

19. CAESALPINIA Linnaeus, Sp. Pl. 1: 380. 1753.

云实属 yun shi shu

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Guilandina Linnaeus; *Mezonevron* Desfontaines.

Trees, shrubs, or climbers, usually with prickles. Leaves alternate, bipinnate; leaflets alternate or opposite, small or large. Inflorescences racemes or panicles, axillary or terminal. Flowers yellow or orange-yellow, medium-large or large. Receptacle concave. Sepals separate, imbricate, lowest one larger. Petals 5, often clawed, spreading, 4 usually orbicular, sometimes oblong, uppermost smaller, different in color, shape, and pubescence from others. Stamens 10, in 2 whorls; filaments thickened and hairy at bases; anthers ovoid or elliptic, dorsifixed and versatile. Ovary 1–7-ovuled; style terete; stigma truncate or hollow at center. Legume compressed or swollen, ovoid, oblong, or lanceolate, sometimes falcate, winged or not, smooth or spiny, leathery or woody, rarely fleshy, dehiscent or indehiscent. Seeds ovoid or globose; albumen absent.

About 100 species: pantropical distribution; 20 species (six endemic, two introduced) in China.

Key based on flowering specimens

- 1a. Leaflets 2 pairs per pinna.
2a. Leaflets glabrous 18. *C. yunnanensis*
2b. Leaflets abaxially hairy over whole surface or only on midvein.
3a. Leaflets elliptic, 4.5–8 cm wide, apex rounded, rarely obtuse 19. *C. elliptifolia*
3b. Leaflets ovate-lanceolate, 2.5–3.5 cm wide, apex acuminate, acute, or obtuse 6. *C. sinensis*
- 1b. Leaflets 3–30 pairs per pinna.
4a. Pedicels 4.5–7 cm; filaments 5–6 cm 12. *C. pulcherrima*
4b. Pedicels less than 4 cm; filaments less than 2 cm.
5a. Leaflets 4–15 × 2.5–7 cm.
6a. Leaflets with apex obtuse-rounded, or very obtuse, abaxially puberulent 5. *C. magnifoliolata*
6b. Leaflets with apex acuminate, abaxially glabrous 15. *C. cucullata*
5b. Leaflets usually much smaller.
7a. Stipules large, leaflike, lobed, lobes up to 2 cm, leaflets pubescent on both surfaces 1. *C. bonduc*
7b. Stipules much smaller, not lobed, or absent.
8a. Leaflets leathery.
9a. Pinnae 8–16 pairs; leaflets usually ovate-lanceolate, 1.2–2.5 cm × 6–12 mm, abaxially sparsely velutinous, apex acute 8. *C. vernalis*
9b. Pinnae 2 or 3(or 4) pairs; leaflets ovate or elliptic, 3–6 × 1.5–3 cm, glabrous, apex obtuse-rounded 7. *C. crista*
8b. Leaflets papery or membranous.
10a. Leaflets abaxially farinose-brown when dry 9. *C. caesia*
10b. Leaflets not as above.
11a. Leaflets 3 or 4 pairs per pinna, slightly rhombic 20. *C. rhombifolia*
11b. Leaflets more pairs per pinna, usually oblong, rarely linear.
12a. Leaflets linear 14. *C. tortuosa*
12b. Leaflets usually oblong.
13a. Pedicels 3–4 cm 11. *C. decapetala*
13b. Pedicels much shorter, 1.2–2 cm.
14a. Leaflets pilose, ferruginous hairy, or pubescent on both surfaces.
15a. Leaflets 15–20 pairs per pinna 4. *C. milletii*
15b. Leaflets 5–9 pairs per pinna.
16a. Leaflets 5 or 6 pairs per pinna, 15–20 × ca. 10 mm; ovary 5–7-ovuled 17. *C. hymenocarpa*
16b. Leaflets 7–9 pairs per pinna, 6–9 × ca. 3 mm; ovary 2–4-ovuled 13. *C. digyna*
14b. Leaflets not as above.
17a. Leaflets less than 1 cm, abaxially and marginally with bristles; ovary 1- or 2-ovuled 3. *C. mimosoides*
17b. Leaflets 1–4 cm, without bristles; ovary 3–8-ovuled.
18a. Leaflets with apex shortly acuminate; petals white,

- tinged with purple spots, ca. 18 mm 2. *C. minax*
 18b. Leaflets with apex retuse or obtuse-rounded; petals yellow, 8–9 mm.
 19a. Leaflets papery; upper petal with apex entire 10. *C. sappan*
 19b. Leaflets membranous; upper petal with apex 2-lobed 16. *C. enneaphylla*

Key based on fruiting specimens

- 1a. Legume winged, wings 5–10 mm wide (*C.* subg. *Mezonevron* (Desfontaines) J. E. Vidal ex Herendeen & Zarucchi).
 2a. Leaflets usually more than 4 cm; pinnae usually 2–5 pairs; petals smooth, glabrous, inner one broad and short, shortly clawed; legume samara-like, oblong, zygomorphic, 1-seeded at central part 15. *C. cucullata*
 2b. Leaflets usually not more than 2.5 cm; pinnae usually 6–10 pairs; petals hairy, inner one with long claw; legume 3–7-seeded.
 3a. Leaflets glabrous; seeds swollen-ridged at middle; legume conspicuously swollen opposite each seed 16. *C. enneaphylla*
 3b. Leaflets hairy, especially densely so abaxially; legume and seeds not as above 17. *C. hymenocarpa*
 1b. Legume wingless or narrowly winged; wing less than 5 mm wide (*C.* subg. *Caesalpinia*).
 4a. Legume fleshy, indehiscent.
 5a. Rachis of leaves 17–23 cm; pinnae 3–6 cm; leaflets adaxially hairy, not shiny 13. *C. digyna*
 5b. Rachis of leaves 30–40 cm; pinnae 5–16 cm; leaflets adaxially glabrous or shortly hairy, shiny 14. *C. tortuosa*
 4b. Legume not fleshy.
 6a. Legume spiny or bristly.
 7a. Legume obovoid, falcate, 4–5 × ca. 1 cm, much longer than wide, setose, 1- or 2-seeded 3. *C. mimosoides*
 7b. Legume oblong, 5–13 × 4–5 cm, densely spiny, 2–8-seeded.
 8a. Stipules large, leaflike, parted or lobed; bracts subulate; petals yellow; legume 5–7 × 4–5 cm, ca. as long as wide; seeds subglobose 1. *C. bonduc*
 8b. Stipules subulate; bracts elliptic; petals whitish, tinged with red spots; legume 7.5–13 × 4–4.5 cm; seeds terete 2. *C. minax*
 6b. Legume without spines and setae.
 9a. Legume ovoid, elliptic, ± oblong, or lanceolate-oblong.
 10a. Leaflets abaxially farinose-brown when dry; legume ventral sutures narrowly winged, apex without beak 9. *C. caesia*
 10b. Leaflets abaxially not farinose-brown; legume ventral sutures narrowly winged or not winged, apex with or without beak.
 11a. Legume oblong-ligulate or oblanceolate-oblong, 6–9-seeded or more; pedicels 3.5–7 cm.
 12a. Climbers with copious prickles; legume oblong-ligulate, 2.5–3 cm wide, narrowly winged along ventral suture, dehiscent 11. *C. decapetala*
 12b. Small trees, without or with scattered, sparse prickles; legume oblanceolate-oblong, 1.5–2 cm wide, not winged along ventral suture, indehiscent 12. *C. pulcherrima*
 11b. Legume suboblong, oblong to elliptic, or oblong-obovoid, 1–4-seeded; pedicels to ca. 2 cm.
 13a. Leaflets 10–17 pairs per pinna, papery, 10–20 × 5–7 mm; legume woody 10. *C. sappan*
 13b. Leaflets 2 pairs per pinna, leathery, 60–130 × 25–80 mm; legume leathery.
 14a. Leaflets 2.5–3 cm wide, glabrous, apex acuminate; legume dehiscent 18. *C. yunnanensis*
 14b. Leaflets 4.5–8 cm wide, abaxially brown hairy, apex rounded or obtuse; legume indehiscent 19. *C. elliptifolia*
 9b. Legume compressed, suborbicular, ± obliquely broadly ovoid, or obliquely oblong.
 15a. Leaflets 7–13 mm; legume leathery, winged along ventral suture 4. *C. millettii*
 15b. Leaflets 15–150 mm; legume woody or leathery, winged or not winged along ventral suture.
 16a. Leaflets 6–10 pairs, ovate-lanceolate, apex acuminate, abaxially glaucous; legume without reticulate veins 8. *C. vernalis*
 16b. Leaflets 2–6 pairs, elliptic, ovate, oblong, or broadly ovate; legume with conspicuous reticulate veins.
 17a. Legume woody; leaflets to 15 cm 5. *C. magnifoliolata*
 17b. Legume leathery; leaflets not more than 9 cm.
 18a. Apices of leaflets acuminate; legume with wings ca. 3 mm wide, along ventral sutures 6. *C. sinensis*
 18b. Apices of leaflets obtuse-rounded, sometimes emarginate, rarely acute;

legume not winged or wings obscure.

19a. Leaflets 4–6 pairs per pinna, ovate or elliptic, 3–6 × 1.5–3 cm 7. *C. crista*

19b. Leaflets 3 or 4 pairs per pinna, slightly rhombic,

1.5–2 × 0.8–1.2 cm 20. *C. rhombifolia*

1. *Caesalpinia bonduc* (Linnaeus) Roxburgh, Fl. Ind., ed. 1832, 2: 362. 1832.

刺果苏木 ci guo su mu

Guilandina bonduc Linnaeus, Sp. Pl. 1: 381. 1753; *G. bonducella* Linnaeus; *Caesalpinia bonducella* (Linnaeus) Fleming.

Climbers, prickly, yellowish pubescent throughout. Prickles straight or somewhat recurved. Leaves 30–45 cm; rachis with recurved prickles; pinnae 6–9 pairs, opposite; stipules deciduous, large, leaflike, usually lobed, lobes to 2 cm; leaflets 6–12 pairs, oblong, 1.5–4 × 1.2–2 cm, membranous, both surfaces pubescent, base oblique, apex rounded to acute, mucronate. Racemes axillary, long pedunculate, densely flowered in upper part and sparsely so in lower part; bracts caducous at anthesis, reflexed, subulate, 6–8 mm, pubescent. Pedicels 3–5 mm. Sepals 5, ca. 8 mm, both sides ferruginous hairy. Petals yellowish; standard tinged with red spots, oblanceolate, clawed. Filaments short, hairy in basal part. Ovary hairy. Legume oblong, 5–7 × 4–5 cm, leathery, apex rounded and with beak, swollen, with dense, slender spines 5–10 mm. Seeds 2 or 3, grayish, shiny, ovoid to globose. Fl. Feb, Jul–Oct, fr. Oct–May.

Thickets, roadsides, near seashores; near sea level to 200 m. Guangdong, Guangxi, Hainan, Taiwan [pantropical].

2. *Caesalpinia minax* Hance, J. Bot. 22: 365. 1884.

喙荚云实 hui jia yun shi

Caesalpinia morsei Dunn.

Climbers, prickly, puberulent throughout. Leaves to 45 cm; stipules subulate, hard; pinnae 5–8 pairs; leaflets 6–12 pairs, elliptic or oblong, 2–4 × 1.1–1.7 cm, puberulent on mid-vein, base rounded and slightly oblique, apex obtuse-rounded or acute. Racemes or panicles terminal; bracts ovate-lanceolate, apex shortly acuminate. Pedicels ca. 1.5 cm. Sepals 5, ca. 1.3 cm, densely yellowish velutinous. Petals whitish, tinged with purple spots, obovate, ca. 1.8 × 1.2 cm, abaxially and marginally hairy, contiguous at base, apex obtuse-rounded. Stamens 10, slightly shorter than petals, densely pubescent in lower part. Ovary with dense, small spines, 7- or 8-ovuled; style slightly longer than stamens, glabrous. Legume oblong, 7.5–13 × 4–4.5 cm, densely spiny, apex obtuse-rounded, with beak 5–25 mm. Seeds 4–8, elliptic, slightly concave on one side, ca. 1.8 × 1 cm, with cyclic veins. Fl. Mar–May, Jul, Sep, Nov, fr. Apr–Dec.

Mountain valleys, by streams, among bushes; below 100–1500 m. Fujian (cultivated), Guangdong, Guangxi, Guizhou, Sichuan, Taiwan, Yunnan [India, Laos, Myanmar, Thailand, Vietnam].

3. *Caesalpinia mimosoides* Lamarck, Encycl. 1: 462. 1785.

含羞云实 han xiu yun shi

Climbers, woody. Branchlets densely ferruginous glandular hairy, with recurved prickles. Leaves 22–36 cm; pinnae

opposite, 13–23 pairs, ca. 3.5 cm; leaflets opposite, 7–14 pairs, oblong, ca. 9 × 4 mm, abaxially and marginally with bristles. Racemes terminal, lax. Flowers large, more than 50 per inflorescence; pedicels unequal in length, 1.5–2 cm in upper part and 3–3.5 cm in lower part of inflorescence. Sepals 5, ca. 10 × 8 mm. Petals bright yellow, suborbicular, upper one smaller, ca. 8 mm wide, others larger, ca. 1.7 × 1.3 cm. Stamens 10; filaments ca. 1.8 cm, densely cottony in lower part. Ovary ca. 5 mm, densely hairy, 1- or 2-ovuled; style 1.4–1.5 cm, pilose; stigma truncate. Legume obovoid, falcate, 4–5 × ca. 2.5 cm, setose, dehiscent. Seeds 1 or 2, oblong. Fl. Nov–Dec, fr. Feb–Mar.

Among bushes, near roads; 600–700 m. Yunnan (Xishuangbanna) [Bangladesh, India, Laos, Myanmar, Thailand, Vietnam].

4. *Caesalpinia millettii* Hooker & Arnott, Bot. Beechey Voy. 182. 1833.

小叶云实 xiao ye yun shi

Pterolobium subvestitum Hance.

Climbers, prickly, ferruginous puberulent throughout. Leaves 19–20 cm; rachis with recurved prickles in pairs; pinnae 7–12 pairs; leaflets 15–20 pairs, alternate, oblong, 7–13 × 4–5 mm, both surfaces ferruginous hairy, much denser abaxially, base obliquely truncate, apex obtuse-rounded. Panicles axillary, to 30 cm. Flowers numerous, compact in upper part, sparse in lower part of inflorescence; pedicels ca. 1.5 cm, sparsely puberulent. Sepals 5, lowest one ca. 8 mm, others ca. 5 mm. Petals yellowish, suborbicular, ca. 8 mm wide, upper one smaller, ca. 4 mm wide, clawed. Stamens ca. 1 cm; filaments pilose in lower part. Pistil slightly longer than stamens, ca. 1.3 cm; ovary and lower part of style pubescent; stigma truncate, hairy. Legume obovoid, adaxial suture straight, narrowly winged, puberulent; valves leathery, unarmed, dehiscent along dorsal suture when mature. Seed solitary, brownish red, shiny, reniform, ca. 11 × 6 mm, with cyclic veins. Fl. Aug–Sep, fr. Apr, Sep–Dec.

• Among bushes, foothills, by streams; 200–800 m. Guangdong, Guangxi, S Hunan, S Jiangxi.

5. *Caesalpinia magnifoliolata* F. P. Metcalf, Lingnan Sci. J. 19: 553. 1940.

大叶云实 da ye yun shi

Climbers, prickly. Branchlets ferruginous puberulent. Leaves with pinnae 2 or 3 pairs; petioles and petiolules puberulent; leaflets 4–6 pairs, adaxially shiny, oblong, 4–15 × 2.5–7 cm, leathery, abaxially puberulent, adaxially glabrous, both ends obtuse-rounded or apex very obtuse. Racemes axillary or panicles terminal. Flowers yellow; pedicels 9–10 mm. Sepals 5, ca. 5 × 3 mm. Petals ca. 10 × 5 mm, shortly clawed. Stamens 10; filaments ca. 1 cm, puberulent in lower part. Ovary sessile, 2- or 3-ovuled, glabrous; style ca. 1 cm; stigma truncate. Legume compressed, suborbicular, 3.5–4 × ca.

3.5 cm, dorsal suture extending to both sides and forming a carinate narrow wing; valves brown, woody, with robust reticulate veins. Seed solitary, brownish black, compressed, suborbicular, ca. 2 cm in diam. Fl. Feb, Apr, Jul, fr. May–Jun, Aug, Oct–Nov.

• Forests, among bushes; 400–1800 m. Guangdong, Guangxi, S Guizhou, S Yunnan.

6. *Caesalpinia sinensis* (Hemsley) J. E. Vidal, Bull. Mus. Natl. Hist. Nat., Sér. 3, Bot. 27: 90. 1976, nom. cons., not *C. chinensis* Roxburgh (1832).

鸡嘴勒 ji zui le

Mezonevron sinense Hemsley, J. Linn. Soc., Bot. 23: 204. 1887; *Caesalpinia parvifolia* Steudel; *C. stenoptera* Merrill; *C. isoongii* Merrill; *M. sinense* var. *parvifolium* Hemsley.

Climbers. Stems and branchlets with scattered, robust, recurved prickles. Young shoots ± ferruginous pubescent, glabrescent or subglabrous when old. Leaves bipinnate; rachis with recurved prickles; petiolules short; pinnae 2 or 3 pairs, ca. 30 cm; leaflets 2 pairs, adaxially light green to olive-green, slightly shiny, oblong to ovate, 6–9 × 2.5–3.5 cm, leathery, abaxially hairy on midvein, adaxially glabrous, lateral veins ca. 20 pairs, conspicuous, base rounded or oblique, apex acuminate, acute, or obtuse. Panicles axillary or terminal. Pedicels ca. 5 mm. Sepals 5, ca. 4 × 3 mm. Petals 5, yellow, ca. 7 mm, with claw ca. 3 mm. Stamens 10; filaments ca. 1 cm, ferruginous pubescent in lower part. Pistil longer than stamens; ovary subsessile, pubescent or subglabrous, 1- or 2(–4)-ovuled. Legume chestnut-brown, compressed, suborbicular, ca. 4.5 × 3.5 cm, leathery, conspicuously reticulate, ventral suture slightly curved, narrowly winged, wing ca. 3 mm wide, apex with beak ca. 3 mm. Seed solitary, compressed, suborbicular, ca. 2 cm in diam. Fl. Mar–May, fr. Mar–Apr, Jul–Oct.

Forests, among bushes; 100–900 m. Guangdong, Guangxi, Guizhou, Hubei, Yunnan [Laos, Myanmar, N Vietnam].

7. *Caesalpinia crista* Linnaeus, Sp. Pl. 1: 380. 1753.

华南云实 hua nan yun shi

Caesalpinia kwangtungensis Merrill; *C. nuga* (Linnaeus) Aiton; *C. szechuenensis* Craib; *Guilandina nuga* Linnaeus.

Climbers, woody, to 10 m tall. Bark blackish, with few recurved prickles. Leaves 20–30 cm; rachis with blackish recurved prickles; pinnae 2 or 3(or 4) pairs, opposite; leaflets 4–6 pairs, opposite, with short petiolules, adaxially shiny, ovate or elliptic, 3–6 × 1.5–3 cm, leathery, both surfaces glabrous, base broadly cuneate or obtuse, apex obtuse-rounded, sometimes emarginate, rarely acute. Racemes 10–20 cm, arranged in terminal, lax, large panicles. Flowers fragrant; pedicels 5–15 mm, slender. Sepals 5, lanceolate, ca. 6 mm, glabrous. Petals unequal: 4 yellow, ovate, glabrous, slightly conspicuously shortly clawed; upper one tinged with red stripes, attenuate to claw, inside hairy at central part. Stamens slightly extended; filaments inflated and hairy at base. Ovary hairy, 2-ovuled. Legume obliquely ovoid, 3–4 × 2–3 cm, swollen, leathery, reticulate, apex beaked. Seed solitary, compressed. Fl. Apr–Jul, fr. Jul–Dec. $2n = 24$.

Mountain slopes, forests; 400–1500 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Sichuan, Taiwan, Yunnan [Cambodia, India, Indonesia, Japan (Ryukyu Islands), Malaysia, Myanmar, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; Australia, Polynesia].

8. *Caesalpinia vernalis* Champion ex Bentham, Hooker's J. Bot. Kew Gard. Misc. 4: 77. 1852.

春云实 chun yun shi

Climbers, prickly, ferruginous velutinous throughout. Leaves with 25–30 cm, pubescent, prickly rachis; pinnae 8–16 pairs, 5–8 cm; petiolules 1.5–2 mm; leaflets 6–10 pairs, abaxially glaucous, adaxially deep green and shiny, ovate-lanceolate, ovate, or elliptic, 1.2–2.5 cm × 6–12 mm, leathery, abaxially sparsely ferruginous velutinous, adaxially glabrous, base rounded, apex acute. Panicles in axils of upper leaves or terminal, with abundant flowers. Pedicels 7–9 mm. Sepals obovate-oblong, ciliate, lower one larger than others, ca. 1 cm. Petals yellow, upper one smaller, revolute, with red stripes. Stamens apically descending, lower part of filaments pubescent. Ovary with short stalk, puberulent, 2-ovuled; style thick; stigma obliquely truncate. Legume blackish purple, obliquely oblong, 4–6 × 2.5–3.5 cm, woody, wrinkled, without reticulate veins, apex beaked. Seeds 2, shiny, axe-shaped, ca. 1.7 × 2 cm, truncate and slightly concave on one end. Fl. Apr, fr. Dec.

• Moist sandy soils, beside rocks along valleys, thickets; ca. 600 m. S Fujian, Guangdong, S Zhejiang.

9. *Caesalpinia caesia* Handel-Mazzetti, Oesterr. Bot. Z. 85: 215. 1936.

粉叶苏木 fen ye su mu

Caesalpinia hypoglauca Chun & F. C. How.

Climbers. Branchlets with sparse recurved prickles, puberulent. Leaves 15–20 cm; pinnae 5–8 pairs; rachis of leaves and pinnae pilose; leaflets 8–12 pairs, opposite, dispersed, subsessile, abaxially farinose-brown when dry, adaxially brown, shiny, oblong, 8–15 × 4–6 mm, papery, both surfaces glabrous, base obliquely truncate, apex truncate or obtuse-rounded, emarginate. Panicles axillary, 10–15 cm, brown puberulent. Pedicels 4–7 mm, jointed at apex. Flowers ca. 8 mm in diam. at anthesis. Sepals 5, glabrous, lowest one cucullate-lanceolate, ca. 6 mm, apex obtuse, other 4 ovate-oblong, slightly shorter, 3.5–4 mm. Petals obovate-oblong, 3.5–4 mm, pubescent, shortly clawed. Stamens 10; filaments ferruginous pilose at base. Ovary elliptic, glabrous, 2-ovuled. Legume blackish when dry, ovoid or elliptic, ca. 5 × 2.3–3 cm, thin, swollen at maturity, concave, ventral suture narrowly winged, 1-seeded. Fl. Jul–Sep, fr. Aug.

• Sparse forests along rivers; 200–1000 m. Guangxi, Hainan.

10. *Caesalpinia sappan* Linnaeus, Sp. Pl. 1: 381. 1753.

苏木 su mu

Trees, small, to 6 m tall, ± puberulent except on old branches and legumes. Branches with dense, conspicuous lentils. Leaves 30–45 cm; pinnae 7–13 pairs, opposite, 8–12 cm; leaflets 10–17 pairs, closely spaced, sessile, oblong to oblong-rhombic, 1–2 cm × 5–7 mm, papery, both surfaces glabrous or

sparsely hairy, lateral veins slender, conspicuous on both surfaces, contiguous near margin, base oblique, inserted at oblique angles to rachis of pinnae, apex retuse or rounded. Panicles terminal or axillary, ca. as long as leaves; bracts caducous, lanceolate, large. Pedicels ca. 1.5 cm, puberulent. Receptacle shallowly campanulate. Sepals 5, slightly unequal, lower one larger than others, cucullate. Petals yellow, broadly obovate, ca. 9 mm, uppermost one entire at apex, tinged pink at base, clawed. Stamens slightly exerted; filaments densely pubescent at lower part. Ovary grayish velutinous, stalked, 3–6-ovuled; style slender, hairy; stigma truncate. Legume reddish brown, shiny, slightly compressed, suboblong to oblong-obovoid, ca. 7 × 3.5–4 cm, woody, attenuate to base, apex obliquely truncate, upper margin with a sharp beak. Seeds 3 or 4, light brown, slightly compressed, oblong. Fl. May–Oct, fr. Jul–Mar. $2n = 24$.

Cultivated in Fujian, Guangdong, Guangxi, Guizhou, Hainan, Sichuan, Taiwan, Yunnan [native origin unknown; Cambodia, India, Laos, Malaysia, Myanmar, Sri Lanka, Vietnam; Africa, America].

The heartwood contains a red dye and is used medicinally to relieve pain.

11. *Caesalpinia decapetala* (Roth) Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.): 89. 1931.

云实 yun shi

Reichardia decapetala Roth, Nov. Pl. Sp. 212. 1821; *Caesalpinia decapetala* var. *japonica* (Siebold & Zuccarini) H. Ohashi; *C. decapetala* var. *pubescens* (Tang & F. T. Wang) P. C. Huang; *C. japonica* Siebold & Zuccarini; *C. sepiaria* Roxburgh; *C. sepiaria* var. *japonica* (Siebold & Zuccarini) Gagnepain; *C. sepiaria* var. *pubescens* Tang & F. T. Wang.

Climbers, with copious prickles. Bark dull red. Branches, rachis of leaves, and inflorescence with recurved prickles and pubescent. Leaves 20–30 cm; pinnae 3–10 pairs, opposite, with prickles in pairs at base; stipules obliquely ovate, apex acuminate, caducous; leaflets 8–12 pairs, oblong, 1–2.5 cm × 6–12 mm, membranous, both surfaces puberulent, glabrescent when old, both ends obtuse-rounded. Racemes terminal, 15–30 cm, with abundant flowers; rachis densely prickly. Pedicels 3–4 cm, hairy, jointed at apex so flowers easily fall off. Sepals 5, oblong, puberulent. Petals reflexed at anthesis, yellow, orbicular or obovate, 1–1.2 cm, membranous, base shortly clawed. Stamens subequal to petals in length; filaments compressed at base, lanate in lower part. Ovary glabrous. Legume chestnut-brown, shiny, oblong-ligulate, 6–12 × 2.5–3 cm, fragile-leathery, glabrous, dehiscent and thickened to a narrow wing along ventral suture when ripe, apex prolonged into a sharp beak. Seeds 6–9, brown, elliptic, ca. 11 × 6 mm. Fl. and fr. Apr–Oct. $2n = 22^*$, 24^* .

Among bushes on mountain slopes, ravines, plains, hills, by riversides; near sea level to 1800 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Bangladesh, Bhutan, India, Japan, Laos, Malaysia, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam].

The roots, stems, and legumes are used medicinally for relieving pain.

12. *Caesalpinia pulcherrima* (Linnaeus) Swartz, Observ. Bot.

166. 1791.

金凤花 jin feng hua

Poinciana pulcherrima Linnaeus, Sp. Pl. 1: 380. 1753.

Shrubs or small trees. Branches green or farinose-green, smooth, with scattered, sparse prickles. Leaves 12–26 cm; pinnae 4–8 pairs, opposite, 6–12 cm; petiolules short; leaflets 7–11 pairs, oblong or obovate, 1–2 cm × 4–8 mm, base oblique, apex emarginate, sometimes acute. Racemes subcorymbose, terminal or axillary, lax, to 25 cm. Pedicels unequal in length, 4.5–7 cm. Receptacle concave to turbinate, glabrous. Sepals 5, glabrous, lowest one ca. 1.4 cm, others ca. 1 cm. Petals orange-red or yellow, orbicular, 1–2.5 cm, margin wavy, with claw subequal to limb in length. Stamens very far exerted; filaments red, 5–6 cm, thick and hairy in basal part. Ovary glabrous; style orange-yellow, long, 5–6.5 mm. Legume blackish brown when ripe, oblanceolate-oblong, narrow and thin, 6–10 × 1.5–2 cm, not winged, glabrous, indehiscent, apex rounded, upper suture ending in a sharp beak. Seeds 6–9. Fl. and fr. year-round. $2n = 24, 28$.

Cultivated in Fujian, Guangdong, Guangxi, Hainan, Taiwan, Yunnan [native to South America; cultivated throughout the tropics].

This species is a valuable ornamental of tropical regions.

13. *Caesalpinia digyna* Rottler, Neue Schriften Ges. Naturf. Freunde Berlin 4: 200. 1803.

肉荚云实 rou jia yun shi

Climbers, large, with recurved prickles. Bark deep brown. Leaves 12–20 cm; rachis 17–23 cm, with recurved prickles, puberulent or glabrous; pinnae 6–9 pairs, 3–6 cm, with stipuliform prickles in pairs at base; leaflets 7–9 pairs, subsessile, closely spaced, oblong, 6–9 × ca. 3 mm, papery, both surfaces pilose at first, base obliquely rounded, apex obtuse-rounded. Racemes terminal or axillary, ca. as long as or longer than leaves. Pedicels 1.2–2 cm, slender. Receptacle shallowly cup-shaped, glabrescent. Sepals 5, 6–8 mm. Petals yellow, suborbicular, ca. 1 cm, shortly clawed. Filaments slightly exerted, densely villous in lower part, thickened at base. Ovary glabrous. Legume brown, indehiscent, oblong, 3.5–5 × 1.6–2 cm, fleshy, smooth. Seeds 2–4. Fl. Apr–Nov, fr. May–Mar.

Among bushes on mountain slopes, seashores; 200–300 m. Hainan, Yunnan [Bangladesh, Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam].

14. *Caesalpinia tortuosa* Roxburgh, Fl. Ind., ed. 1832, 2: 365. 1832.

扭果苏木 niu guo su mu

Climbers, erect shrubs, or small trees, to 10 m tall. Branches glabrous, with scattered recurved prickles. Leaves with tomentose rachis 30–40 cm; stipules absent; pinnae 7–20 pairs, 5–16 cm, with prickles in pairs at base; leaflets 12–30 pairs, sessile, linear, ca. 15 × 5 mm, membranous, lateral veins conspicuous, 4–6 pairs, base obliquely truncate, apex obtuse-rounded. Racemes or panicles terminal or axillary, 20–60 cm, pubescent. Pedicels 8–20 mm, not jointed above base. Sepals 5,

unequal, lowest one deeply cucullate, ca. 10×7 mm, other 4 ca. 6×4 mm, usually ciliate. Petals yellowish, often tinged with spots. Stamens 10; filaments 1–1.4 cm, hairy at lower part. Pistil 1–1.6 cm; ovary sessile, pubescent or glabrous, 4- or 5-ovuled; style inclined; stigma truncate, ciliate. Legume blackish when dry, indehiscent, often twisted, $3.5\text{--}9 \times 2\text{--}3.5$ cm, base rounded, apex obtuse, shortly beaked, both sutures thickened, often constricted between seeds, exocarp and endocarp adnate, swollen on seeds, transversely cleft when ripe. Seeds 1–5(–7), subglobose, ca. 1 cm in diam. Fl. Jun–Aug, fr. Jul–Aug.

Among bushes on mountain slopes; ca. 1400 m. Guangdong (Guangzhou, cultivated), Yunnan [India, Indonesia, Malaysia, Myanmar].

15. *Caesalpinia cucullata* Roxburgh, Fl. Ind., ed. 1832, 2: 358. 1832.

见血飞 jian xue fei

Mezonevron cucullatum (Roxburgh) Wight & Arnott.

Climbers, 3–5 m tall, with recurved prickles on old stems forming compressed orbicular corky knob. Branches and rachis of leaves with blackish brown recurved prickles. Leaf rachis 20–40 cm; pinnae 2–5 pairs, stalked; stipules absent; leaflets 3–6 pairs, abaxially grayish white, adaxially deep green and shiny, ovate, broadly ovate, or oblong, large, $4\text{--}12 \times 2.5\text{--}5$ cm, leathery, base broadly cuneate or obtuse-rounded, apex acuminate. Panicles terminal or racemes lateral, subequal to leaves in length. Flowers zygomorphic; pedicels 6–12 mm, jointed, glabrous. Receptacle deeply discoid or shallowly campanulate. Sepals 5, unequal, lowest one cucullate, others triangular-oblong, withered and falling after anthesis. Petals yellow, uppermost one short and broad, apex 2-lobed forming fishtail-shape, shortly clawed at base, other 4 yellowish tinged red striate, shiny, oblong, glabrous. Stamens 10, exserted, slightly thickened at base, brown pubescent. Ovary compressed, 1(or 2)-ovuled; style slender; stigma small, truncate. Legume reddish brown, shiny, compressed, elliptic-oblong, $8\text{--}12 \times 2.5\text{--}3.5$ cm, indehiscent, winged along ventral suture, wing 6–9 mm wide. Seed 1(or 2). Fl. Nov–Feb, fr. Mar–Oct.

Open forests, among bushes on mountain slopes; 500–1200 m. Yunnan [Bhutan, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Thailand, Vietnam].

16. *Caesalpinia enneaphylla* Roxburgh, Fl. Ind., ed. 1832, 2: 363. 1832.

九羽见血飞 jiu yu jian xue fei

Mezonevron enneaphyllum (Roxburgh) Wight & Arnott.

Climbers, large. Branches with scattered, blackish brown, recurved prickles. Leaves alternate; rachis 25–30 cm; pinnae 8–10 pairs, stalked, opposite, 6–8 cm, with blackish brown prickles in pairs at base; petiolules short; leaflets 8–12 pairs, opposite, oblong, $(10\text{--})15\text{--}25 \times 5\text{--}8$ mm, membranous, both ends obtuse-rounded. Panicles terminal or racemes axillary, 10–20 cm, pubescent. Flowers fragrant, papilionaceous, large; pedicels 1–2.5 cm. Receptacle discoid, persistent after anthesis. Sepals 5, glabrous, unequal, lowermost one cucullate. Petals yellow, upper one suborbicular, apex 2-lobed forming fishtail-

shape. Stamens 10; filaments slender, thickened and densely yellowish brown villous from middle downward; anthers dull brown. Ovary subsessile, inserted at base of receptacle, glabrous, 3–7-ovuled; style long. Legume reddish brown, subsessile, compressed, broadly lanceolate or elliptic-oblong, $10\text{--}14 \times 3\text{--}3.5$ cm, smooth, without prickles, winged along ventral suture, wing 5–6 mm wide. Seeds 3–7, ovoid, with swollen ridge at middle. Fl. Sep–Oct, fr. Oct–Feb.

Among bushes on mountain slopes, at foot of mountains, open forests; ca. 600 m. S and SW Guangxi, Yunnan [Bangladesh, India, Indonesia, Malaysia, Myanmar, Pakistan, Sri Lanka, Thailand, Vietnam].

17. *Caesalpinia hymenocarpa* (Wight & Arnott ex Prain) Hattink, Reinwardtia 9: 35. 1974.

膜荚见血飞 mo jia jian xue fei

Mezonevron hymenocarpum Wight & Arnott ex Prain, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 233, 472. 1897.

Climbers. Branches sparsely yellowish pubescent, with scattered, yellowish brown, recurved prickles. Leaves alternate; rachis 20–30 cm; pinnae 8–10 pairs, opposite; rachis of pinnae and leaves yellowish pubescent; petiolules short, with opposite, recurved prickles with stipules scalelike, ca. 0.5 mm; leaflets 5 or 6 pairs, abaxially yellowish green, adaxially deep green, oblong, $1.5\text{--}2 \times$ ca. 1 cm, membranous, both surfaces yellowish pubescent, base broadly cuneate, apex obtuse-rounded. Racemes or panicles axillary or terminal, 30–50 cm. Pedicels 1–1.5 cm; bracts yellowish brown, lanceolate, densely yellowish pubescent, apex long acuminate. Receptacle discoid. Sepals 5, outside yellowish pubescent, lowest one cucullate, others oblong. Petals yellow, upper one orbicular, clawed, lateral 2 smaller, lowermost one folded and raised. Stamens 10; filaments thickened at lower part, densely brown villous, unequal, curved; anthers elliptic. Ovary smooth, 5–7-ovuled; style gradually inflated toward lower part; stigma praemorse. Legume compressed, thin, falcate, $10\text{--}15 \times$ ca. 2.5 cm when ripe, winged along ventral suture, wing ca. 1 cm wide. Seeds 5–7, compressed, narrowly ovoid. Fl. Sep–Oct, fr. Dec–Feb.

Open forests, humid places; 300–800 m. W Guangxi (Baise), Yunnan [Bangladesh, Cambodia, India (Andaman Islands), Indonesia, Laos, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam].

18. *Caesalpinia yunnanensis* S. J. Li, D. X. Zhang & Z. Y. Chen, Novon 16: 78. 2006.

云南云实 yun nan yun shi

Lianas. Branchlets with recurved prickles. Stipules absent; leaf rachis ca. 20 cm, with recurved prickles; pinnae 3 pairs, opposite; petiolules 3–4 mm; leaflets 2 pairs per pinna, opposite, adaxially shiny, ovate-lanceolate, $6\text{--}9 \times 2.5\text{--}3$ cm, leathery, both surfaces glabrous, base slightly rounded or sometimes broadly cuneate, apex obtuse-acuminate. Flowers not seen. Legume oblong to elliptic, slightly asymmetric or obliquely asymmetric, $4\text{--}7 \times 2.5\text{--}3$ cm, leathery, base broadly cuneate, apex obtuse, beaked. Seed solitary, compressed. Fr. Oct.

● Thickets at riversides, sparse woodlands at roadsides; ca. 600 m. Yunnan (Xishuangbanna).

19. *Caesalpinia elliptifolia* S. J. Li, Z. Y. Chen & D. X. Zhang, *Nordic J. Bot.* 22: 349. 2003.

椭圆叶云实 tuo yuan ye yun shi

Lianas, to 15 m; young parts with dense, brown hairs. Branchlets occasionally with scattered, recurved prickles. Stipules absent; leaf rachis 20–30 cm, with recurved prickles; pinnae 1 or 2 pairs; petiolules 2–3 mm; leaflets opposite, 2 pairs per pinna, elliptic, 7–13 × 4.5–8 cm, leathery, abaxially with brown hairs especially on midvein, adaxially glabrous, base rounded, apex rounded, rarely obtuse. Racemes terminal and supra-axillary, aggregated into a panicle, 15–25 cm, all parts densely hairy; bracts caducous, lanceolate, 1–3 mm; pedicels 8–12 mm. Flowers yellow. Sepals oblong, ca. 6 × 2 mm. Petals unequal, 10–15 × 4–5 mm, shortly clawed. Stamens 10; filaments 9–14 mm, woolly from base to just above middle. Ovary sessile, ca. 2 mm, hairy, 1- or 2-ovuled; style 7–10 mm,

occasionally as short as 2 mm; stigma truncate. Legume compressed, indehiscent, oblong-elliptic, subsymmetrical, ca. 5 × 2.5 cm, without narrow wing, leathery, with robust reticulate veins. Seeds 1 or 2, brownish black, compressed, suborbicular, ca. 1.5 cm in diam. Fl. Apr, fr. May–Jun.

- Beside ditches; ca. 100 m. Guangdong (Fengkai).

20. *Caesalpinia rhombifolia* J. E. Vidal, *Adansonia*, n.s., 15: 394. 1976.

菱叶云实 ling ye yun shi

Climbers, woody. Branches with few prickles. Leaf rachis ca. 15 cm, with prickles; pinnae 4–6 pairs, opposite; rachis 4–5 cm, with one pair of prickles at base; petiolules ca. 1 mm; leaflets 3 or 4 pairs, opposite, slightly rhombic, 1.5–2 × 0.8–1.2 cm, papery, both surfaces glabrous, base broadly cuneate, apex acute, rarely slightly emarginate. Racemes paniculate, terminal or axillary, 10–20 cm; pedicels 6–9 mm, glabrous or nearly so, jointed at apical part. Flower buds glabrous. Flowers yellow. Sepals glabrous, except with margin ciliate. Petals unequal, ca. 7 mm, inside hairy at base; upper one smaller, rounded at apex, contracted and hairy toward middle. Stamens with hairy filaments. Ovary glabrous, 1- or 2-ovuled; style ca. 1 cm. Legume obliquely semicircular, ca. 4 × 2.5 cm, leathery, ca. 1 cm stalked, apex beaked. Seed 1, broadly ellipsoid, ca. 2 × 1 cm. Fl. (not seen in China, based on original description) May–Jul, fr. unknown.

- Thickets. S Guangxi (Dongxing) [Vietnam].

