young branches rusty pubescent; branchlets dark brown, pubescent to glabrous. Petiole to 3 cm; leaf blade narrowly obovate or narrowly to broadly elliptic, 6–30 × 3.5–15 cm, sparsely to densely pubescent when young, glabrous when older; lateral veins 8–20 pairs. Cymes 12–25 cm, 3–19-flowered, sparsely

The leaves and latex are poisonous.


广西清明花 guang xi qing ming hua

Beaumontia yunnanensis Tsiang, Sunyatsenia 2: 160. 1934.

The leaves and latex are poisonous.
to densely pubescent; peduncle 2.5–9 cm; bracts leafy, pale green. Pedicel 2.5–4.5 cm. Sepals pale green, 3–6 mm. Corolla white, creamy, or pale yellow, base pale green; tube funnelform, 6.5–13 cm, glabrous inside; limb ca. 10 cm in diam., attenuate at base, sparsely to densely pubescent outside, glabrous inside; lobes suborbicular to broadly ovate, 1.7–4 cm, apex acuminate. Stamens white; filaments 3.2–6 cm; anthers 1.5–4.7 cm, included; disc ringlike, apex sparsely puberulent. Ovary tomentose. Style 7 cm. Follicles usually narrowly ellipsoidal, 22–31 × 5–6 cm. Seeds 1.5–2.5 cm, coma 4–7 cm. Fl. spring-summer. 2n = 24.

Humid montane forests, valleys, river banks; 300–1500 m. SW Guangxi, S Yunnan; cultivated in Fujian, Guangdong [Bangladesh, Bhutan, India, Laos, Myanmar, Nepal, Thailand, Vietnam].

Cultivated as an ornamental. The young branches are used for making coarse ropes. The roots and leaves are used in the treat-ment of fractures, injury, and backache and leg pain caused by rheumatism.


Parabeaumontia (Baillon) Pichon.

Shrubs trailing or scandent, latex white. Leaves opposite, dotted. Cymes umbellate or compound corymbose, axillary or terminal. Sepals free, with or without basal glands inside. Corolla subrotated, limb spreading, throat without scales; lobes broad, overlapping to right. Stamens inserted at apex or middle of corolla tube; filaments short, with a large subapical dorsal gland; anthers sagittate, partially or completely exserted, connivent, adherent to pistil head, cells with rigid basal spurs; disc ringlike or cup-shaped, or terminal. Sepals free, with or without basal glands inside. Corolla subrotate, limb spreading, throat without scales; lobes broad, or narrowly obovate, or broadly elliptic, 2.7–4.5 cm, sparsely pubescent on both surfaces. Corolla white, broadly campanulate; tube 4–6.5 cm, cylindric proximally, glabrous inside; limb ca. 5 × 5 cm, abruptly constricted at base; lobes ovate or tongue-shaped, 1.9–3 cm, apex acute. Stamens yellow or orange; filaments 1.5–2.5 cm. Ovary pubescent. Style to 4 cm, pubescent. Follicles oblong, 14–18 × 3–5 cm. Seeds narrowly ellipsoidal, ca. 2 cm, coma 3–8 cm. Fl. spring-summer.

Mixed forests, montane thickets, river banks; 1000–1500 m. S Yunnan (Menghai) [Cambodia, Laos, Malaysia, Thailand, Vietnam].

The latex is used as an arrow poison.

31. VALLARIS N. Burman, Fl. Indica 51. 1768.

纽子花属 niu zi hua shu

Parabeaumontia (Baillon) Pichon.

Shrubs trailing or scandent, latex white. Leaves opposite, dotted. Cymes umbellate or compound corymbose, axillary or terminal. Sepals free, with or without basal glands inside. Corolla subrotated, limb spreading, throat without scales; lobes broad, overlapping to right. Stamens inserted at apex or middle of corolla tube; filaments short, with a large subapical dorsal gland; anthers sagittate, partially or completely exserted, connivent, adherent to pistil head, cells with rigid basal spurs; disc ringlike or cup-shaped, 5-lobed, lobes sometimes free, ciliate. Ovaries 2, distinct. Follicles 2, free. Seeds numerous, biseriate, apex crowned withcoma; endosperm starchy; embryo straight; cotyledons elliptic, base subcordate, apex rounded.

Three species: India, Indonesia, Sri Lanka; two species in China.

1a. Sepals 9–15 mm; corolla limb 3–4 cm in diam., tube 1.3–1.5 cm, lobes mucronate at apex .......................... 1. V. indecora

1b. Sepals 2–7 mm; corolla limb 1.4–2.5 cm in diam., tube 0.5–1 cm, lobes rounded at apex .......................... 2. V. solanacea


纽子花 da niu zi hua


Shrubs trailing or scandent, to 6 m tall. Bark pale gray. Petiole 1–6 mm; leaf blade elliptic or obovate, 7–14 × 3–9 cm, base cuneate or rounded, pubescent, glabrescent, or glabrous on both surfaces; lateral veins 6–8 pairs. Cymes 3- or 4-flowered; peduncle 0.7–1.5 cm. Flowers tetrad; pedicel 0.7–2 cm. Sepals oblong, 0.9–1.5 cm. Corolla pale yellow, tube 1.3–1.5 cm; limb 3–4 cm in diam., pubescent inside including throat; lobes mucronate at apex. Anthers and dorsal glands exserted from throat. Ovary and style pilose. Follicles narrowly ovoid, 6.5–14 × 1.5–3.5 cm. Seeds rhomboid or ellipsoidal, ca. 2 cm, coma ca. 2.2 cm. Fl. Mar-Jun.

- Dense montane forests; 700–3000 m. Guangxi, Guizhou.

旋花羊角拗 *xuan hau yang jiao niu*

*Strophanthus gratus* Wallich & Hooker, Bot. Mag. 75: t. 4466. 1849; *Strophanthus gratus* (Wallich & Hooker) Franchet.

Lianas woody, to 25 m, latex white. Trunk to 10 cm in diam.; branches dark or purplish brown, densely lenticellate, branchlets glabrous. Petiole 0.5–3.2 mm; leaf blade ovate, elliptic, or obovate, 5–18 × 2–9 cm, leathery, glabrous; lateral veins 5–11 pairs. Cymes 3–32-flowered, glabrous. Flowers fragrant. Sepals obovate or broadly so, 0.7–1.8 cm. Corolla white, turning yellow at base, reddish or purple above, throat reddish; tube 2.5–4.5 cm, inflated in distal half; lobes orbicular or nearly so, 1.5–3.5 × 1.5–3.2 cm, apex rounded; corona lobes pink, awl-shaped, 0.5–1.5 cm, exserted. Filaments pubescent adaxially, connective glabrous, extending into a tail 6–12 mm. Follicles divergent at 180°, cylindric, 23–41 × 3–4.3 cm. Seeds to 2 cm, beak 1.6–6.2 cm, coma to 5 cm. Fl. Feb. 2n = 18.

Taiwan [native to W and WC Africa].

Cultivated for medicine. The juice is used as an arrow poison.


箭毒羊角拗 *jian du yang jiao niu*

38 species: tropical Africa, Asia; six species in China.
Lianas or sarmentose shrubs, stolon bearing when pruned, to 4.5 m tall, glabrous except for corolla, latex clear or yellowish. Trunk to 4 cm in diam.; branches dark gray, densely lenticellate, branchlets reddish brown. Petiole 5–10 mm; leaf blade elliptic or slightly obovate, 3–10 × 1.5–5 cm; lateral veins 4–9 pairs. Cymes 3–15-flowered; peduncle to 1.5 cm; bracts linear or narrowly ovate, deciduous. Pedicel 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 inside, ovate, to 10 cm, abruptly narrowed to 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 ellipsoid-oblong, 9–15 × 2–3.5 cm, hard, woody, divergent at 180–250°. Seeds fusiform, 1.3–2 cm, beak 1.2–3.4 cm, coma 3.5–5.5 cm. Fl. Mar-Jul. 2n = 18.

Forests, thickets; 100–1000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Yunnan [Laos, Vietnam].

Various parts of the plant are used as heart stimulant and to treat injury and snake bites.


西非羊角拗 xi fei yang jiao niu

Shrubs stolon bearing, to 4 m tall, deciduous, latex clear or white. Branches densely lenticellate, branchlets dark or reddish brown. Petiole 0.2–2.1 cm; leaf blade elliptic or obovate, 2–15 × 1.5–7 cm, papery or thinly leathery, apex acuminate, acumen 0.2–2 cm; lateral veins 3–6 pairs, glabrous. Pedicel to 1.2 cm, puberulent. Sepals ovate or elliptic, 0.5–2 cm, puberulent. Corolla yellow-white outside, purple-yellow inside; tube 1.7–4 cm, glabrous outside; lobes including tail to 13.5 cm, pendulous. Anthers included. Ovary puberulent. Follicles 10–28 × 2.2–4.4 cm, apex obtuse. Seeds 0.8–2 cm, beak to 8 cm, coma 2.5–10.5 cm. Fl. Dec-May. 2n = 18.

S Yunnan [native to WC Africa].

Cultivated for medicine.

5. Strophanthus wallichii A. de Candolle, Prodr. 8: 418. 1844.

云南羊角拗 yun nan yang jiao niu

Lianas woody, to 8 m, glabrous except for inflorescences, latex white. Trunk to 8 cm in diam.; branches sparsely to densely lenticellate. Petiole 5–10 mm; leaf blade elliptic or obovate, 4–13 × 2.5–6 cm, papery; lateral veins 5–9 pairs, base cuneate or rarely rounded. Cymes 5–25-flowered, puberulous to glabrous; peduncle to 7.5 cm; bracts 2 or 3 pairs, linear, 4–15 mm, spreading or recurved, puberulent. Pedicel 4–10 mm. Sepals linear or nearly so, 0.6–1.8 cm, puberulent on both sides. Corolla pinkish; tube 1–1.5 cm, puberulent inside, glabrous outside; lobes ovate, abruptly narrowed to tail, 1.8–5.5 cm, tail ca. 1 mm wide, glabrous to sparsely puberulous inside; corona lobes triangular, 2.8–6.5 mm. Stamens puberulent; filaments 6–8.5 mm, connective linear, exserted, 8.5–12.5 mm. Ovary minutely puberulent. Style 6–8.5 mm. Follicles oblong, 11–25 × 2.5–3 cm, woody, densely lenticellate, divergent at 180°. Seeds 1–1.8 cm, beak 2.2–4.4 cm, coma 5.5–9 cm. Fl. Mar-Jun, fr. Jul-Dec. 2n = 22.

Mixed woods, brushwoods; 500–1500 m. S Yunnan [Bangladesh, India, Laos, Malaysia, Thailand, Vietnam].


卵萼羊角拗 luan e yang jiao niu

Echites caudata Linnaeus, Mant. Pl. 52. 1767; Nerium caudatum (Linnaeus) Lamark.

Lianas woody, to 12 m, glabrous except for flowers, latex clear or white. Trunk to 1.5 cm in diam.; branches dark brown, lenticellate. Petiole 3–13 mm; leaf blade elliptic, obovate, or ovate, 5–24 × 2.5–11 cm, leathery or papery; lateral veins 5–13 pairs. Cymes 5–15 cm, 5–25-flowered; bracts 2, linear, 2–12 mm, deciduous. Pedicel 7–11 mm. Sepals ovate or narrowly triangular, 0.3–1.9 cm, glabrous. Corolla white, turning yellow then red, red or purple streaked inside, glabrous or only distal part puberulent, tube 1.2–2.6 cm; lobes broadly ovate, abruptly narrowed to tail, 4.3–25.5 cm, tail pendulous, 1.5–3.2 mm wide; corona lobes tongue- or awl-shaped, 3–10 mm. Stamens puberulent, connective exserted. Ovary glabrous or puberulent. Style 0.9–1.5 cm. Follicles oblong, 10–30 × 3–4.8 cm, divergent at 150–200°. Seeds 1–2.5 cm, beak 2.3–4.6 cm, coma 5–9 cm. Fl. Apr-Jun. 2n = 20.

500–900 m. S Guangxi, cultivated in Taiwan [Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam].

33. KIBATALIA G. Don, Gen. Hist. 4: 86. 1837.

倒缨木属 dao ying mu shu

Paravallaris Pierre ex Hua.

Trees or shrubs, with latex. Leaves opposite. Cymes axillary, almost umbel-like; peduncle short. Pedicel long. Calyx with many basal glands inside. Corolla ± funnelform or salverform; tube terete, constricted below throat, throat without scales; lobes overlapping to right. Filaments short, broad; anthers exserted [or included], sagittate, connivent, adherent to pistil head, lobes spurred at base; disc ringlike or cup-shaped, fleshy, margin 5-lobed, membranous. Ovaries 2, free; ovules numerous in each locule. Style linear. Follicles 2, reflexed, long, thick, hard, leathery. Seeds narrowly oblong, apex naked, base with a very fragile, long beak bearing reflexed coma.

Fifteen species: Asia, one species in China.

Trees to 15 m tall. Branchlets slightly compressed when young, terete when older, glabrous. Petiole 1–1.5 cm; leaf blade oblong or elliptic, 11–38 × 4–13 cm, base rounded to cuneate, abaxial surface glabrous or glabrescent; lateral veins 13–21 pairs, at a right angle to midvein. Cymes 4–7 cm, 3–12-flowered; peduncle 0.3–1.5 cm. Pedicel 1.5–3 cm, straight and slender at anthesis, curved and thick in fruit. Corolla white, salverform; tube 1.1–1.3 cm, cylindrical, throat villous; limb campanulate; lobes oblong, 1.2–1.4 cm, puberulent on both surfaces. Filaments with a pair of dorsal swellings; anthers exserted; disc cup-shaped, fleshy, apex 5-lobed. Ovary ovoid, puberulent. Style cylindrical, 0.9–1.2 cm. Follicle very narrowly ellipsoid, 8–24 cm × 7–9 mm. Seeds narrowly ellipsoid, flat, 1.5–2 cm × 2.5–3 mm, beak ca. 4 cm, coma 1.5–4.5 cm.


Trees or shrubs, evergreen, bark and pith with white latex, domatia present. Leaves opposite, margin undulate or revolute. Cymes axillary or terminal, many flowered. Calyx deeply divided, with basal glands inside. Corolla salverform, tube swollen on 1 side at middle; throat much constricted, without scales; lobes overlapping to right. Stamens inserted near middle of corolla tube; anthers sagittate, included, adherent to pistil head, lobe with an empty tail; disc cup-shaped, deeply 5-cleft. Ovaries 2, free; ovules numerous, pendulous. Style glabrous; pistil head club-shaped. Follicles 2, divaricate. Seeds with a slender comose beak directed toward base of fruit.

Two species: tropical Africa, one cultivated in China.


Cultivated in S Yunnan [native to tropical Africa from Senegal to Tanzania].

A valuable source of rubber.

34. **Funtumia** Stapf, Hooker’s Icon. Pl. 27: t. 2694. 1901.


Cultivated in S Yunnan [native to tropical Africa from Senegal to Tanzania].

A valuable source of rubber.


& Schultes; *Holarrhena antidysenterica* Roth; *H. codaga* G. Don; *H. malaccensis* Wight; *H. villosa* Aiton ex Loudon.

Shrubs or trees to 10 m tall. Trunk to 20 cm in diam.; branchlets with whitish, dotlike lenticels. Petiole 1–5 mm, grooved, glandular inside groove; leaf blade ovate or elliptic, 10–24 × 11.5 cm, membranous, pubescent, sometimes densely so abaxially, base rounded, apex acute or obtuse;
lateral veins 10–15 pairs. Cymes 5–8 cm; peduncle 1–2 cm. Pedicel 0.3–3 cm. Sepals elliptic to linear, 2–12 mm. Corolla white, pubescent, tube 0.9–1.9 cm; lobes oblong, 1–3 cm. Anthers included, narrowly ovate, base rounded. Follicles linear, 20–43 × 0.5–1.5 cm, with whitish, dotlike lenticels. Seeds 0.9–1.6 cm, coma 2.5–4.5 cm. Fl. Apr-Jul; fr. Jun-Dec.


Robur麻 属 luo bu ma shu

Poacynum Baillon; Trachomitum Woodson.

Herbs perennial, sometimes shrubs, latex white. Rhizomes fibrous. Leaves opposite, rarely alternate, margin denticulate. Inflorescences thyrselike, terminal. Corolla campanulate or basin-shaped; throat wide, open; lobes overlapping to right. Stamens inserted at base of corolla tube, alternate with corona lobes; anthers adherent to pistil head; disc scales fleshy. Ovary half-inferior; carpels 2, free; ovules numerous in each locule. Follicles 2, slender, divaricate. Seeds numerous, apically comose; embryo straight, cotyledons as long as radicle.

Nine species: temperate regions of North America, Europe, and Asia; two species in China.

1a. Corolla campanulate, deeper than wide; leaves usually opposite .................................................. 1. A. venetum

1b. Corolla basin-shaped, wider than deep; leaves usually alternate .......................................................... 2. A. pictum


罗布麻 luo bu ma

Apocynum lancifolium Russianov; A. venetum var. ellipticifolium Beguinot & Belanger; A. venetum var. microphyllum Beguinot & Belanger; Trachomitum lancifolium (Russianov) Pobedimova; T. venetum (Linnaeus) Woodson; T. venetum var. ellipticifolium (Beguinot & Belanger) Woodson; T. venetum var. microphyllum (Beguinot & Belanger) Woodson.

Stems to 4 m tall, glabrous except for inflorescences; branches and branchlets whitish gray, terete, finely striate. Leaves usually opposite; petiole 3–6 mm; leaf blade narrowly elliptic to narrowly ovate, 1–8 × 0.5–2.2 cm, base rounded or cuneate, margin denticulate; apex acute or obtuse, mucronate. Sepals narrowly elliptic or narrowly ovate, ca. 1.5 mm. Corolla purplish red or pink; tube campanulate, 6–8 mm, granulose; lobes 3–4 mm. Disc fleshy, 5-lobed; lobes rounded, base adnate to ovary. Follicles slender, 8–20 cm × 2–3 mm. Seeds ovoid or ellipsoid, 2–3 mm, coma 1.5–2.5 cm. Fl. Apr-Sep; fr. Jul-Dec.  2n = 22.

Salt-barren zone, desert margins, alluvial flats, riversides. Gansu, Hebei, Henan, Jiangsu, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Xinjiang, Xizang [India, Japan, Mongolia, Pakistan, Russia; SW Asia, Europe].

The strongest bast fibers obtained from the inner bark are used in making cloth, strings, sails, fishing nets, and high-quality paper. The leaves yield up to 5% gum, which is used for making rubber, and a medicine used as a sedative and to treat hypertension. The species has fragrant flowers and is grown as a honey plant.


白麻 bai ma

Apocynum hendersonii J. D. Hooker; Poacynum hender-sonii (J. D. Hooker) Woodson; P. pictum (Schrenk) Baillon.

Stems to 2 m tall. Branchlets pubescent when young, soon glabrous. Leaves usually alternate; petiole 2–5 mm, rarely shorter; leaf blade oblong to ovate, 1.5–4 × 0.2–2.3 cm, closely denticulate, granulose. Sepals ovate or triangular, 1.5–4 mm. Corolla pink or purplish red, often with distinct darker markings; tube basin-shaped, 2.5–7 mm; lobes broadly triangular, 2.5–4 mm; corona inserted at base of corolla tube, lobes broadly triangular, apex long acuminate. Follicles slender, pendulous, 10–30 cm × 3–4 mm. Seeds narrowly ovoid, 2.5–3 mm; coma 1.5–2.5 cm. Fl. Apr-Sep; fr. Jul-Dec.

Salt-barren areas, desert margins, riversides. Gansu, Qinghai, Xinjiang [Kazakhstan, Mongolia].

Same uses as the preceding species.

37. ANODENDRON A. de Candolle, Prodr. 8: 443. 1844.

鳝藤属 shan teng shu

Formosia Pichon.

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 staminal insertion, 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; disc ringlike or cup-shaped, apex truncate or shortly 5-lobed. Ovaries 2, distinct, slightly higher than disc; ovules numerous in each ovary. Style short; pistil head thick, base with a ringlike membrane. Follicles divaricately, thick, narrowly ovoid, apex acuminated. Seeds compressed, ovate or oblong; beak with a long apical coma.

About 16 species: India, Malaysia, Sri Lanka, Vietnam; five species in China.

1a. Lateral leaf blade veins ca. 30 pairs .................................................................................... .......................... 5. A. formicinum
1b. Lateral leaf blade veins 6–16 pairs.

2a. Corolla tube 15–25 mm, lobes 15–25 mm; coma ca. 2 cm ........................................................................ 1. A. benthamianum
2b. Corolla tube 1.5–4.5 mm, lobes 3–5.5 mm; coma 4–6 cm.

3a. Branchlets, midvein, and petiole glabrous; fruit glabrous.

4a. Leaves abaxially punctate with minute, sessile, brownish peltate glands; corolla tube shorter than lobes; follicles ca. 1 cm thick ........................................ 3. A. punctatum
4b. Leaves not punctate; corolla tube as long as or longer than lobes; follicles 1.6–3 cm thick .......... 4. A. affine


台湾鳝藤 tai wan shan teng

*Formosia benthamiana* (Hemsley) Pichon.

Lianas glabrous except for flowers. Branches dark brown, branchlets pale gray. Petiole 0.5–1.5 cm; leaf blade narrowly oblong or narrowly ovate, 5–14 × 1–5 cm, leathery, apex obtuse or acute; lateral veins 5–7 pairs. Cymes terminal, 5–15 × 8–9 cm, ca. 20-flowered. Sepals ovate, 3–4 × 3 mm. Corolla tube 1.5–2.5 cm, pubescent inside; lobes oblong, 1.5–2.5 cm. Stamens inserted at base of corolla tube; disc cup-shaped, apex undulate. Ovary glabrous. Follicles narrowly oblong or ovoid-cylindric, 6–12 × ca. 1.5 cm. Seeds ca. 2 cm × 5 mm; beak ca. 2.5 mm; coma ca. 2 cm, recurved. Fl. Mar-Jun.

• Thickets, forests; 400 m. N Taiwan.


保亭鳝藤 bao ting shan teng

Lianas to 30 m. Young branchlets terete, rust colored pubescent, glabrescent when older, minutely lenticellate. Petiole 0.8–1.3 cm, pubescent when young; leaf blade elliptic to oblong, 10–15 × 4–6 cm, papery, base rounded or broadly cuneate, decurrent on petiole, apex acute, densely pubescent along veins abaxially; lateral veins 14–16 pairs. Cymes paniculate, axillary, 14–20-flowered, ca. 3.5 × 4 cm; peduncles paired or solitary, 2–2.5 cm, puberulent. Sepals ovate, ca. 1 mm. Corolla greenish white, tube ca. 1.5 mm; lobes falcate, oblong, ca. 5.5 mm, pilose inside, glabrous outside. Disc ringlike, apex obscurely 5-lobed. Follicles linear or nearly so, 11–12 × ca. 1 cm, shortly crisp pilose. Seeds ovate, ca. 2 cm, coma ca. 5 cm. Fl. May-Jun, fr. Jun-Aug.

• Sparse woods or brushwoods; usually in valleys. Guangxi, Hainan.


腺叶鳝藤 xian ye shan teng

Lianas to 20 m, glabrous except for corolla tube. Branches dark brown. Petiole 6–10 mm; leaf blade oblong or subovate, 5–9 × 2–3 cm, base obtuse or cuneate, apex acute, adaxially lustrous, abaxially with minute, scattered, peltate, brownish sessile glands; lateral veins ca. 13 pairs, wrinkled. Cymes thyrse-like, axillary; peduncle ca. 6 cm. Pedicel ca. 0.5 mm. Sepals ovate to elliptic, ca. 2 mm. Corolla tube ca. 3 mm; lobes narrowly oblong, ca. 4 mm, apex slightly falcate; disc ringlike, 5-lobed. Ovary as long as disc. Style very short; pistil head thick, conical, 5-angled. Follicles paired, linear, 11–12 × ca. 1 cm, base sometimes slightly dilated. Seeds brown, ovate, ca. 2 cm × 5 mm, coma ca. 4 cm. Fl. Apr-May, fr. Jun-Dec.

• Dense montane forests; 300–800 m. Guangxi, Hainan, Sichuan.


鳝藤 shan teng

*Holarrhena affinis* Hooker & Arnott, Bot. Beechey Voy. 198. 1837; *Aganosma laevis* Champion ex Bentham; *Anodendron affinis* var. *effusum* Tsiang; *A. affine* var. *pingpienense* Tsiang & P. T. Li; *A. fangchengense* Tsiang & P. T. Li; *A. laeve* (Champion ex Bentham) Maximowicz ex Franchet & Savatier; *A. salicifolium* Tsiang & P. T. Li; *A. suiahaense* Hayata.

Lianas to 10 m, glabrous except for corolla. Branches pale gray. Petiole 0.5–2 cm; leaf blade deep green adaxially, lighter abaxially, narrowly oblong to narrowly ovate, 3–14 × 1.2–5 cm, papery or somewhat leathery; lateral veins 6–12 pairs, usually wrinkled in dry state. Cymes paniculate, terminal or axillary, 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 tube. Stamens inserted at base of corolla tube; disc cup-shaped, shallowly 5-lobed or entire, attached to ovaries. Follicles narrowly ellipsoid, dilated at base, 8–13 × 1.6–3 cm. Seeds tawny, beaked, ca. 2 cm × 6 mm, coma ca. 6 cm. Fl. Apr-Nov.

Sparse woods, brushwoods; 200–1000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Sichuan, Taiwan, Yunnan, Zhejiang [India, Japan, Vietnam].


*Chunechites* Tsiang; *Ecdysanthera* Hooker & Arnott; *Parabarium* Pierre in Spire; *Xylinabariopsis* Lý.

Lianas woody, latex white. Leaves opposite. Cymes paniculate, terminal or axillary, 3-branched. Flowers small. Calyx deeply divided, with basal glands inside. Corolla suburceolate, 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; disc ringlike, entire or 5-lobed. Ovaries 2, longer than disc, villous at apex; ovules numerous in each locule. Style short; pistil head beaklike. Fl. May–July.

- Dense montane forests; 1800 m. S Yunnan.

Fifteen species: SE Asia, eight species in China.

1a. Leaf blade pubescent abaxially, denser along veins.

2a. Leaf blade very narrowly elliptic, lateral veins 5–7 pairs; corolla glabrous outside, lobe margin 1-toothed; fruit linear or nearly so, ca. 0.5 cm in diam. ............................... 1. *U. xylinabariopsoides*

2b. Leaf blade ovate or narrowly elliptic, lateral veins ca. 10 pairs; corolla pubescent outside, lobe margin entire; fruit narrowly ovoid, 1.5–2 cm in diam. ............................... 2. *U. huaitingii*

1b. Leaf blade glabrous, sometime with hairy domatia in axils of lateral veins.

3a. Petiole puberulent; corolla lobes 1-toothed near base; fruit ovoid ............................... 3. *U. micrantha*

3b. Petiole glabrous; corolla lobes entire; fruit sublinear or obovate, if ovoid then long beaked.

4a. Leaf blade papillate abaxially, petiole 3–5 mm ............................... 4. *U. quintaretii*

4b. Leaf blade not papillate abaxially, petiole 6–25 mm.

5a. Leaf blade narrowly oblong, 11–18 cm; fruit ca. 2 cm in diam. ............................... 5. *U. tournieri*

5b. Leaf blade broadly elliptic, elliptic, or narrowly ovate, 3–10 cm; fruit 0.4–1 cm in diam.

6a. Inflorescences glabrous ............................... 8. *U. linearicarpa*

6b. Inflorescences pubescent or puberulent.

7a. Sepals ca. 4 mm; corolla lobes ± symmetrical, slightly longer than tube; follicles to 15 cm, terete, not stipitate ............................... 6. *U. rosea*

7b. Sepals ca. 0.8 mm; corolla lobes strongly asymmetrical, ca. 2 x longer than tube; follicles 5–7 cm, strongly stipitate ............................... 7. *U. napeensis*


**乐东藤** le dong teng

*Chunechites xylinabariopsoides* Tsiang, *Sunyatsenia* 3: 306. 1937; *Ecdysanthera xylinabariopsoides* (Tsiang) P. T. Li; *Xylinabariopsis venti* Lý; *X. xylinabariopsoides* (Tsiang) Lý.

Liana to 1.5 m, densely pubescent. Bark dark brown. Petiole 2–3 mm; leaf blade narrowly elliptic, 3–6 × ca. 1.7 cm, somewhat leathery, base broadly cuneate, apex short acuminate, glabrous adaxially except along veins, pubescent abaxially, denser along veins; lateral veins 5–7 pairs. Cymes paniculate, axillary and terminal, 3-branched, 5–8 cm. Sepals narrowly elliptic, ca. 1 mm, acute. Corolla reddish yellow, tube ca. 1 mm; lobes sublinear, unequally falcate, 1.5–2 mm, 1-toothed at middle of margin, apex rounded or obtuse. Disc ringlike, obscurely 5-lobed. Ovary apex pilose. Follicles sublinear, 5–7 × ca. 5 mm, puberulent to glabrous. Seeds narrowly oblong, ca. 1 cm, pubescent, coma ca. 3 cm. Fl. Jun–Sep, fr. Sep–Dec.

Open montane forests. Hainan [Vietnam].


**毛杜仲** mao du zhong teng


Lianas to 15 m, minutely tomentose or densely pubescent. Petiole ca. 5 mm; leaf blade ovate or elliptic, 2.5–7.5 × 1.5–3.5...
cm, papery; lateral veins ca. 10 pairs. Cymes corymbose, axillary or terminal; 4–6 cm; bracts leaflike, 1–3 × 0.5–1 mm. Sepals narrowly oblong, ca. 2 mm. Corolla yellow, tube ca. 2 mm; lobes obliquely oblong, falcate, longer than or as long as tube, entire. Disc 5-partite. Ovary pilose. Follicles very narrowly oblong, 1 mm, lobes ca. 1 mm. Disc short, fleshy, ringlike or obscurely 5-lobed. Ovary pilose. Follicles very narrowly oblong, 4.5–6 cm × 7–10 mm. Seeds oblong, 1.3–1.6 cm, tomentose, coma 1.5–2.5 cm. Fl. Jan-Jun, fr. Aug-Dec.

Dense montane forests; 300–500 m. Guangdong, Guangxi, Hainan [Laos, Vietnam].


云南水壶藤 yun nan shui hu teng

Ec dysanthera tournieri Pierre, Rev. Cultures Colon. 11: 228. 1902; Parabarium burmanicum Lý; P. tournieri (Pierre) Pierre.

Lianas stout, to 20 m, glabrous except for branches and inflorescences. Bark brown, prominently lenticellate; branches puberulent. Petiole 6–8 mm; leaf blade oblong, narrowly so, 11–18 × 2.5–6 cm, apex cuspidate; lateral veins 7–9 pairs. Cymes corymbose, axillary, 8–16 cm, puberulent. Pedicel 2–2.5 mm, puberulent. Sepals ovate, 0.5–0.7 mm. Corolla white, 1.6–2.2 mm, tube 1–1.5 mm; lobes 0.5–0.7 mm, asymmetric. Ovary villous. Follicles narrowly ovoid, to 10 × 2 cm, stout, nearly woody, with many lenticels. Seeds oblong, ca. 1.5 cm × 3 cm, coma yellowish, ca. 3 cm. Fl. summer-autumn.

Forests; 800–1800 m. S Yunnan [Laos, Myanmar].


酸叶胶藤 suan ye jiao teng


Lianas to 20 m. Stem dark brown, lenticels absent; branches tawny gray, young ones brownish. Petiole 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 pairs. Sepals ovate, ca. 3 mm, obtuse. Corolla pink, tube ca. 4 mm; lobes ± symmetrical, slightly longer than tube, acute. Disc ringlike, entire. Ovary pubescent. Follicles to 15 cm, terete, densely spotted. Seeds oblong, ca. 1 cm, coma ca. 3 cm. Fl. Apr-Dec, fr. Jun-Dec. 2n = 20*.

Ravines at low and middle altitudes, scattered in montane forests. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Sichuan, Taiwan, Yunnan [Indonesia, Thailand, Vietnam].

All parts are used to treat endosteme, injury, and rheumatism.


华南水壶藤 hua nan shui hu teng

Micrechites napeensis Quintaret, Compt. Rend. Hebd. Séances Acad. Sci. 134: 438. 1902; Ecdysanthera napeensis (Quintaret) Pierre; Parabarium napeense (Quintaret) Pierre; Xylinabaria reynaudii Jumelle; Xylinabariaiopsis napeensis
Parsonsia barbata

76. 1806; numerous in each locule. Style short; pistil head conical, apex obscurely 2-cleft. Follicles moniliform, with widely separated domatia. Cymes 5–10 mm. Seeds brownish, oblong, ca. 1.5 cm, coma ca. 3 cm. Fl. Aug-Nov, fr. Oct-Dec.

Tropical rain forests, humid sparse woods; 500–1500 m. SE Xizang, S Yunnan [Laos].


长节珠属 chang jie zhu shu

Lianas woody, latex white. Leaves opposite. Cymes broadly paniculate, terminal or axillary, pedunculate. Flowers small. Calyx deeply divided, with many nectar glands inside. Corolla campanulate, yellowish, or red, salverform; tube widened near base, throat hairy; lobes overlapping to right, in bud with inflexed distal halves. Stamens inserted at base of corolla tube; filaments short; anthers sagittate, adherent to pistil head, cells spurred at base; disc entire, 5-crenate or 5-denate, shortly hairy when young, soon glabrescent. Petiole 2–4 cm; leaf blade narrowly oblong or subovate, rarely elliptic or ovate, 5–13 × 2–5 cm, glabrous; lateral veins 5 or 6 pairs, with domatia. Cymes 5–16 × 5–16 cm, puberulent distally. Sepals broadly ovate, 0.5–1 mm, glabrous or pubescent, apex obtuse or acute. Corolla reddish to white, ca. 7 mm in diam., tube 2–2.5 mm; lobes broadly ovate or nearly orbicular, ca. 3 × 3 mm; disc shorter than ovary. Ovary pubescent. Follicles to 45 cm. Seeds ca. 1 cm, pubescent, comma ca. 3 cm. Fl. Jun-Oct, fr. Oct-Dec.

Montane forests, ravines; 800–1500 m. S Guangxi, S Yunnan [Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

All parts of plant are used to treat rheumatism, nephritis, and injury.


腰骨藤属 yao gu teng shu

Lamechites Markgraf; Microchites Miquel; Otopetalum Miquel; Springia Heurck & Müller Argoviensis.

Plants 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; disc entire, 5-crenate or 5-denate, or deeply divided into 5 erect segments. Ovaries adnate basally to disc, pubescent; ovules numerous. Pistil head ovoid or cup-shaped. Follicles 2, spreading or divaricate. Seeds numerous, linear, compressed, not or hardly beaked, comose; endosperm copious; cotyledons long, flat, radicle superior.

Twelve species: SE Asia, N Australia, Pacific Islands; four species in China.

1a. Disc lobes free and narrow, longer than ovary; anthers appearing elliptic

........................................................................... 1. I. frutescens
1b. Disc entire, 5-lobed or dentate, shorter than ovary or, rarely, of 5 wide separate lobes shorter than ovary; anthers narrow triangular.
2a. Ovary ± glabrous; corolla red; stems, underside of leaves, and inflorescences densely rufous tomentose ...
2b. Ovary densely pubescent; corolla white, cream, or yellow; indumentum variable.
3a. Lateral leaf veins ca. 25 pairs; corolla yellow, tube 7–8 mm ......................................................
3b. Lateral leaf veins 10–15 pairs; corolla white, tube ca. 3 mm ......................................................


腰骨藤 yao gu teng

*Apocynum frutescens* Linnaeus, Sp. Pl. 1: 213. 1753; *Echites frutescens* Wall. ex Roxburgh; *Gardinia volubilis* Loureiro; *Ichnocarpus ovatifolius* A. de Candolle; *I. volubilis* (Loureiro) Merrill; *Micrechites sinensis* Markgraf.

Lianas to 10 m. Branchlets pubescent when young, soon glabrous. Petiole 0.5–1.5 cm; leaf blade 5–11 × 2.5–4.5 cm, pubescent or glabrous abaxially; lateral veins 5–7 pairs. Inflorescences many flowered, 3–8 cm, most flowers in pedunculate heads. Calyx densely pubescent. Corolla tube ca. 2.5 mm; lobes narrowly oblong, ca. 5 mm. Anthers elliptic; disc lobes free, linear, longer than ovary. ovaries pubescent. Follicles cylindric, 8–15 cm × 4–5 mm, slightly torulose, pubescent. Seeds linear, coma ca. 2.5 cm. Fl. May-Aug. fr. Aug-Dec. 2n = 20.

Sparse woods, brushwoods; 200–900 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Yunnan [Bangladesh, Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, New Guinea, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam, Australia].

A fine, strong fiber obtained from the inner bark is used in making ropes and sacks. The seeds are used for the treatment of rheumatism and the stem and leaves for acute urticaria.


少花腰骨藤 shao hua yao gu teng


Lianas to 20 m, rust colored tomentose. Petiole ca. 1 cm; leaf blade narrowly elliptic, 4–8 × 1.5–4 cm, thinly leathery; lateral veins 5–9 pairs. Cymes 2-forked, ca. 2 cm, 3–9-flowered, lower part bracteate; bracts many, ovate, ca. 2 mm, persistent. Calyx glands 20. Corolla red, ca. 4 × 6.5 mm, villous inside at throat and facing stamens; tube ca. 3 mm, dilated at middle; lobes long falcate, ca. 3 × 1.2 mm. Stamens inserted near base of corolla tube; anthers triangular; disc 5-lobed, slightly united at base, shorter than ovary. Ovary glabrous. Follicles linear-cylindric, 12–18 cm × ca. 5 mm, densely brown tomentose. Seeds dark brown, linear, 1–2 cm × ca. 1 mm, coma creamy white, to 3 cm. Fl. Aug. fr. Aug-Oct.

Montane sparse woods, brushwoods; 300–500 m. S Guang-dong, Guangxi, Hainan [Laos, Vietnam].

The bark is used to treat rheumatism.


麻栗坡少花藤 ma li po xiao hua teng


Lianas to 6 m. Branches and branchlets pubescent. Petiole stout, densely pubescent; leaf blade narrowly elliptic, 8–32 × 2.5–8.5 cm, base cuneate, apex caudate-acuminate, pubescent abaxially; lateral veins ca. 25 pairs. Cymes axillary, paniculate, to 5 cm, densely rust colored pubescent; peduncle to 4.5 cm. Corolla yellow, hirsute inside, tube 7–8 mm; lobes oblong, falcate, as long as tube, glabrous, margin 1-toothed at base. Stamens inserted near base of corolla tube; anthers triangular; disc ringlike, shorter than ovary, apex 5-cleft. Ovary densely hirsute. Fl. May-Nov.

- Dense montane forests; 1000–1200 m. SE Yunnan.


小花藤 xiao hua teng

*Tabernaemontana polyantha* Blume, Bijdr. 1029. 1826; *Ichnocarpus baillonii* (Pierre) Lý; *I. himalaicus* T. Yamazaki; *I. pubiflorus* J. D. Hooker; *Micrechites baillonii* Pierre; *M. elliptica* J. D. Hooker; *M. elliptica* var. *scortechinii* King & Gamble; *M. ferruginea* Pitard; *M. lachnocarpa* Tsang; *M. malipoensis* Tsiang & P. T. Li var. *parvifolia* Tsiang & P. T. Li; *M. polyantha* (Blume) Miquel; *M. radicans* Markgraf; *M. rehderiana* Tsiang; *M. scortechinii* (King & Gamble) Ridley.

Lianas to 30 m, glabrous except for inflorescences. Petiole 1–2 cm; leaf blade narrowly ovate or narrowly elliptic, 6–13 × 2.5–5 cm, base broadly cuneate, apex short acuminate; lateral veins 10–15 pairs. Cymes paniculate, terminal and axillary; peduncle to 9 cm, pubescent. Pedicels 2–4 mm long. Sepals ovate, ca. 2.5 mm, pubescent outside. Corolla white; tube ca. 3 mm, pubescent inside; lobes narrowly oblong, ca. 2 mm. Stamens inserted near base of corolla tube; disc ringlike, apex shortly 5-cleft, shorter than ovary. Ovary densely pubescent. Follicles linear, 25–40 cm × ca. 5 mm, glabrous. Fl. Apr-Jun. fr. Sep-Dec.

- Dense moist forests, often along valleys; montane brushwoods; 200–1800 m. Guangdong, Guangxi, Hainan, Yunnan [Bhutan, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Thailand, Vietnam].

Lianas woody, latex white. Leaves opposite. Cymes terminal, corymbose or paniculate. Calyx deeply divided, basal glands inside present or absent. Corolla salverform; tube cylindric, ca. 5 × as long as sepals, inflated at base; throat villous, not scaly; lobes overlapping to right. Stamens inserted below middle of corolla tube; filaments short; anthers sagittate, included, adherent at middle to pistil head, cells with an empty tail; disc deeply 5-lobed, longer than ovary. Carpels 2, distinct. Ovaries half-inferior or nearly inferior; ovules numerous in each carpel. Style filiform; pistil head long conical. Follicles 2, terete. Seeds oblong or narrowly so, flat, comose.

About 14 species: SE Asia, one species in China.


**富宁藤**  fu ning teng


Liana to 8 m. Branchlets slightly reddish brown, densely minutely hirsute-villos when young. Petiole 5–10 mm; leaf blade broadly elliptic or slightly obovate, 8–15 × 4.5–11.5 cm, base acuminat-cordate, villous on both surfaces; lateral veins ca. 10. Cymes as long as or longer than leaves, densely tawny pubescent; peduncle up to 8 cm. Pedicel ca. 1 cm. Corolla white, tube 1.5–1.7 cm; lobes obliquely obovate or narrowly spatulate, 1.2–1.3 cm. Disc 5-lobed. Ovaries pubescent at apex. Follicles 2, oblong, to 16 × 1–1.5 cm, densely tawny, apex distinctly recurved. Seeds oblong, to 2 cm, coma to 3.5 cm. Fl. Apr-Jul, fr. Aug-Dec.

Dense montane forests, clinging to trees. S Yunnan [Malaysia, Thailand].


**富宁藤属**  fu ning teng shu

Lianas woody, large, latex white. Leaves opposite. Cymes corymbose, terminal and axillary, long pedunculate. Calyx glandular between sepals. Corolla salverform; tube terete, constricted below middle, with densely antrorse setae; lobes narrowly elliptic, overlapping to left. Stamens inserted near base of corolla tube; filaments short; anthers sagittate, included, adherent at middle to pistil head, cells spurred at base; disc fleshy, 5-partite, lobes nearly 4-angled, as long as ovary. Carpels 2, connate. Ovaries semi-inferior or nearly inferior; ovules numerous in each carpel. Style cylindric, dilated at apex; pistil head conical. Follicles 2, narrowly fusiform, connate, parted distally when mature. Seeds narrowly elliptic, short beaked, coma silky.

One species: endemic to China.


**富宁藤**  fu ning teng

Lianas to 10 m, juvenile parts and inflorescences pubescent. Petiole 1.5–2 cm; leaf blade narrowly elliptic to oblong; 8–15 × 2.5–4.5 mm; lateral veins 10–13 pairs.

Inflorescences 6–13-flowered. Sepals narrowly elliptic, ca. 7 × 2 mm, pubescent on both sides. Corolla yellow, tube ca. 1.2 cm; lobes ca. 11 × 8 mm. Ovary hirsute at apex. Style ca. 3.5 mm. Follicles very narrowly fusiform, 14–18 × ca. 1.5 cm, stipe 2–3 cm. Seeds dark brown, narrowly ellipsoid, 2–3 cm × 2–6 mm; coma white, silky, ca. 2 cm. Fl. Apr-Sep, fr. Aug-Dec.

- Dense montane forests; 1000–1800 m. Guizhou, SW Yunnan.


**金平藤属**  jin ping teng shu

Lianas woody, with milky latex. Leaves opposite, lateral veins parallel. Inflorescences paniculate-corymbose, axillary or terminal, few to many flowered. Flowers small. Calyx glands present. Corolla yellow or white, salverform, tube cylindric; lobes spreading, as long as or shorter than tube, overlapping to right. Stamens included, inserted at base of corolla tube; filaments very short; anthers sagittate, adnate to pistil head, connective narrowly oblong, densely pilose at apex; disc large, fleshy, obscurely 5-lobed, as long as or shorter than ovary. Ovaries 2, distinct; ovules numerous. Style short; pistil head club-shaped, apex 2-cleft. Follicles 2, slender. Seeds numerous, apically comose.

Four species: Laos, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam; one species in China.

1. **Cleghornia malaccensis** (J. D. Hooker) King & Gamble in Ridley, Mat. Fl. Malay. Penins. 491. 1907.

**金平藤**  jin ping teng


Lianas to 35 m, glabrous throughout except for corolla throat. Stems to 5 cm in diam., dark brown; branchlets pale brown. Petiole 0.7–2 cm; leaf blade elliptic, oblong, or suborbuate, rarely narrowly ovate, 7–16 × 2–6.5 cm, base cuneate or rounded, apex caudate-acuminate; lateral veins 10–14 pairs, at ca. 90° to midvein. Cymes 4–7 cm, usually 3-branched. Corolla yellow or yellowish; tube short cylindric, 1.6–2.5 mm, throat pubescent; lobes oblong, 1–3.2 × 0.1–1 mm. Stamens inserted near base or below middle of corolla tube; filaments minutely pubescent adaxially; anthers sagittate, ca.
2.5 mm; disc shorter than ovary. Follicles 2, linear, 7–22 × (0.5–)1–1.5 cm. Seeds narrowly fusiform, 2–3 cm, coma to 4 cm. Fl. Apr-Jul, fr. Jul-Oct.

Montane forests, brushes along river banks or stream sides; 500–1600 m. Guizhou, S Yunnan [Laos, Malaysia, Thailand, Vietnam].

The species was treated in FRPS as *Baissea acuminata* (Wight) Bentham ex J. D. Hooker (*C. acuminata* Wight), which is a very different species not found in China.

44. **SINDECHITES** Oliver, Hooker’s Icon. Pl. 18: t. 1772. 1888.

毛药藤属 mao yao teng shu

Lianas woody, with milky latex. Leaves opposite, veins parallel or nearly so. Cymes paniculate or corymbose, terminal and axillary, few to many flowered. Flowers small. Calyx glandular inside. Corolla white, salverform, dilated at throat or middle of tube; lobes shorter than tube, overlapping to right. Stamens inserted above middle of corolla tube, included; filaments short; anthers sagittate, connivent, adherent to pistil head, connective usually pilose at apex, cells spurred at base; disc large, fleshy, entire or 5-lobed, shorter than or as long as ovary. Ovaries 2, distinct, usually dense pubescent on distal part; ovules numerous. Style long; pistil head club-shaped, apex 2-cleft. Follicles 2, narrowly cylindric, slightly torulose, slender. Seeds comose apically.

Two species: Laos, Thailand; both in China.

1a. Lateral leaf veins 15–25 pairs; stamens inserted near corolla throat; corolla tube 5–8 mm; ovary densely pubescent; disc shorter than ovary .................................................................................................................. 1. *S. henryi*
1b. Lateral leaf veins 4–6 pairs; stamens inserted at middle of corolla tube; corolla tube 9–15 mm; ovary glabrous; disc as long as ovary .................................................................................................................. 2. *S. chinensis*

**1. Sindechites henryi** Oliver, Hooker’s Icon. Pl. 18: t. 1772. 1888.

毛药藤 mao yao teng

*Antirhea martinii* H. Léveillé; *Cleghornia henryi* (Oliver) P. T. Li; *Parameria esquirolii* H. Léveillé; *Sindechites esquirolii* (H. Léveillé) Woodson; *S. henryi* var. *parvifolia* Tsiang.

Lianas to 8 m, glabrous except for flowers. Petiole 4–10 mm; leaf blade narrowly oblong or narrowly ovate, 5.5–12.5 × 1.5–3.7 cm, membranous, base cuneate or rounded, apex long acuminate; lateral veins 15–25 pairs, subparallel, anastomosing near blade margin. Cymes 3–7 cm, di- or trichasial. Mature flower buds 7.5–9 mm, apex conical. Corolla white; tube 5–8 mm, throat dilated, pubescent inside; lobes ovate or broadly ovate. Stamens inserted near corolla throat; disc shorter than ovary. Ovary densely pubescent. Style long. Follicles 3–14 cm × 2–3 mm. Seeds narrowly oblong, ca. 1.3 cm, coma ca. 2.5 cm. Fl. May-Jul, fr. Jul-Oct.

- Forests, bushes, mountains, roadsides, near streams; 500–1500 m. Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan, Zhejiang.

2. **Sindechites chinensis** (Merrill) Markgraf & Tsiang in Tsiang, Sunyatsenia 3: 152. 1936.

坭藤 ni teng

*Epigynum chinense* Merrill, Philipp. J. Sci. 23: 262. 1923; *Cleghornia chinensis* (Merrill) P. T. Li.

Lianas to 6 m. Branches brown or pale brown. Petiole 2–4 mm; leaf blade ovate or narrowly ovate, 4–9 × 2–4.5 cm, membranous, base rounded, apex acute or obtuse; lateral veins 4–6 pairs, minutely pubescent along veins abaxially when young. Ovary glabrous. Style long. Follicles 7–16 cm × 3–5 mm. Seeds dark brown, very narrowly oblong, flat, 1–1.5 cm; coma 2.5–3 cm. Fl. Mar-Jul, fr. Jun-Dec.

Dense montane forests, brushes along river banks; 100–700 m. Hainan [Laos, Thailand].