

LARDIZABALACEAE

木通科 mu tong ke

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Woody climbers, rarely erect shrubs (*Decaisnea*). Monoecious, rarely dioecious. Stems climbing or twining (erect in *Decaisnea*); wood with broad medullary rays. Winter buds large; outer scales 2 to numerous; scales subtending leaves persistent, scaly. Stipules usually absent (present and very small in *Sinofranchetia*). Leaves alternate, palmate or 3-foliolate, rarely pinnate (*Decaisnea*). Petiole and petiolules swollen at both ends, articulate. Flowers functionally unisexual by reduction or abortion, actinomorphic. Sepals 6 (usually 3 in *Akebia*), petaloid, in 2 whorls, imbricate or outer 3 valvate. Petals 6, nectariferous, much smaller than sepals or absent. Male flowers: stamens free or ± connate into a tube; anthers 2-celled, extrorsely dehiscent by longitudinal slit; connective apical appendage hornlike or apiculate, sometimes unappendaged. Pistillodes 3–6(–9), small, filiform. Female flowers: staminodes 6. Carpels 3(–9) or numerous (*Sargentodoxa*), superior, free; ovules numerous, orthotropous or anatropous, in 2 to several longitudinal rows on laminar placenta, rarely 1, pendulous, hemitropous to subanatropous (*Sargentodoxa*). Stigma conspicuous, sessile or subsessile. Fruit fleshy follicles or baccate, indehiscent or dehiscent along abaxial suture. Seeds numerous, rarely solitary; seed coat crustaceous; endosperm copious; embryo small, straight.

Nine genera and ca. 50 species: mainly in E Asia, two monotypic genera in S America; seven genera (two endemic) and 37 species (25 endemic) in China.

Chen Te-chao. 2001. Lardizabalaceae. In: Ying Tsun-shen, ed., Fl. Reipubl. Popularis Sin. 29: 1–50.

1a. Stems erect; leaves odd pinnate with 13–25 leaflets; inflorescences terminal; winter bud outer scales 2 1. *Decaisnea*

1b. Stems climbing or twining; leaves palmate or (1 or)3–9-foliolate; inflorescences axillary; winter bud outer scales numerous.

2a. Leaves (1 or)3-foliolate; lateral leaflets asymmetric.

3a. Stem without red sap when cut; lateral leaflets slightly asymmetric at base, smaller than terminal leaflet; carpels 3 in female flowers, ovules ca. 20 per carpel; mature carpels 1–3 at each node of infructescence 6. *Sinofranchetia*

3b. Stems with red sap when cut; lateral leaflets extremely asymmetric on one side, larger than terminal leaflet; carpels numerous in female flowers; ovules 1 per carpel; mature carpels 20–40 spirally arranged on an enlarged receptacle 7. *Sargentodoxa*

2b. Leaves palmately compound, (3–)5–9-foliolate; lateral leaflets base mostly symmetric.

4a. Leaflet apex rounded to obtuse and emarginate; filaments very short; anthers incurved; fruit dehiscent.

5a. Sepals 3(–6); female flowers much larger than male flowers and different in shape 2. *Akebia*

5b. Sepals 6; female flowers slightly larger than male flowers and similar in shape 3. *Archakebia*

4b. Leaflet apex usually acuminate or caudate; filaments conspicuous; anthers straight; fruit indehiscent.

6a. Petals 6, small; filaments free 4. *Holboellia*

6b. Petals 6 or usually absent; filaments connate 5. *Stauntonia*

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1. DECAISNEA J. D. Hooker & Thomson, Proc. Linn. Soc. London 2: 350. 1855, nom. cons.

猫儿屎属 mao er shi shu

Shrubs erect, deciduous. Monoecious. Branches few. Winter buds with 2 outer scales. Leaves odd pinnate; petiole articulate at base; petiolules short; leaflets opposite. Inflorescences paniculate racemes, terminal. Sepals 6, subimbricate. Petals absent. Male flowers: stamens 6; anthers oblong. Pistillodes small, concealed within filament tube. Female flowers: staminodes free or connate at base. Carpels 3, straight; ovules in 2 rows on either side of carpel adaxial suture. Stigma conspicuous. Fruit straight or ± recurved, dehiscent. Seeds embedded in white translucent pulp, compressed.

One species: Bhutan, China, NE India, Myanmar, Nepal, Sikkim.

1. Decaisnea insignis (Griffith) J. D. Hooker & Thomson, Proc. Linn. Soc. London 2: 349. 1855.

猫儿屎 mao er shi

Slackia insignis Griffith, Itin. Pl. Khasyah Mts. 2: 187. no. 977. 1848; *Decaisnea fargesii* Franchet.

Shrubs ca. 5 m tall. Branches robust and brittle, yellow when old; pith broad; lenticels orbicular to elliptic.

Winter buds ovoid, apex acuminate, outer scales verrucose. Petiole 10–20 cm; leaf blade pinnately compound, 30–80 cm; leaflets 13–25, ovate to ovate-oblong, 6–14 × 3–7 cm, membranous, abaxially glaucous and pulverulent-puberulous but soon glabrescent, adaxially glabrous, base rounded to broadly cuneate, apex acuminate to caudate-acuminate. Racemes 25–30(–40) cm. Pedicel 0.5–2 cm; bracteoles narrowly linear, 6–8 mm. Sepals ovate-lanceolate to narrowly lanceolate, striate, adpressed crisp, dusty puberulous or glabrous, apex long acuminate. Male flowers: outer 3 sepals 1.7–2(–3) cm; inner 3 sepals slightly shorter. Stamens 8–10 mm; filaments 3–4.5

mm, connate into a slender tube; anthers free, ca. 3.5 mm; connective apical appendage broad, flattened, hornlike, 2–2.5 mm. Pistillodes 1/2 as or rarely as long as filament tube. Female flowers: staminode filaments ca. 1.5 mm, connate into a ring; anthers free, 1.8–2 mm; connective apical appendage hornlike, 1–1.8 mm. Carpels conical, 5–7 mm. Stigma horseshoe-shaped, oblique. Fruit bluish black, pendulous, cylindric, 5–10 cm, ca. 2 cm in diam., verruculose, apex truncate but abaxial suture protruded into a conical umbo; surface with or without annular, depressed, and transverse traces. Seeds black to brown, obovoid to oblong, ca. 1 cm. Fl. Apr–Jun, fr. Jul–Aug.

Mixed forests, scrub on mountain slopes, wet area in ravines; 900–3600 m. S Anhui, S Gansu, E Guangxi, Guizhou, Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan, SE Xizang, Yunnan, E Zhejiang [Bhutan, NE India, Myanmar, Nepal, Sikkim].

The fruits are edible.

2. AKEBIA Decaisne, Compt. Rend. Hebd. Séances Acad. Sci. 5: 394. 1837.

木通属 mu tong shu

Woody climbers, deciduous or subevergreen. Monoecious. Stems twining. Winter bud outer scales numerous, persistent. Leaves alternate or clustered on short branches; petiole long; leaf blade palmately compound, 3–5(–7)-foliolate; leaflet margin entire, sinuate, or undulate. Inflorescences axillary, racemose, sometimes umbellate; bracts subtending inflorescences, persistent, scaly. Sepals usually 3(–6), purplish red or greenish white, subvalvate, reflexed at anthesis. Petals absent. Male flowers: borne apically on inflorescence. Stamens free; filaments very short; anthers incurved at anthesis. Pistillodes small. Female flowers: 1 or 2 basally on inflorescence, larger than male flowers. Carpels 3–9(–12), free, cylindric. Stigma capitate. Fruit fleshy follicles, dehiscent along abaxial suture. Seeds numerous, in several rows within pulp, slightly compressed; embryo small.

Five species: China, Japan, Korea; four species (two endemic) in China.

1a. Leaves 3(–5)-foliolate.

2a. Leaflet margin usually sinuate-dentate; sepals of male flowers 2–3 mm 3. *A. trifoliata*

2b. Leaflet margin subentire; sepals of male flowers 1–2 mm 4. *A. chingshuiensis*

1b. Leaves (3–)5(–7)-foliolate.

3a. Racemes 6–12 cm, 4–8(–11)-flowered; sepals of male flowers 6–8 mm; leaflets papery, abaxially glaucous 1. *A. quinata*

3b. Racemes 12–18 cm, 23–35(–43)-flowered; sepals of male flowers 4–4.5 mm; leaflets subleathery, abaxially pale green 2. *A. longeracemosa*

1. Akebia quinata (Houttuyn) Decaisne, Arch. Mus. Hist. Nat. 1: 195. 1839.

木通 mu tong

Rajania quinata Houttuyn, Nat. Hist. 11: 366. 1779; *Akebia micrantha* Nakai; *A. quinata* var. *polyphylla* Nakai; *A. quinata* var. *yiehii* W. C. Cheng.

Woody climbers, deciduous. Stems grayish brown, slender, cylindric; lenticels prominent, small, orbicular.

Winter bud outer scales imbricate, pale red-brown. Petiole slender, 4.5–10 cm; petiolules slender, 0.8–1.5(–2.5) cm; leaflets (3–)5(–7), obovate to obovate-elliptic, papery, abaxially glaucous, adaxially dark green, base rounded to broadly cuneate, apex rounded and usually emarginate and cuspidate; lateral leaflets 2–5 × 1.5–2.5 cm; terminal leaflet 2.5–5(–7) cm. Racemes fascicled, 6–12 cm; bracts imbricate, scaly; peduncle ca. 2.5 cm, axillary on short branches. Flowers slightly fragrant. Male flowers: 4–8 (–11). Pedicel slender, 7–10 mm. Sepals 3(–5), pale purple, occasionally pale green or white, broadly cucullate-ovate, 6–8 × 4–6 mm, apex rounded. Stamens 6(or 7), straight at first, incurved at length; filaments very short; anthers oblong. Pistillodes 3–6, small. Female flowers: pedicel slender, 2–4(–5) cm. Sepals dark purple, occasionally green or white, broadly elliptic to suborbicular, 1–2 × 0.8–1.5 cm. Staminate 6–9. Carpels 3–6(–9). Fruit purplish at maturity, straight or slightly incurved, oblong to ellipsoid, 5–8 × 3–4 cm. Seeds ovoid-oblong, compressed, pulp white; seed coat brown to black, shiny. Fl. Apr–May, fr. Jun–Aug.

Forest margins along streams, scrub on mountain slopes; 300–1500 m. Anhui, Fujian, Henan, E Hubei, E Hunan, Jiangsu, N Jiangxi, Shandong, Sichuan, Zhejiang [Japan, Korea].

The roots, stems, and fruits are used medicinally.

2. *Akebia longeracemosa* Matsumura, Bot. Mag. (Tokyo) 13: 18. 1899.

长序木通 chang xu mu tong

Akebia quinata (Houttuyn) Decaisne var.

longeracemosa (Matsumura) Rehder & E. H. Wilson.

Woody climbers, subevergreen. Stems grayish brown when dry, longitudinally striate; branches slender, ca. 5 mm in diam.; lenticels orbicular. Petiole 7–10 cm; petiolules 0.8–1.5 cm, terminal one longest; leaflets 5, oblong to obovate-oblong, 4–9.5 × 2–4 cm, subleathery, abaxially pale green, base cuneate to obtuse, margin entire, apex rounded and usually emarginate and cuspidate; primary veins 3. Inflorescences clustered with leaves; bracts persistent, scaly. Racemes 1–3, fascicled, 12–18 cm, slender; peduncle 3.5–7 cm. Male flowers: 23–35(–43). Pedicel slender, ca. 5 mm; bracteoles linear, subulate. Sepals 3, reddish purple, elliptic-oblong to broadly elliptic, 4–4.5 × ca. 3 mm, reflexed at anthesis. Stamens ca. 3 mm; filaments less than 1 mm. Female flowers: 1 or 2, or absent. Pedicel 4.5–5 cm. Sepals 3, reddish purple, broadly elliptic to suborbicular, 1–1.2 × 0.8–1 cm. Staminate nodes minute. Carpels 6–9, cylindrical. Fruit solitary or paired, reddish purple at maturity, oblong, 6–7 × ca. 2 cm, longitudinally wrinkled when dry. Fl. Mar–Apr, fr. Aug.

• Evergreen forests, mountain slopes, 300–1600 m. Fujian, N Guangdong, S Hunan, C Taiwan.

3. *Akebia trifoliata* (Thunberg) Koidzumi, Bot. Mag. (Tokyo) 39: 310. 1925.

三叶木通 san ye mu tong

Woody climbers, deciduous or subevergreen. Stems grayish brown, verruculose, laxly lenticellate. Petiole 7–11 cm; lateral petiolules 6–12 mm; terminal petiolule 2–4 cm; leaflets 3 (–5), ovate, ovate-oblong, or broadly ovate, 3–8 × 1.5–6 cm, papery, subleathery, or leathery, abaxially pale green, adaxially dark green, base truncate, rounded, cordate, or cuneate, margin sinuate, shallowly lobed, subentire, or entire, apex obtuse to narrowly rounded and slightly emarginate, cuspidate. Racemes axillary on short branches, 6–16 cm; peduncle slender, 3–5 cm. Male flowers: 15–30. Pedicel filiform, 2–5 mm. Sepals 3 or 4, pale purple to purple, broadly elliptic, elliptic, or oblong. Stamens 6; filaments very short; anthers incurved at anthesis. Pistillodes 3, oblong-subulate. Female flowers: pedicel 1.5–3 cm, slightly thicker than in male flower. Sepals 3, purplish brown, dark purple, or purplish black, suborbicular, sublinear, or narrowly oblong. Carpels 4–9, straight, 4–6 mm. Fruit oblong, straight or slightly curved. Seeds ovoid, 5–7 × 4–5 mm. Fl. Apr–May, fr. Jun–Sep.

Semideciduous forest margins, open forest along valleys, scrub on hillsides, by streams; 200–2100 m. Anhui, Fujian, SE Gansu, Guangdong, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, S Shaanxi, Shandong, S Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan].

The roots, stems, and fruits are used medicinally.

- 1a. Sepals of male flowers oblong, more than 2 × as long as stamens . 3c. subsp. *longisepala*
- 1b. Sepals of male flowers elliptic to broadly elliptic, ± as long as stamens.
 - 2a. Leaflets papery to subleathery, margin sinuate to shallowly lobed 3a. subsp. *trifoliata*
 - 2b. Leaflets leathery, margin usually entire, very rarely irregularly sinuate 3b. subsp. *australis*

3a. *Akebia trifoliata* subsp. *trifoliata*

三叶木通(原亚种) san ye mu tong (yuan ya zhong)

Clematis trifoliata Thunberg, Trans. Linn. Soc. London 2: 337. 1794; *Akebia clematifolia* Siebold & Zuccarini; *A. lobata* Decaisne var. *clematifolia* (Siebold & Zuccarini) Ito; *A. quercifolia* Siebold & Zuccarini; *A. sempervirens* Nakai; *A. trifoliata* var. *clematifolia* (Siebold & Zuccarini) Nakai; *A. trifoliata* var. *honanensis* T. Shimizu.

Leaflets 3, ovate to broadly ovate, 3–8 × 2–6 cm, papery to subleathery, base truncate to rounded, margin sinuate to shallowly lobed, apex obtuse to slightly emarginate and cuspidate. Racemes 6–16 cm. Male flowers: pedicels 2–5 mm. Sepals 3, pale purple, broadly elliptic to elliptic, 2.5–3 mm. Stamens 2.5–3 mm. Female flowers: sepals purplish brown, suborbicular, 1–1.2 × ca. 1 cm. Carpels 6–9. Fruit grayish white and slightly pale purple at maturity, oblong, 6–8 × 2–4 cm.

Open forest along valleys, scrub on hillsides; 200–2000 m. SE Gansu, S Henan, W Hubei, S Shaanxi, Shandong, S Shanxi, Sichuan [Japan].

3b. *Akebia trifoliata* subsp. *australis* (Diels) T. Shimizu, Quart. J. Taiwan Mus. 14: 201. 1961.

白木通 bai mu tong

Akebia lobata Decaisne var. *australis* Diels, Bot. Jahrb. Syst. 29: 344. 1901; *A. chaffanjonii* H. Léveillé; *A. trifoliata* var. *australis* (Diels) Rehder; *A. trifoliata* subsp. *australis* var. *honganensis* T. Shimizu; *A. trifoliata* var. *integrifolia* T. Shimizu.

Leaflets 3, ovate-oblong to ovate, 4–7 × 1.5–3(–5) cm, leathery, base rounded, broadly cuneate, truncate, or cordate, margin usually entire, very rarely irregularly sinuate, apex narrowly rounded, slightly emarginate, and cuspidate. Racemes axillary on short branches. Male flowers: sepals 3, purple, broadly elliptic to elliptic, 2–3 mm. Stamens red to purplish red when fresh, brown to pale brown when dry, ca. 2.5 mm. Female flowers: sepals dark purple, 9–12 × 7–10 mm. Carpels 5–7, purple. Fruit yellowish brown at maturity, 6–8 × 3–5 cm. Seeds blackish brown, ovoid. Fl. Apr–May, fr. Jun–Sep.

• Open forest along valleys, among shrubs on mountain slopes; 300–2100 m. Anhui, Fujian, Guangdong, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, S Shaanxi, S Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang.

3c. *Akebia trifoliata* subsp. *longisepala* H. N. Qin, Cathaya 8–9: 71. 1997.

长萼三叶木通 chang e san ye mu tong

Stems with purplish brown bark; lenticels numerous. Leaves 8–16 cm; petiole 5–8.5 cm; leaflets 3(–5), ovate to ovate-oblong, 3–6 × 2–3.5 cm, leathery, base truncate to cuneate, margin subentire, apex obtuse; primary veins 3 from base. Racemes axillary, 6–8 cm, with 7 or 8 male and 2 female flowers. Male flowers: pedicel ca. 5 mm. Sepals 3 or 4, oblong, 0.9–1.2 cm. Stamens 2.5–3.5 mm. Female flowers: pedicel 1.5–3 cm. Sepals purplish black, sublinear to narrowly oblong, 2.2–2.7 cm. Carpels 4–6, cylindrical, 4–6 mm. Fruit not seen. Fl. Apr.

• Semideciduous forest margins, hillsides, by streams; 600–800 m. SE Gansu (Wen Xian).

4. *Akebia chingshuiensis* T. Shimizu, Quart. J. Taiwan Mus. 14: 201. 1961.

清水山木通 qing shui shan mu tong

Woody climbers, deciduous or subevergreen. Leaves herbaceous; petiole 3–5 cm; leaflets 3, petiolulate, ovate, 2–3 × 1–1.5 cm, glabrous, base round to broadly cuneate, margin subentire, apex emarginate and mucronate. Racemes axillary on short branches, ca. 10 cm; peduncle slender, 4–6 cm. Male flowers 10–20. Pedicel filiform, 2–3 mm. Bracts paleaceous, linear, subulate. Sepals 3, reflexed, elliptic, navicular, 1–2 mm, glabrous. Female flowers 1 or 2. Pedicel 1–1.3 cm, filiform. Sepals 3, black purple, obovate, navicular, 5–7 mm. Carpels 3 or 4. Fruit unknown. Fl. Apr–May.

• Open forests in mountains on limestone slopes; 1500–2400 m. Taiwan.

3. ARCHAKEBIA C. Y. Wu, T. Chen & H. N. Qin in H. N. Qin, Acta Phytotax. Sin. 33: 240. 1995.

长萼木通属 chang e mu tong shu

Woody climbers, deciduous. Monoecious or seldom dioecious. Stems twining, grayish lenticellate. Winter bud outer scales numerous, imbricate. Leaves alternate, basal ones aggregated on abbreviated twigs, apical ones scattered on stem; leaf blade palmate. Inflorescences racemose, axillary; bracts subtending inflorescences, persistent, small, scaly. Male flowers: several to many, fascicled, apically on rachis. Sepals 6, in two whorls. Petals absent. Stamens 6; connective apical appendage apiculate. Female flowers: 1 or 2 basally on inflorescence, larger than male flowers. Carpels 3. Fruit fleshy follicles, dehiscent. Seeds numerous; seed coat reddish brown.

• One species.

1. *Archakebia apetala* (Q. Xia, J. Z. Suen & Z. X. Peng) C. Y. Wu, T. Chen & H. N. Qin in H. N. Qin, Acta Phytotax. Sin. 33: 240. 1995.

长萼木通 chang e mu tong

Holboellia apetala Q. Xia, J. Z. Suen & Z. X. Peng, Acta Phytotax. Sin. 28: 409. 1990.

Woody climbers, glabrous. Stems grayish brown; lenticels small, orbicular. Winter buds ca. 6 mm, apex acute, outer scales reddish brown. Petiole slender, 5–11 cm; leaf blade leaflets (4 or) 5–7, obovate-elliptic to oblong, 3–7.5 × 1.5–4 cm, subleathery to papery, abaxially glaucous, adaxially dark green, base broadly cuneate to rounded, margin entire, apex rounded, slightly emarginate, and inconspicuously cuspidate;

primary veins 3 from base. Racemes usually several, fascicled, 3–8 cm, 5–12-flowered; bracts pale yellow, slightly purplish red. Flowers pale yellow, sometimes greenish white or purplish red. Male flowers: pedicel 2–4 mm. Outer 3 sepals lanceolate, 10–18 × 2–4 mm, apex acuminate; inner 3 sepals linear. Petals absent. Stamens 3–4 mm, free; filaments very short; anthers incurved, subsessile. Pistillodes 3, minute. Female flowers: pedicel 1.5–2.5 cm. Outer 3 sepals lanceolate, 1.5–3.2 × 0.5–0.9 cm; inner 3 sepals linear, 1.2–2.8 × 0.2–0.3 cm. Petals absent. Staminodes 6, very small. Carpels cylindrical, short. Style inconspicuous; stigma capitate, subsessile. Fruit yellow, ellipsoid to oblong, smooth, dehiscent at maturity. Seeds ovoid to reniform, ca. 6 mm, apex obtuse. Fl. Apr–May, fr. Sep–Oct.

- Open forest on mountain slopes; 500–1000 m. S Gansu (Wen Xian), SW Shaanxi (Lüeyang Xian, Mei Xian), N Sichuan.

4. HOLBOELLIA Wallich, Tent. Fl. Nepal. 1: 23. 1824.

八月瓜属 ba yue gua shu

Woody climbers, evergreen or deciduous. Monoecious. Stems twining. Winter bud outer scales numerous, seriate. Leaves alternate, usually long petiolate; leaf blade palmately 3–9-foliolate or pinnately 3-foliolate; petiolules usually unequal with terminal one longest; leaflet margins entire. Inflorescences axillary, clustered, corymbiform racemes, rarely elongated racemes; several to many flowered. Sepals 6, greenish white or purple, oblong, slightly fleshy, outer 3 valvate, inner 3 usually smaller. Petals 6, minute, opposite stamens, rudimentarily nectariferous. Male flowers: stamens 6, free; connective apically appendaged or unappendaged. Pistillodes 3, minute. Female flowers: carpels 3, straight. Stigma terminal or oblique, often cleft. Fruit oblong to ellipsoid, fleshy, indehiscent. Seeds embedded in pulp.

Twenty species: SE Asia, China, Himalayas; nine species (five endemic) in China.

- 1a. Leaves pinnately 3-foliolate.
 - 2a. Leaflets papery; outer sepals of male flower 1.6–1.8 cm 3. *H. brachyandra*
 - 2b. Leaflets subleathery to thick leathery; outer sepals of male flower to 1 cm.
 - 3a. Leaflets thick leathery, abaxially farinaceous green; outer sepals of male flower to 1 cm 1. *H. coriacea*
 - 3b. Leaflets leathery to subleathery, abaxially pale green; outer sepals of male flower 3–7 mm 2. *H. parviflora*
- 1b. Leaves palmately 3–7(–9)-foliolate.
 - 4a. Stems and branches angular or narrowly winged.
 - 5a. Veins of leaflets conspicuously impressed on adaxial surface; outer sepals of male flower 0.7–0.8 cm 8. *H. chapaensis*
 - 5b. Veins of leaflets prominent on both surfaces, sometimes plane but never impressed on adaxial surface; outer sepals of male flower 1.2–1.3 cm 9. *H. pterocaulis*
 - 4b. Stems and branches terete, striate, neither angular nor winged.
 - 6a. Leaflets 4–14 × as long as wide (less than 2 × in subsp. *obtusata*) 5. *H. angustifolia*
 - 6b. Leaflets 1.5–2.5 × as long as wide.
 - 7a. Outer sepals of male flower ca. 0.8 × 0.3 cm; petals orbicular 7. *H. medogensis*
 - 7b. Outer sepals of male flower 1.1–2.2 × 0.4–1 cm; petals not orbicular (sometimes suborbicular in *H. grandiflora*).
 - 8a. Stamens ca. 1.5 cm, filaments ca. 1 cm; seeds black 4. *H. grandiflora*
 - 8b. Stamens 0.8–1.2 cm, filaments 0.5–7 cm; seeds brown 6. *H. latifolia*

1. *Holboellia coriacea* Diels, Bot. Jahrb. Syst. 29: 342. 1900.

鹰爪枫 ying zhao feng

Artabotrys esquirolii H. Léveillé; *Holboellia brevipes* (Hemsley) P. C. Kuo; *H. coriacea* var. *angustifolia* Pampanini; *Stauntonia brevipes* Hemsley.

Evergreen. Stems brown. Leaf blade pinnately 3-foliolate; petiolules 0.5–3 cm; leaflets elliptic to ovate-elliptic, rarely lanceolate to oblong, terminal one sometimes obovate, (2–)6–10 × (1–)4–5(–8) cm, thick leathery, abaxially farinaceous green, adaxially dark green and shiny, base rounded to cuneate, margin slightly narrowly revolute, apex acuminate to emarginate and cuspidate; primary veins 3 from base; secondary veins 4 pairs; tertiary veinlets prominent on both surfaces when young, adaxially slightly impressed or inconspicuous when old. Racemes fascicled, short corymbiform; bracts persistent, scaly; peduncle short. Male flowers: pedicel ca. 2 cm. Sepals white, purple

striate; outer 3 sepals oblong, ca. 10 × 4 mm; inner 3 sepals narrower, apex obtuse. Petals suborbicular, less than 1 mm in diam. Stamens 6–7.5 mm; connective apical appendage very short, apiculate. Pistillodes subulate, ca. 1.5 mm. Female flowers: pedicel 3.5–5 cm, slightly thick. Sepals reddish purple; outer 3 sepals ovate, 12–14 × 9–10 mm; inner 3 sepals elliptic to lanceolate. Petals 6, minute. Staminodes 6, smaller than petals, sessile. Carpels ovoid-clavate, ca. 9 mm. Fruit purple at maturity, blackish when dry, oblong-terete, 5–6 × ca. 3 cm, densely verruculose. Seeds ellipsoid, slightly compressed, ca. 8 × 5–6 mm; seed coat black, shiny. Fl. Apr–May, fr. Jun–Aug.

- Mixed forests, mountain slopes, among shrubs, trailsides; 500–2000 m. Anhui, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Zhejiang.

The fruits are edible, and the roots and stems are used medicinally.

2. *Holboellia parviflora* (Hemsley) Gagnepain, Bull. Mus. Hist. Nat. (Paris) 14: 68. 1908.

小花鹰爪枫 xiao hua ying zhao feng

Stauntonia parviflora Hemsley, Hooker's Icon. Pl. 29: t. 2849. 1907; *Holboellia latistaminea* T. Chen.

Evergreen. Branches striate. Petiole slender, terete, 4–8 cm; leaf blade pinnately 3-foliolate; petiolules 0.5–2.5 cm; leaflets lanceolate, oblong-lanceolate, or ovate, 7–11 × 3–5 cm, subleathery, slightly folded in central part at base, abaxially pale green but pale brown when dry, adaxially dark green and shiny, base broadly cuneate to rounded, apex acuminate to long acuminate; midvein adaxially impressed, abaxially raised; secondary veins 5 or 6 pairs, tertiary veinlets and secondary veins slightly prominent on both surfaces. Inflorescences several, clustered, corymbose, 1.5–2 cm, several flowered; male and female flowers clustered together; peduncle 4–5 mm. Flowers greenish, small. Male flowers: pedicel 5–10 mm, slender. Outer 3 sepals broadly ovate, concave, 4–5 mm, slightly fleshy, apex acute and slightly thickened; inner 3 sepals lanceolate, ca. 3 mm, thinner than outer ones. Petals elliptic, less than 1 mm. Stamens 3.5–4 mm, unequal, 3 opposite inner sepals as long as outer sepals, other 3 shorter; filaments slightly thickened, trigonate, base cuneate; connective apex unappendaged. Pistillodes as long as petals. Female flowers: pedicel 8–10 mm, thicker than those of male flowers. Outer 3 sepals ovate, ca. 7 × 4 mm, apex acute; inner 3 sepals narrower, shorter. Stamines minute. Carpels conical, ca. 4 mm. Stigma oblique. Fruit ellipsoid, 2.5–6 × 2–3 cm. Fl. Nov–Dec, fr. Sep–Oct.

• Mixed forests, forest margins along valleys, mountain slopes; 1800–1900 m. Guangxi, Guizhou, Hunan, SE Yunnan.

3. *Holboellia brachyandra* H. N. Qin, Cathaya 8–9: 126. 1997.

短蕊八月瓜 duan rui ba yue gua

Stems grayish white, young shoots green, twining. Petiole 2–6.5 cm; leaf blade pinnately 3-foliolate; petiolules (1–)2.5–4 cm; leaflets ovate to ovate-elliptic, rarely obovate, 6–12 × 2.7–5.5 cm, papery, abaxially light green, adaxially dark green, base subrounded, apex acuminate; primary veins 3, abaxially slightly conspicuous. Racemes fascicled, 5–12 cm, androgynous with 4 or 5 male and 1 or 2 female flowers. Flowers white, mildly fragrant. Male flowers: sepals equal in size, narrowly elliptic, 16–18 × 3–5 mm. Petals obovate, less than 1 mm. Stamens 4–5 mm; filaments free; anthers ca. 3 mm; connective apical appendage ca. 0.5 mm. Pistillodes 3, ca. 1.5 mm. Female flowers: sepals fleshy; outer 3 sepals elliptic, 2–3 × 0.7–0.8 cm; inner 3 sepals narrowly elliptic. Petals less than 1 mm. Stamines 6, opposite petals, ca. 1 mm; connective apical appendage apiculate. Carpels free, ellipsoid, ca. 5 mm. Stigma sessile, capitate. Fruit unknown. Fl. Apr.

• Evergreen forest margins along valleys, climbing on small trees; 1500–1600 m. SE Yunnan (Xichou Xian).

4. *Holboellia grandiflora* Réaumur, Bull. Soc. Bot. France 53: 453. 1906.

牛姆瓜 niu mu gua

Evergreen, large. Branches terete, striate, lenticellate. Stems brown. Bud bracts persistent, scaly. Petiole 7–20 cm, slightly thick; leaf blade palmately 3–7-foliolate; petiolules 2–5 cm; leaflets obovate-oblong to oblong, sometimes elliptic to lanceolate, 6–14 × 4–6 cm, leathery to subleathery, abaxially dull pale green when dry, adaxially dark green and shiny, base cuneate, margin slightly revolute, apex acuminate to acute; midvein adaxially impressed; secondary veins 7–9 pairs; tertiary veinlets and secondary veins abaxially slightly prominent, adaxially inconspicuous. Inflorescences of 2–4 corymbose racemes; peduncle 2.5–5 cm. Flowers several, pale greenish white or pale purple. Male flowers: outer 3 sepals narrowly obovate, 2–2.2 × 0.8–1 cm, base rounded to truncate, apex obtuse; inner 3 sepals linear-oblong, as long as outer sepals but narrower. Petals ovate to suborbicular, ca. 1 mm in diam. Stamens straight, ca. 1.5 cm; filaments terete, ca. 1 cm; connective apical appendage small, apiculate. Pistillodes subulate, ca. 3 mm. Female flowers: outer 3 sepals broadly ovate, thick, 2–2.5 × 1.2–1.6 cm, base rounded, apex acute; inner 3 sepals ovate-lanceolate, narrower than outer ones. Petals ovate to suborbicular, ca. 1 mm in diam. Stamines minute, subsessile, locules incurved. Carpels lanceolate-terete, ca. 1.2 cm. Stigma conical, oblique. Fruit often in pairs, oblong, 6–9 cm. Seeds numerous, black. Fl. Apr–May, fr. Jul–Sep. Mixed forests, mountain slopes, scrub along valleys; 1100–3000 m. Guizhou, Sichuan, Yunnan [Vietnam].

5. *Holboellia angustifolia* Wallich, Tent. Fl. Nepal 1: 25. 1824.

五月瓜藤 wu yue gua teng

Evergreen. Stems and branches grayish brown, striate. Bud bracts persistent, broad, scaly. Petiole long; leaf blade palmately (3–)5–7(–9)-foliolate; petiolules 0.5–2.5 cm; leaflets 3–13 × 0.3–5 cm, subleathery to leathery, abaxially glaucous and densely very minutely papillose, adaxially green and shiny, base cuneate, margin entire, apex acuminate, acute, or obtuse, sometimes emarginate; secondary veins 6–10 pairs, tertiary veinlets and secondary veins conspicuously prominent on both surfaces or abaxially slightly prominent and adaxially inconspicuous. Racemes several, short; peduncle short, 0.8–2 cm. Male flowers: pedicel 1–1.5 cm. Outer 3 sepals linear-oblong, 1–1.5 × 0.3–0.4 cm, apex obtuse; inner 3 sepals smaller. Petals suborbicular, less than 1 mm in diam. Stamens straight, ca. 1 cm; filaments terete; anthers linear; connective apical appendage apiculate, ca. 0.7 mm. Pistillodes small, subulate. Female flowers: pedicel 3.5–5 cm. Sepals purplish red; outer 3 sepals obovate-orbicular to broadly ovate, 14–16 × 7–9 mm; inner 3 sepals smaller. Petals ovate-triangular, ca. 0.4 mm wide. Stamines sessile, ca. 0.7 mm. Carpels clavate. Stigma capitate, cleft. Fruit purple at maturity, oblong, 5–9 cm, apex rounded and apiculate. Seeds ellipsoid, 5–8 × 4–5 mm;

seed coat brownish black, shiny. Fl. Apr–Jun, fr. Aug–Oct.

Mixed forest on mountain slopes, edge of forests, hillsides, along valleys, by streams; 1000–2700 m. Anhui, Guangdong, Guangxi, Guizhou, Hubei, Shaanxi, Sichuan, E Xizang, Yunnan [Bhutan, N India, Myanmar, Nepal, Sikkim].

The fruits are edible, and the roots and stems are used medicinally.

1a. Leaflets linear to linear-lanceolate, more than $5 \times$ as long as wide 5b. subsp. *linearifolia*

1b. Leaflets ovate-elliptic, oblong, lanceolate-oblong, or oblanceolate, less than $4 \times$ as long as wide.

2a. Leaflets 3(–5), leathery 5c. subsp. *trifoliata*

2b. Leaflets 5–7, subleathery.

3a. Leaflets oblong, less than $2 \times$ as long as wide, apically obtuse

3b. Leaflets ovate-elliptic, more than $2 \times$ as long as wide, apically acute

3c. Leaflets ovate-elliptic, more than $2 \times$ as long as wide, apically acute 5a. subsp. *angustifolia*

5a. *Holboellia angustifolia* subsp. *angustifolia*

五月瓜藤(原亚种) wu yue gua teng (yuan ya zhong)

Holboellia acuminata Lindley; *H. angustifolia* Diels (1900), not Wallich (1824); *H. angustifolia* var. *angustissima* Diels; *H. angustifolia* var. *minima* Réaumur; *H. fargesii* Réaumur; *H. latifolia* Franchet (1885), not Wallich (1824); *H. latifolia* Wallich var. *acuminata* (Lindley) Gagnepain; *H. latifolia* Wallich var. *angustifolia* (Wallich) J. D. Hooker & Thomson; *H. latifolia* var. *bracteata* Gagnepain; *H. marmorata* Handel-Mazzetti; *Stauntonia longipes* Hemsley.

Leaflets 5–7, ovate-elliptic, 4.5–13 cm, more than $2 \times$ as long as wide, base cuneate, margin entire, apex acute. Fl. Apr–May, fr. Sep–Oct.

Edge of forests, hillsides, by streams. Anhui, Guangdong, Guangxi, Guizhou, Hubei, Shaanxi, Sichuan, Yunnan [Bhutan, N India, Myanmar, Nepal, Sikkim].

5b. *Holboellia angustifolia* subsp. *linearifolia* T. Chen & H. N. Qin in H. N. Qin, *Cathaya* 8–9: 112. 1997.

线叶八月瓜 xian ye ba yue gua

Leaflets (3–)5–7, linear to linear-lanceolate, $3\text{--}7 \times 0.3\text{--}1$ cm, more than $5 \times$ as long as wide, base cuneate, margin entire, apex acute to acuminate. Fl. May–Jun, fr. Aug–Oct.

• Edge of forests in alpine areas, scrub by streams; 1300–2700 m. W Sichuan.

5c. *Holboellia angustifolia* subsp. *trifoliata* H. N. Qin, *Cathaya* 8–9: 114. 1997.

三叶五风藤 san ye wu feng teng

Leaflets 3(–5), lanceolate-oblong to oblanceolate, leathery, base cuneate, margin entire, apex acute. Fl. Apr–May.

• Forests, hillsides, by streams; 1000–1900 m. W Hubei, E Sichuan.

5d. *Holboellia angustifolia* subsp. *obtusa* (Gagnepain) H. N. Qin, *Cathaya* 8–9: 116. 1997.

钝叶五风藤 dun ye wu feng teng

Holboellia latifolia var. *obtusa* Gagnepain, Bull. Mus. Hist. Nat. 14: 68. 1908.

Leaflets oblong, (3–)5–7, thinly leathery, base cuneate, margin entire, apex obtuse. Fl. Apr–May, fr. Sep–Oct.

• W and SW Sichuan, E Xizang, N Yunnan.

6. *Holboellia latifolia* Wallich, Tent. Fl. Nepal. 1: 24. 1824.

八月瓜 ba yue gua

Evergreen. Stems and branches conspicuously striate. Petiole slender, 3.5–12 cm; leaf blade palmately 3–9-foliolate; petiolules slender, 2–4 cm; leaflets 4–13 \times 1–7 cm, papery or leathery, abaxially pale green, adaxially dark green and shiny, base rounded, broadly cuneate, or sometimes subtruncate, apex acuminate to caudate-acuminate; veins abaxially conspicuously prominent; secondary veins 5–8 pairs, anastomosing near margin. Inflorescences several, fascicled racemes; bracts broadly ovate to suborbicular, scaly, persistent; peduncle 1–3.5(–5) cm. Flowers several per raceme. Male flowers: sepals greenish white; outer 3 sepals oblong, 11–15 \times 4–5 mm, apex obtuse; inner 3 sepals oblong-lanceolate, apex acute. Petals obovate to elliptic, less than 1 mm. Stamens 8–12 mm; filaments linear, 5.5–7 mm, slightly thick; anthers 3.5–5 mm; connective apical appendage short, apiculate. Pistillodes ovoid-subulate, ca. 1.5 mm. Female flowers: sepals purple; outer 3 sepals ovate-oblong, 16–22 \times 7–9 mm; inner 3 sepals narrower and shorter. Staminodes minute; anthers clavate. Carpels oblong to conical. Stigma sessile, oblique. Fruit reddish purple at maturity, irregularly oblong to ellipsoid, (3–)5–7 \times ca. 4 cm, densely and minutely tuberculate, obtuse at both ends, apex often mucronate. Seeds numerous, obovoid; seed coat brown. Fl. Apr–May, fr. Jul–Sep.

Forests, mixed forests by streams or other shady moist sites, forest margins on mountain slopes, along valleys; 600–3000 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, NE India, Nepal, Sikkim].

1a. Leaflets 3(–9); blades leathery, main veins not impressed

1b. Leaflets (3–)5(–7); blades papery, main veins impressed

6a. *Holboellia latifolia* subsp. *latifolia*

八月瓜(原亚种) ba yue gua (yuan ya zhong)

Holboellia ovatifoliolata C. Y. Wu & T. Chen ex S. H. Huang; *Stauntonia latifolia* Wallich.

Leaflets 3(–9), ovate, oblong, or ovate-lanceolate, 4–13 \times 1–5 cm, leathery, base widely cuneate, margin entire, apex acute, main veins not impressed.

Forests, forest margins on mountain slopes, along valleys; 600–2600 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, NE India, Nepal, Sikkim].

The roots are used medicinally for rheumatism.

6b. *Holboellia latifolia* subsp. *chartacea* C. Y. Wu & S. H. Huang ex H. N. Qin, *Cathaya* 8–9: 124. 1997.

纸叶八月瓜 zhi ye ba yue gua

Leaflets (3–)5(–7), elliptic, ovate, or obovate-oblong, 5–11 × 2.5–7 cm, papery, base round or widely cuneate, margin entire, apex acute, main veins impressed.

Mixed forests by streams or other shady moist sites; 1800–3000 m. S Xizang, NW Yunnan [Bhutan, Sikkim].

7. *Holboellia medogensis* H. N. Qin, *Cathaya* 8–9: 93. 1997.

墨脱八月瓜 mo tuo ba yue gua

Deciduous. Stems dull gray; lenticels numerous, elliptic. Petiole 15–19 cm; leaf blade palmately 5- or 6-foliolate; leaflets ovate to ovate-elliptic, 8–11 × 4–5.5 cm, papery, abaxially pale green, adaxially dark green, base broadly cuneate, apex acuminate; primary veins 3 from base. Racemes several, fascicled, ca. 11 cm, 6–8-flowered.

Male flowers: bracteoles linear, ca. 2 mm. Sepals greenish; outer 3 sepals oblong, ca. 8 × 3 mm; inner 3 sepals narrowly oblong to linear, 5–7 × ca. 1 mm. Petals orbicular, ca. 1 mm in diam. Stamens 6; filaments connate into a tube, ca. 3 mm; anthers ca. 3 mm; connective apical appendage ca. 0.5 mm. Pistillodes 3, linear, ca. 1.5 mm. Female flowers and fruit not seen. Fl. Apr.

• Forest margin; 800–900 m. Xizang (Mêdog Xian).

8. *Holboellia chapaensis* Gagnepain, *Bull. Soc. Bot. France* 85: 165. 1938.

沙坝八月瓜 sha ba ba yue gua

Holboellia reticulata C. Y. Wu ex S. H. Huang.

Evergreen. Stems grayish brown, terete, ca. 9 mm in diam., slightly angular but not winged; young branchlets conspicuously angular; lenticels numerous, fusiform. Winter bud scales broadly triangular. Petiole 3–11 cm; leaf blade palmately 3–5-foliolate; petiolules 2–5 cm; leaflets oblong to oblanceolate-oblong, 6–16 × (2–)3.5–7 cm, leathery, abaxially grayish green, adaxially green, base broadly cuneate to sometimes rounded, margin narrowly revolute, apex acute to short acuminate; secondary veins 6 or 7 pairs; tertiary veinlets prominently reticulate. Male inflorescences 2- or 3-fascicled, 1–2 cm; female inflorescences ca. 8 cm. Male flowers: sepals pale greenish white; outer 3 sepals ovate-oblong, cucullate, 7–8 × 3–4 mm; inner 3 sepals smaller. Petals broadly elliptic, ca. 1 mm wide. Stamens 5–7 mm; filaments terete, 2–3 mm; anthers 3–4 mm; connective apical appendage small, obtuse. Pistillodes

minute, awl-like. Female flowers: sepals purple, fleshy, slightly thick; outer 3 sepals broadly ovate, 10–11 × 6.5–7 mm; inner 3 sepals ca. 9 × 6 mm. Petals broadly elliptic, ca. 1 mm wide. Stamines subulate, ca. 1.5 mm, apex short. Carpels ovoid-terete, ca. 7 mm. Fruit ellipsoid to oblong, 6–12 × 3.5–5 cm. Seeds numerous, black, suborbicular, ca. 7 mm in diam., shiny. Fl. Mar–Apr, fr. Aug–Nov.

Dense forest along valleys, mixed forest margins; 1000–2200 m. SW Guangxi, SE Yunnan [Vietnam].

9. *Holboellia pterocaulis* T. Chen & Q. H. Chen, *Fl. Guizhou* 2: 675. 147. 1986.

棱茎八月瓜 leng jing ba yue gua

Stems brown to dull brown, winged; wings 5, ca. 1 mm wide; lenticels numerous, pale brown, elliptic to fusiform. Petiole 3–9 cm, striate; leaf blade palmately 5–7-foliolate; petiolules slightly angular, unequal, lateral ones 1–2.5 cm, terminal one 2–4 cm; leaflets elliptic, oblong, or obovate-oblong, 7–12 × 3–5 cm, leathery, abaxially pale yellowish green, adaxially dark green and shiny, base rounded to rarely cuneate, margin slightly revolute, apex rounded and mucronate; primary veins 3; secondary veins 5–7 pairs; tertiary veinlets and secondary veins prominent on both surfaces. Inflorescences of several fascicled racemes; bracts persistent, ovate-lanceolate, ca. 7 × 2.5 mm, scaly; peduncle 1.5–3 cm. Male flowers: pedicel 0.8–1.5 cm. Sepals purplish red, subfleshy; outer 3 sepals oblong to oblanceolate, 12–13 × 4.5–5.5 mm, apex obtuse; inner 3 sepals 11–12 × ca. 3 mm. Petals suborbicular to obovate, 1–1.5 mm in diam. Stamens straight, 9–10 mm; filaments slightly broad, complanate; anthers ca. 4 mm; connective apical appendage minute. Pistillodes clavate, ca. 2.5 mm. Female flowers: sepals purplish red; outer 3 sepals ovate-orbicular, 1.5–2.1 × 1–1.2 cm; inner 3 sepals oblong, smaller. Carpels clavate. Fruit ob-long-terete, ca. 7 × 3 cm. Seeds blackish brown. Fl. Apr–May, fr. Aug–Sep.

• Sparse to dense forests, by streams along valleys; 800–1500 m. Guizhou, Sichuan.

5. **STAUNTONIA** de Candolle, *Syst. Nat.* 1: 511, 513. 1817.

野木瓜属 ye mu gua shu

Parvatia Decaisne.

Woody climbers, evergreen. Monoecious or dioecious. Winter bud scales many, in several whorls; outer scales imbricate, usually short and broad; inner scales longer than outer ones, ligulate to straplike. Leaves alternate, long petiolate; leaf blade palmately 3–9-foliolate or pinnately 3-foliolate; petiolules unequal; leaflet margins entire. Inflorescences axillary, several to more than 10-flowered; bracts subtending inflorescences, scaly. Sepals 6, outer 3 valvate. Petals absent or 6 and inconspicuous. Male flowers: stamens 6; filaments connate into a tube, basally, or only at base; connective apical appendage often hornlike or apiculate. Pistillodes 3, concealed within filaments tube. Female flowers: sepals usually slightly larger than those of male flowers. Stamines minute, squamose, sessile,

inserted at base of carpels opposite petals. Carpels 3, straight, sessile; ovules in several rows. Stigma terminal. Fruit single or in pairs, rarely 3-fascicled, sometimes dehiscent along abaxial suture. Seeds numerous, embedded in pulp. About 25 species: China, N India, Japan, Myanmar, Vietnam; 20 species (16 endemic) in China.

1a. Petals 6.

2a. Leaves palmately 5–7-foliolate, sometimes 3- or 4-foliolate apically on branches.

3a. Leaflets adaxially dull; petals 2–3 mm; fruit 4–6 × ca. 2.5 cm 4. *S. maculata*

3b. Leaflets adaxially shiny; petals ca. 1.5 mm; fruit 7–10 × 3–5 cm 5. *S. chinensis*

2b. Leaves pinnately 3-foliolate.

4a. Branches, petiole, and petiolules narrowly winged; leaflets abaxially pulverulently or papillately puberulous; inflorescence 1- or 2-flowered; male flower outer 3 sepals 2.2–2.5 cm 1. *S. decora*

4b. Branches, petiole, and petiolules not winged; leaflets glabrous; inflorescence many flowered; male flower outer 3 sepals 0.5–0.8 cm.

5a. Leaflets subleathery; secondary veins and tertiary veinlets conspicuously prominent on both surfaces;

stamen connective apical appendage longer than anther 2. *S. brunoniana*

5b. Leaflets papery; secondary veins and tertiary veinlets abaxially prominent, adaxially inconspicuous;

stamen connective apical appendage as long as anther 3. *S. elliptica*

1b. Petals absent.

6a. Stamen connective unappendaged 20. *S. leucantha*

6b. Stamen connective appendaged.

7a. Connective apical appendage 3–5 mm (sometimes ca. 2 mm in *S. purpurea*).

8a. Leaflets abaxially pale green 10. *S. libera*

8b. Leaflets abaxially grayish green or glaucous.

9a. Leaflet base cuneate to broadly cuneate 9. *S. duclouxii*

9b. Leaflet bases obtusely rounded, rounded, or slightly cordate.

10a. Leaflets abaxially whitish; pedicel ca. 1 cm; connective apical appendage ca. 4 mm 8. *S. trinervia*

10b. Leaflets abaxially grayish green; pedicel 2–5 cm; connective apical appendage 2–3 mm.

11a. Leaflets 6–9.5 cm wide, abaxially not maculate, margin revolute when dry; sepals of male flowers ca. 1.8 cm 6. *S. glauca*

11b. Leaflets 2.5–5 cm wide, abaxially densely whitish brown maculate, margin crisp when dry; sepals

of male flowers 1–1.5 cm 7. *S. purpurea*

7b. Connective apical appendage to 2.5 mm.

12a. Connective apical appendage 2–2.5 mm.

13a. Leaflets 12–17 cm, subleathery, apex with a ca. 3.5 cm cauda; outer 3 sepals of male flowers 2–2.5 cm 13. *S. yaoshanensis*

13b. Leaflets less than 7 cm, leathery, apex not caudate; outer 3 sepals of male flowers 0.8–1.4 cm.

14a. Leaflet apex mucronate and apiculate; outer 3 sepals of male flowers ca. 8 cm 11. *S. oligophylla*

14b. Leaflet apex emarginate to obcordate, not mucronate and apiculate; outer 3 sepals of male flowers ca. 1.4 cm 12. *S. obcordatilimba*

12b. Connective apical appendage minute to 1 mm.

15a. Connective apical appendage ca. 1 mm.

16a. Leaflets 3(–5), abaxially whitish green, margin conspicuously revolute 14. *S. conspicua*

16b. Leaflets 5–9, abaxially pale green or glaucous, margin not revolute.

17a. Leaflets obovate, obovate-oblong, or spatulate, abaxially not maculate 16. *S. obovatifoliola*

17b. Leaflets oblanceolate, oblong-lanceolate, or oblong abaxially densely maculate 15. *S. pseudomaculata*

15b. Connective apical appendage scarcely visible to 0.6 mm.

18a. Leaflets lanceolate-linear to lanceolate, abaxially densely maculate; connective apical appendage

ca. 0.6 mm; plants dioecious 17. *S. cavalerieana*

18b. Leaflets obovate, oblong, broadly elliptic, oblanceolate, or spatulate, abaxially not maculate; connective apical appendage scarcely visible; plants monoecious.

- 19a. Leaflets 3–5, obovate, oblong, broadly elliptic, or oblanceolate, apex rounded or sometimes acute to acuminate; sepals thin, not fleshy 18. *S. obovata*
 19b. Leaflets 5–9, spatulate, apex long caudate and with a filiform easily broken tip; sepals thick, subfleshy 19. *S. brachyanthera*

1. *Stauntonia decora* (Dunn) C. Y. Wu ex S. H. Huang, Fl. Yunnan. 2: 8. 1979.

翅野木瓜 *chi ye mu gua*

Parvatia decora Dunn, Hooker's Icon. Pl. 28: t. 2712.

1901; *Stauntonia alata* Merrill.

Monoecious. Stems and branches striate, winged; wings 3 or 4, 1–2 mm wide. Winter bud scales inconspicuous. Leaves fascicled. Petiole 3–8 cm, winged; leaf blade pinnately 3-foliolate; petiolules narrowly winged, lateral ones 5–10 mm, terminal one 2.5–4 cm; leaflets elliptic, sometimes ovate to oblong, 5–12 × 3–7 cm, leathery, abaxially farinaceous green, pulverulently or papillately puberulous, adaxially olive-green and shiny, base rounded, slightly cordate, broadly cuneate, or sometimes subtruncate, margin revolute, apex acute, obtuse, short acuminate, or sometimes subrounded and mucronate; secondary veins 5 or 6 pairs, basal pair divergently ascending, others horizontally spreading. Racemes several to many, 1 (or 2)-flowered; bracts persistent, inconspicuous; peduncle slender, 4–10 mm. Pedicel slender, 2–3 cm; bracteoles lanceolate, less than 1 mm. Outer 3 sepals lanceolate, 2.2–2.5 × ca. 0.6 cm, apex acuminate; inner 3 sepals narrower, ca. 2.1 cm. Petals lanceolate, ca. 2 mm. Male flowers: filaments connate into a tube; anthers free; connective apical appendage hornlike, equaling or longer than anther. Pistillodes subulate, concealed within filament tube. Female flowers: staminodes subulate, ca. 1 mm. Carpels clavate, 6–7 mm. Stigma lanceolate, reflexed. Fruit not seen. Fl. Nov–Dec.

• Forest margins, mountain slopes, by streams along valleys; 700–1300 m. Guangdong, Guangxi, Yunnan.

2. *Stauntonia brunoniana* Wallich ex Hemsley, Hooker's Icon. Pl. 29: t. 2843. 1907.

三叶野木瓜 *san ye mu gua*

Parvatia brunoniana (Wallich ex Hemsley) Decaisne; *Stauntonia trifoliata* Griffith.

Plants large. Dioecious. Stems surface slightly rough; branchlets smooth. Leaves fascicled. Petiole slender, 5–8 cm; leaf blade pinnately 3-foliolate; petiolules 1–4(–6) cm; leaflets oblong, elliptic, or oblong-lanceolate, 7–15 × 3–7 cm, subleathery, abaxially slightly glaucous, adaxially shiny, base rounded to cuneate and sometimes asymmetric on lateral leaflets, apex acuminate to short mucronate; secondary veins 4–6 pairs; tertiary veinlets and secondary veins conspicuously prominent on both surfaces. Racemes 2–5, many flowered; bracts persistent, broadly ovate, less than 1 mm; peduncle short. Flowers white and slightly pale green; bracteoles broadly ovate, less than 1 mm; petals ovate to lanceolate, ca. 1.5 mm. Male flowers: pedicel ca. 9 mm. Sepals 5.5–6.5 mm, outer 3 ovate, inner 3 lanceolate.

Filaments basally connate into a short tube, apically slightly free; connective apical appendage subulate, hornlike, longer than anther. Pistillodes 3, filiform, slightly longer than filament tube. Female flowers: pedicel 1.5–2 cm. Sepals 1.2–1.5 cm, outer 3 ovate-lanceolate, inner 3 linear-lanceolate. Staminodes as long as petals; connective apically appendaged, longer than anthers. Carpels ovoid. Stigma subulate. Fruit obovoid-oblong, ca. 3.5 × 2 cm, minutely tuberculate. Fl. Nov.

Forests on mountain slopes; 900–1500 m. S Yunnan [NE India, Myanmar, Thailand, Vietnam].

3. *Stauntonia elliptica* Hemsley, Hooker's Icon. Pl. 29: t. 2844. 1907.

牛藤果 *niu teng guo*

Parvatia brunoniana (Wallich) Decaisne subsp. *elliptica* (Hemsley) H. N. Qin; *P. elliptica* (Hemsley) Gagnepain.

Monoecious, androgynous or not. Winter bud scales inconspicuous. Petiole slender, 10–17 cm; leaf blade pinnately 3-foliolate; leaflets elliptic, oblong, ovate-oblong, or obovate, 3–11 × 2–6 cm, papery, abaxially pale green to grayish green, adaxially dark green, both ends obtuse or base rounded and apex acute; midvein impressed; secondary veins 4 or 5 pairs, abaxially prominent and adaxially impressed; tertiary veinlets impressed. Racemes several, 4–6 cm, many flowered; bracts persistent, broadly ovate, less than 1 mm; peduncle slender. Flowers pale green to whitish; bracteoles subulate, less than 1 mm. Male flowers: pedicel 1–1.2 cm. Outer 3 sepals ovate, ca. 8 mm, apex acute; inner 3 sepals lanceolate. Petals ovate-lanceolate, shorter than filaments. Filaments connate into a tube to near apex; connective apical appendage hornlike, as long as anther. Pistillodes subulate, concealed within filament tube. Female flowers: pedicel 1.8–2 cm, ± thick. Outer 3 sepals narrowly lanceolate, ca. 15 × 3–4 mm; inner 3 sepals linear-lanceolate, ca. 14 × 2 mm. Staminodes ca. 1 mm. Fruit pale brown, grayish brown when dry, oblong to subglobose, 2–4 cm in diam. Seeds subtriangular, slightly compressed; seed coat blackish, shiny. Fl. May–Aug, fr. May–Dec.

300–1200 m. Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan [NE India].

4. *Stauntonia maculata* Merrill, Lingnan Sci. J. 13: 24. 1934.

斑叶野木瓜 *ban ye ye mu gua*

Monoecious. Stems green tinged with purple. Outer winter bud scales broadly ovate-triangular; inner scales lanceolate, 2–3 cm. Petiole 3.5–9 cm; leaf blade palmately 5–7-foliolate, sometimes 3- or 4-foliolate apically on branches; petiolules 0.5–2 cm; leaflets lanceolate to oblong-lanceolate, 5–10(–12) × 1–3 cm,

leathery, abaxially pale green and densely and conspicuously pale colored maculate, adaxially dark green and dull, base obtuse, cuneate, or sometimes rounded, margin thickened and slightly revolute, apex long acuminate; veins abaxially prominent, adaxially inconspicuous. Racemes several, 5–6 cm, pendulous; bracts persistent; peduncle and pedicels slender. Flowers pale yellowish green. Male flowers: pedicel ca. 2 cm. Outer 3 sepals ovate-oblong, 1.5–1.8 × ca. 0.7 cm, apex obtusely acuminate; inner 3 sepals linear-lanceolate, 12–17 × 2–2.5 mm. Petals spreading, oblong, 2.5–3 mm. Filaments connate into a tube; anthers straight, ca. 3 mm; connective apical appendage horn-like, as long as anther. Female flowers: pedicel ca. 2 cm. Outer 3 sepals adaxially streaked purplish red, lanceolate, 1.8–2.1 cm; inner 3 sepals linear-lanceolate, ca. 2 cm. Petals 2–3 mm. Staminodes 6; connective apically appendaged. Carpels conical-terete. Fruit ellipsoid to oblong, 4–6 × ca. 2.5 cm. Seeds brown when dry, subtriangular, slightly compressed. Fl. Aug–Oct.

• Open forest on mountain slopes, sunny place by streams along valleys; 600–1000 m. S Fujian, C Guangdong.

5. *Stauntonia chinensis* de Candolle, Syst. Nat. 1: 514. 1817.
野木瓜 ye mu gua

Stauntonia hainanensis T. Chen.

Monoecious. Stems green, striate; bark pale grayish brown, thick, rough. Petiole 5–10 cm; leaf blade palmately 5–7-foliolate; petiolules 0.6–2.5 cm; leaflets oblong, elliptic, or oblong-lanceolate, 6–9(–11.5) × 2–4 cm, leathery, abaxially pale green and densely pale colored maculate, adaxially dark green and shiny, base obtuse, rounded, or cuneate, margin slightly revolute, apex acuminate; midvein adaxially impressed; secondary veins and tertiary veinlets conspicuously prominent on both surfaces. Corymbose racemes 3- or 4-flowered; bracts persistent, linear-lanceolate, 1.5–1.8 cm. Pedicel 2–3 cm; bracteoles linear-lanceolate, 1.5–1.8 cm. Sepals pale yellow to creamy white abaxially, adaxially purplish red. Petals 6, slightly purplish red at apex, ca. 1.5 mm, ligulate. Male flowers: outer 3 sepals lanceolate, ca. 1.8 × 0.6 cm; inner 3 sepals linear-lanceolate, ca. 16 × 3 mm. Filaments connate into a tube ca. 4 mm; anthers ca. 3 mm; connective apical appendage hornlike, as long as anther. Pistillodes minute, subulate. Female flowers: outer 3 sepals lanceolate 2.2–2.5 × ca. 0.6 cm; inner 3 sepals like those of male flowers. Staminodes ca. 1 mm. Carpels ovoid-clavate. Stigma oblique, capitate. Fruit oblong, 7–10 × 3–5 cm. Seeds subtriangular, ca. 1 cm, compressed; seed coat dark brown to blackish, shiny. Fl. Apr–May, fr. Jun–Oct.

• Dense forest on mountain slopes, open forest by streams along valleys, among shrubs; 500–1300 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Yunnan, Zhejiang.

6. *Stauntonia glauca* Merrill & Metcalf, Lingnan Sci. J. 16: 80. 1937.

粉叶野木瓜 fen ye ye mu gua

Dioecious. Branches brown to blackish when dry, striate. Petiole terete, 4–14 cm, less than 2 mm in diam.; leaf blade palmately 3–5-foliolate; petiolules 2–4 cm; leaflets elliptic, broadly elliptic, or sometimes obovate, 8–14 × 6–9.5 cm but lateral ones smaller, leathery, abaxially grayish green and farinaceous, adaxially dark green but yellowish green when dry, base rounded to slightly cordate, margin revolute, apex acute, obtuse, rounded, or sometimes emarginate and cuspidate; primary veins 3, abaxially strongly prominent, adaxially plane or slightly impressed; secondary veins 3–5 pairs, prominent on both surfaces; tertiary veinlets reticulate, prominent on both surfaces. Racemes 2–5-flowered; bracts persistent; peduncle 2–3(–5) cm. Pedicel 2–4 cm, ± slender. Male flowers: sepals pale yellow, base adaxially purple; outer 3 sepals lanceolate, ca. 18 × 4–5 mm; inner 3 sepals linear, ca. 14 × 1.8–2 mm. Filaments ca. 3 mm, connate into a tube; anthers free, ca. 3 mm; connective apical appendage hornlike, ca. 3 mm. Pistillodes small, subulate. Female flowers not seen. Fruit yellow at maturity, black when dry, ellipsoid, 3–4 × 2–3 cm, densely and minutely tuberculate, apically slightly curved and beaked. Fl. Apr–May, fr. Jul.

• Open forest by streams along valleys; 300–500 m. NE Guangdong.

7. *Stauntonia purpurea* Y. C. Liu & F. Y. Lu, Quart. J. Chin. Forest. 11: 110. 1978.

紫花野木瓜 zi hua ye mu gua

Monoecious. Young stems and branches green, striate, mature ones grayish brown with rough bark. Petiole 3–6(–8) cm; leaf blade palmately 3–5-foliolate; leaflets oblong to obovate-oblong, 5–9(–11) × 2.5–5 cm, leathery, abaxially grayish green and densely whitish brown maculate, adaxially green, base obtusely rounded, margin crisp when dry, apex acuminate to obtusely rounded and cuspidate; secondary veins abaxially conspicuous. Corymbose racemes 2 or 3, 3–7-flowered; bracts persistent. Pedicel 2–5 cm. Sepals pale yellow basally with purple stripes or sometimes purple throughout; outer 3 sepals ovate-lanceolate, 10–15 × 3–5 mm, larger in female flowers; inner 3 sepals linear-lanceolate, 9–12 × 2–3 mm. Petals absent. Male flowers: filaments ca. 3 mm, connate into a tube; anthers ca. 4 mm; connective apical appendage hornlike, 2–3 mm. Female flowers: staminodes ca. 1 mm. Carpels ovoid-terete, ca. 4 mm. Stigma capitate, sessile. Fruit yellow at maturity, ellipsoid, colon-shaped when dry, 3–7 × 2–3 cm. Seeds blackish. Fl. Apr–May, fr. Sep–Oct.

• Dense forest along valleys, among shrubs by trailsides; 1000–1600 m. Taiwan.

8. *Stauntonia trinervia* Merrill, Lingnan Sci. J. 13: 24. 1934.
三脉野木瓜 san mai ye mu gua

Stauntonia crassipes T. Chen.

Dioecious. Branches brownish purple, terete, striate when dry. Petiole 3–6 cm; leaf blade palmately 3–5-foliolate; petiolules 1.5–4 cm; leaflets oblong, obovate-oblong, or elliptic, 7–10 × 3–5 cm, leathery, abaxially glaucous, adaxially dark green and shiny, both surfaces brown tinged with yellowish green spots when dry, base rounded to slightly cordate, margin thickened and revolute, apex acutely mucronate to rounded cuspidate; primary veins 3; secondary veins 7 pairs, slightly prominent on both surfaces; tertiary veinlets sparse, slightly prominent on both surfaces. Racemes 4–6 cm, few flowered; bracts persistent; peduncle 1–2.5 cm. Male flowers: pedicel slender, ca. 1 cm. Sepals dull yellow, ca. 1.6 cm, thick, slightly fleshy; outer 3 sepals lanceolate to ovate-lanceolate, ca. 16 × 4–5 mm, adaxially slightly puberulous and 8-striate, apex obtuse; inner 3 sepals linear-lanceolate, ca. 2 mm wide, adaxially glabrous, 3-striate. Petals absent. Filaments ca. 4 mm, connate into a tube; anthers free, ca. 3 mm; connective apical appendage hornlike, ca. 4 mm. Pistillodes 3, ca. 1 mm. Female flowers not seen. Fruit green when young, oblong, ca. 9 × 4.5 cm, farinose, densely and minutely tuberculate, apex mucronate. Seeds subtriangular, ca. 9 mm; seed coat blackish brown, shiny. Fl. Apr, fr. Oct.

• Open forest on mountain slopes, along valleys; 400–1500 m. Guangdong (Zengcheng Xian, Wengyuan Xian)

9. *Stauntonia duclouxii* Gagnepain, Bull. Soc. Bot. France 55: 48. 1908.

羊瓜藤 yang gua teng

Plants large. Branchlets grayish brown when dry, striate. Winter bud scales persistent when leaves young. Petiole terete, slender, 2–9 cm, striate; leaf blade palmately 5–7-foliolate; petiolules 1–3 cm; leaflets obovate to sometimes oblong, 4–8(–10) × 2–3.5 cm, leathery, abaxially glaucous when dry, adaxially yellowish green, base cuneate to broadly cuneate, apex acute to rounded and uncinatate; primary veins 3; tertiary veinlets sparse, abaxially conspicuously prominent, adaxially inconspicuous to slightly prominent. Racemes 8–15 cm, 8–15-flowered; bracts elliptic, deciduous. Pedicel 2–3 cm, filiform. Sepals yellowish green to creamy white, 1.4–1.8 cm, 1.6–2.2 cm in female flower, fleshy; outer 3 sepals ovate-lanceolate, ca. 7 mm wide; inner 3 sepals linear-lanceolate, 3–4 mm wide. Petals absent. Male flowers: filaments ca. 5 mm, connate into a tube, ± free apically; anthers linear, free, 3–3.5 mm; connective apical appendage hornlike, subulate, as long as anther. Pistillodes 3, subulate. Female flowers: staminodes 6, ca. 0.5 mm. Carpels ovoid-terete. Fruit yellow at maturity, brownish black when dry, oblong, 4–7 × 2–3 cm, densely and minutely tuberculate. Fl. Apr, fr. Aug–Oct.

• Shaded areas in mixed forests, among shrubs along valleys, by streams; 700–1500 m. Gansu, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

10. *Stauntonia libera* H. N. Qin, Cathaya 8–9: 136. 1997.

离丝野木瓜 li si ye mu gua

Monoecious. Stems and branches grayish yellow, striate. Petiole 4–9 cm; leaf blade palmately 5–8-foliolate; petiolules 0.9–1.8 cm; leaflets obovate-oblong to oblanceolate, 6–8 × 1.8–2.9 cm, leathery, abaxially pale green and densely maculate, adaxially dark green and shiny, base cuneate, apex acuminate; veins inconspicuous on both surfaces. Corymbose racemes 2- or 3-flowered; bracts persistent. Sepals greenish white, apex acuminate. Petals absent. Male flowers: sepal margin serrate; outer 3 sepals ovate, ca. 2.2 × 0.7 cm; inner 3 sepals oblong-lanceolate, ca. 18 × 0.3–0.4 cm. Filaments ca. 4 mm, base connate; anthers ca. 4 mm; connective apical appendage hornlike, ca. 3 mm. Pistillodes 3. Female flowers: outer 3 sepals ovate-oblong, ca. 1.6 × 0.6 cm; inner 3 sepals ca. 15 × 4 mm. Staminodes 6, ca. 0.5 mm. Carpels narrowly oblong, ca. 9 mm. Stigma capitate. Fruit narrowly ovoid, ca. 4 × 1.5 cm, smooth. Fl. Apr–May, fr. Aug–Sep.

Forest margins on mountain slopes; 1600–1900 m. Xizang, Yunnan [Myanmar].

11. *Stauntonia oligophylla* Merrill & Chun, Sunyatsenia 5: 54. 1940.

少叶野木瓜 shao ye ye mu gua

Monoecious. Branches and branchlets terete, brown to blackish when dry, striate. Petiole 3–8 cm; leaf blade palmately 3–6-foliolate; petiolules 1–2 cm; leaflets obovate, oblanceolate, or elliptic, 5–7 × 3.5–5 cm, leathery, abaxially glaucous, adaxially pale green, base narrowly rounded to cuneate, margin thickened, apex rounded and mucronate to cuspidate; primary veins 3; secondary veins 5 or 6 pairs, nearly at right angles to primary veins, conspicuously prominent on both surfaces; tertiary veinlets conspicuously prominent on both surfaces. Corymbose racemes 3 or 4, ca. 10 cm, laxly flowered; bracts persistent; peduncle slender. Pedicel slender, 2.5–4.5 cm; bracteoles linear-lanceolate, caducous. Sepals pale yellow. Petals absent. Male flowers: outer 3 sepals ovate-lanceolate, ca. 8 × 3 mm; inner 3 sepals narrowly linear, ca. 6 × 1 mm. Filaments 1.5–2 mm, connate into a short tube but apically free; anthers free, ca. 1.5 mm; connective apically with a ca. 2 mm hornlike appendage. Pistillodes subulate, ca. 1.5 mm. Female flowers: outer 3 sepals oblong-lanceolate, ca. 11 × 4.5 mm; inner 3 sepals narrowly lanceolate, ca. 2 mm wide. Staminodes clavate, ca. 1 mm. Carpels sublanceolate, ca. 5 mm. Fruit not seen. Fl. Aug–Nov.

• Mixed forest on mountain slopes, along valleys; 500–800 m. S Hainan.

12. *Stauntonia obcordatilimba* C. Y. Wu & S. H. Huang in S. H. Huang, Fl. Yunnan. 2: 11. 1979.

倒心叶野木瓜 dao xin ye ye mu gua

Monoecious. Stems slender, striate. Winter bud scales broadly ovate. Petiole 4–5 cm; leaf blade palmately 3–5-foliolate; petiolules slender, ca. 1 cm; leaflets

obovate-orbicular, sometimes broadly elliptic, leathery, abaxially glaucous, adaxially green and shiny, margin thickened. Racemes 5–7-flowered; bracts persistent; peduncle and pedicel slender. Pedicel 2.5–3.5 cm. Sepals yellowish green, thin, smooth, apex long acuminate; outer 3 sepals lanceolate, ca. 14 × 3.5 mm but inner 3 sepals narrower in male flowers. Petals absent. Male flowers: stamens ca. 7 mm; filaments ca. 9 mm, connate into a tube nearly to apex; connective apical appendage hornlike, ca. 2 mm. Pistillodes 3, minute. Female flowers: carpels 3, ovoid-terete, with 6 ca. 1.5 mm staminodes at base. Fruit not seen. Fl. Apr.

• Dense forest margins on mountain slopes; ca. 1000 m. SE Yunnan (Funing Xian).

13. *Stauntonia yaoshanensis* F. N. Wei & S. L. Mo, *Guihaia* 3: 309. 1983.

瑶山野木瓜 yao shan ye mu gua

Vines to 30 m. Monoecious. Branchlets striate. Petiole 15–18 cm; leaf blade palmately 5–7-foliolate; petiolules slender, 2.5–5.5 cm; leaflets oblong to oblanceolate-oblong, 12–17 × 4–6.5 cm, subleathery, abaxially pale green, adaxially green, base obtuse to subrounded, apex abruptly contracted to a ca. 3.5 cm caudate tip; primary veins 3, inconspicuous; secondary veins ca. 7 pairs, anastomosing; tertiary veinlets abaxially crowded. Racemes 12–19 cm, 4- or 5-flowered; bracts persistent. Petals absent but sometimes female flowers with 2 linear ones, ca. 4 mm. Male flowers: sepals pale yellow, adaxially with purple stripes, ± fleshy; outer 3 sepals 2–2.5 × 0.5–0.6 cm; inner 3 sepals ca. 2 mm wide. Filaments ca. 3 mm, connate into a tube; anthers ca. 5 mm; connective apical appendage hornlike, ca. 2.5 mm. Pistillodes 3, small, concealed within filament tube. Female flowers: outer 3 sepals ca. 3.2 × 0.8 cm; inner 3 sepals 3.5–4 mm wide. Stamines 6, linear, ca. 2 mm. Carpels ovoid-terete. Stigma oblique. Fruit oblong to ellipsoid, ca. 14 × 4–5 cm. Seeds numerous. Fl. Apr, fr. Nov.

• Open forest on mountain slopes. Guangxi (Dayao Shan, Yongfu Xian).

14. *Stauntonia conspicua* R. H. Chang, *Acta Phytotax. Sin.* 25: 235. 1987

腺脉野木瓜 xian mai ye mu gua

Young stems and branches green, striate; old stems grayish brown; bark longitudinally fissured. Young branches axillary from winter bud scales; scales short, broad, persistent. Petiole 4–8(–12) cm; leaf blade palmately 3(–5)-foliolate; petiolules 1–4 cm; leaflets oblong to ovate-oblong, 6–10(–12) × 2.5–6(–8) cm, leathery, abaxially whitish green, adaxially green, base rounded, margin revolute, apex acute; primary veins 3; secondary veins and tertiary veinlets inconspicuous on both surfaces. Corymbose racemes 8–11 cm, 3- or 4-flowered; bracts short, broad, persistent. Male flowers: pedicel 1.5–4 cm, slender. Sepals 6, purplish red; outer 3 sepals elliptic, 1.4–1.8 × 0.5–0.9 cm; inner 3 sepals linear to narrowly oblong, 11–18 ×

2–3 mm. Petals absent. Filaments connate into a tube; anthers free, 5–6 mm; connective apical appendage apiculate, ca. 1 mm. Pistillodes small, concealed within filament tube. Female flowers not seen. Fruit yellow at maturity, ellipsoid, ca. 6 × 3 cm. Seeds black, broadly ovoid, shiny. Fl. May, fr. Oct.

• Dense forest on mountain slopes; 1300–1600 m. Zhejiang (Longquan Xian, Suichang Xian).

15. *Stauntonia pseudomaculata* C. Y. Wu & S. H. Huang in S. H. Huang, *Fl. Yunnan*. 2: 11. 1979.

假斑叶野木瓜 jia ban ye ye mu gua

Monoecious. Stems dark brown to grayish brown when dry, terete, striate, lenticellate. Petiole 2.5–3 cm; leaf blade palmately 5–9-foliolate; petiolules 1–2 cm; leaflets oblong-lanceolate, 7.5–8 × 2–2.5 cm, subleathery, abaxially pale green and paler green densely maculate, adaxially green, base cuneate, apex caudate-acuminate; primary veins abaxially conspicuously prominent, adaxially inconspicuous; secondary veins anastomosing near margin. Racemes several, 5–6 cm, 4- or 5-flowered; bracts persistent. Pedicel 1–1.5 cm. Sepals 6, yellowish green; outer 3 sepals ovate-lanceolate, ca. 1.7 × 0.5 cm, apex caudate-acuminate; inner 3 sepals 2–3 mm wide but larger in female flowers. Petals absent. Male flowers: filaments ca. 3 mm, connate into a tube; anthers 2.5–3 mm; connective apical appendage apiculate, ca. 1 mm. Pistillodes 3, subulate. Female flowers: staminodes small, inserted at base of carpels. Fruit not seen.

• Mountain slopes; 1000–1300 m. Yunnan (Funing Xian).

16. *Stauntonia obovatifoliola* Hayata, *Icon. Pl. Formos.* 8: 4. 1919.

石月 shi yue

Monoecious. Branches and branchlets terete, striate. Petiole 3–8 cm; leaf blade palmately 5–7-foliolate; petiolules 1–3 cm; leaflets 4–10 × 2–4.5 cm, papery, subleathery, or leathery, base obtusely rounded to cuneate, apex caudate. Racemes several, 3–5(–7)-flowered; bracts persistent; peduncle and pedicels slender but pedicels of female flowers thicker. Sepals thicker in female flowers; outer 3 sepals ovate-lanceolate; inner 3 sepals linear-lanceolate to lanceolate. Petals absent. Male flowers: sepals pale yellowish green. Filaments connate into a tube; connective apical appendage apiculate, 1–1.5 mm. Pistillodes filiform, very small. Female flowers: staminodes oblong to subulate. Carpels ovoid-terete. Fruit ellipsoid to oblong. Fl. Apr–May, fr. Jun–Nov.

• Open to dense forest by streams along valleys, climbing on trees; 500–900 m. Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Taiwan, Zhejiang.

1a. Leaflets papery, adaxially ± shiny

..... 16a. subsp. *obovatifoliola*

1b. Leaflets leathery to subleathery,

adaxially not shiny 16b. subsp. *urophylla*

16a. *Stauntonia obovatifoliola* subsp. *obovatifoliola*

石月(原亚种) shi yue (yuan ya zhong)

Stauntonia hexaphylla (Thunberg) Decaisne f. *cordata* Li; *S. obovatifoliola* Hayata var. *pinninervis* Hayata.

Petiole ca. 3 cm; leaflets obovate to obovate-oblong, 6–10 × 3–4.5 cm, papery, abaxially glaucous, adaxially shiny, base obtuse to rounded, apex abruptly contracted into a 3–5 mm obtuse cauda with a short awn. Male flowers: sepals pale yellowish green, adaxially purplish, outer 3 sepals 13–15 × 5 mm. Connective apical appendage 1–1.5 mm. Female flowers: outer 3 sepals ca. 2 × 0.7 cm. Stamines oblong, ca. 1 mm. Fruit ellipsoid, 5–9 × 3–5 cm. Fl. Apr–May, fr. Sep–Nov.

• Taiwan.

16b. *Stauntonia obovatifoliola* subsp. *urophylla* (Handel-Mazzetti) H. N. Qin, Cathaya 8–9: 164. 1997.

尾叶那藤 wei ye na teng

Stauntonia hexaphylla (Thunberg) Decaisne var. *urophylla* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 59: 102. 1922; *S. brachyanthera* Handel-Mazzetti var. *minor* Diels ex Y. C. Wu; *S. brachybotrya* T. Chen; *S. hexaphylla* (Thunberg) Decaisne f. *intermedia* Y. C. Wu.

Petiole 3–8 cm; leaflets obovate to broadly spatulate, 4–10 × 2–4.5 cm but basal 1 or 2 smaller, leathery, base narrowly rounded to broadly cuneate, apex abruptly contracted to a slightly curved 1–2.5 cm cauda. Racemes several, fascicled, 3–5-flowered. Male flowers: sepals pale yellowish green; outer 3 sepals 1–1.2 cm. Filaments connate into a tube; connective apical appendage subulate, ca. 1 mm. Female flowers not seen. Fruit oblong to ellipsoid, 4–6 × 3–3.5 cm. Seeds triangular, compressed, ca. 10 × 7 mm; seed coat dark brown, shiny. Fl. Apr, fr. Jun–Jul.

• Fujian, Guangdong, Guangxi, Jiangxi, Hunan, Zhejiang.

17. *Stauntonia cavaleriana* Gagnepain, Bull. Soc. Bot. France 55: 47. 1908.

西南野木瓜 xi nan ye mu gua

Dioecious. Branches striate. Winter bud scales dark brown, imbricate. Petiole 9–13 cm; leaf blade palmately 7–9-foliolate; petiolules radiate, slender, lateral ones 7–10 mm, terminal one ca. 3 cm; leaflets lanceolate-linear to lanceolate, 7–11 × 2–4 cm, subleathery, membranous when young, abaxially pale green and densely maculate when young, adaxially dark green, base acute, apex slenderly long caudate, cauda ca. 3 cm; secondary veins 9 pairs, arcuately anastomosing remote from margin; tertiary veinlets slender. Inflorescences pyramidal, ca. 12 cm; bracts persistent. Pedicel slender, 1–2 cm, lowest longest; bracteoles linear, 7–9 mm, apex acuminate. Male flowers: outer 3 sepals lanceolate, ca. 11 × 3 mm, apex obtusely acuminate; inner 3 sepals linear, ca. 8 × 1 mm, base attenuate. Petals absent.

Stamens 6–9 mm; filaments longer than anthers, connate into a tube; anthers lanceolate; connective apical appendage apiculate, ca. 0.6 mm. Pistillodes subulate, concealed within filament tube. Female flowers and fruit not seen.

Forests by streams along valleys; 500–1500 m. N Guangxi, Guizhou [Laos].

18. *Stauntonia obovata* Hemsley, Hooker's Icon. Pl. 29: t. 2847. 1907.

倒卵叶野木瓜 dao luan ye ye mu gua

Akebia cavaleriei Léveillé; *Holboellia obovata* (Hemsley) Chun; *Stauntonia formosana* Hayata; *S. hebandra* Hayata; *S. hebandra* var. *angustata* Y. C. Wu; *S. keitaoensis* Hayata; *S. obovata* var. *angustata* (Y. C. Wu) H. L. Li.

Monoecious. Stems and branches slender, striate. Petiole slender, 2–6(–8) cm; leaf blade palmately 3–5(or 6)-foliolate; petiolules 0.8–2(–3) cm; leaflets variable in shape and size, usually obovate, sometimes oblong, broadly elliptic, or oblanceolate, lateral leaflets sometimes slightly asymmetric, 3.5–6(–11) × 1.5–3(–6) cm, subleathery, abaxially farinaceous whitish green, adaxially dark green and shiny, base cuneate to broadly cuneate, margin slightly revolute, apex rounded, sometimes acute to acuminate; primary veins 3; secondary veins 4–7 pairs; tertiary veinlets and secondary veins inconspicuous on both surfaces or abaxially prominent and adaxially slightly impressed. Racemes 2 or 3, 4–5 cm, few flowered; bracts persistent; peduncle and pedicel slender. Flowers whitish yellow; bracteoles small, deciduous. Outer 3 sepals ovate-lanceolate, 9–10 × 3.5–4 mm, margin slightly revolute, apex acuminate; inner 3 sepals linear-lanceolate, less than 1 mm wide. Petals absent. Male flowers: stamens 3.5–4 mm. Filaments ca. 2 mm, connate into a tube; anthers free; connective apical appendage apiculate, minute. Pistillodes very small, concealed within filament tube. Female flowers: stamines 6, scalelike, less than 0.5 mm. Carpels 3. Stigma small, capitate. Fruit brownish black when dry, ellipsoid to ovoid, 4–5 cm, densely tuberculate. Seeds ovoid-reniform to subtriangular, slightly compressed, 8–10 × 5–6 mm; seed coat brownish black, shiny. Fl. Feb–Apr, fr. Sep–Nov.

• Open to dense forest on mountain slopes, along valleys; 300–800 m. Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Sichuan, Taiwan.

19. *Stauntonia brachyanthera* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 58: 90. 1921.

黄蜡果 huang la guo

Stauntonia dielsiana Y. C. Wu.

Plants large. Monoecious. Young branchlets green, striate, ca. 3 mm in diam.; old branches dark olive-green, with fusiform lenticels. Outer winter bud scales broad, imbricate; inner scales ligulate, ca. 4 cm long. Petiole 5–11 cm; leaf blade palmately 5–9-foliolate; petiolules 1–2.4 cm; leaflets spatulate, 5–13.5 × 2–5 cm, papery, both surfaces yellowish green, abaxially glau-

cous and densely minutely papillose but farinose white when dry, adaxially dark green and shiny but dull colored when dry, apex abruptly long caudate and with an easily broken, piliferous tip 2–5 mm; midvein abaxially slightly prominent and adaxially impressed in old leaves; secondary veins 6–10 pairs; tertiary veinlets and secondary veins anastomosing remote from margin, abaxially slightly prominent and adaxially impressed in old leaves. Racemes 1 to several, 4–8(–12) cm, 10- or more flowered, 1 or 2 flowers at each node; female flowers 2 or 3, inserted basally on rachis, subulate-lanceolate, ca. 1 cm; male flowers inserted apically; bracts persistent. Sepals whitish green when fresh, brown when dry, slightly fleshy, thicker in female flowers; outer 3 sepals ovate-lanceolate, 0.9–1.2 cm, apex narrowly rounded but cuneate and curved when dry; inner 3 sepals narrowly linear, shorter, adaxially papillose. Male flowers: filaments ca. 3.5 mm, connate into a tube; anthers ca. 2 mm, incurved; connective apical appendage apiculate, minute. Pistillodes minute. Female flowers: carpels ca. 5 mm. Stigma hypocrateriform. Fruit yellow at maturity, ellipsoid, 5–7.5 × 3–5 cm, smooth or tuberculate. Fl. Apr, fr. Aug–Nov.

• Mixed forest on mountain slopes; 500–1200 m. Guangxi, Guizhou, Hunan.

20. *Stauntonia leucantha* Diels ex Y. C. Wu, Notizbl. Bot. Gart. Berlin-Dahlem 13: 373. 1936.

钝药野木瓜 *dun yao ye mu gua*

Monoecious. Branchlets grayish brown when dry, 3–4 mm in diam., striate. Leaves fascicled; petiole 4–6 cm; leaf blade palmately 5–7-foliolate; petiolules 0.7–2 cm, central one longest; leaflets oblong-obovate, subelliptic, or oblong, 5–7(–9) × 2–3 cm, subleathery, membranous when young, abaxially farinose green but yellowish green when dry, adaxially dark green but grayish olive-green when dry, base subrounded to obtuse, apex acute to sometimes acuminate; primary veins 3, secondary veins 5–7 pairs; tertiary veinlets and secondary veins abaxially slightly prominent and adaxially impressed. Racemes 2 to several; bracts persistent; peduncle slender; bracteoles linear-lanceolate, ca. 4 mm. Sepals subfleshy; outer 3 sepals narrowly linear, 8.5–9 × 0.8–1 mm. Male flowers: stamens 5.5–6 mm; filaments 3.5–4 mm, connate into a slender tube but apically slightly free; anthers unequal in length, free, straight; connective apically unappendaged. Pistillodes filiform. Female flowers: staminodes scalelike, ca. 0.2 mm in diam. Carpels ovoid-terete, ca. 4 mm. Stigma subcapitate. Fruit yellow at maturity, black when dry, oblong, ca. 7 × 4 × 3 cm, smooth or inconspicuously tuberculate, slightly narrowed at both ends. Fl. Apr–May, fr. Aug–Oct.

• Open to dense forests, forest margins on mountain slopes, by streams along valleys; 300–1000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Jiangsu, Jiangxi, Sichuan, Zhejiang.

6. SINOFRANCHETIA (Diels) Hemsley, Hooker's Icon. Pl. 29: t. 2842. 1907.

串果藤属 *chuan guo teng shu*

Holboellia Wallich subgen. *Sinofranchetia* Diels, Bot. Jahrb. Syst. 29: 343. 1900.

Woody climbers, deciduous. Monoecious or occasionally dioecious. Winter bud outer scales several to many, imbricate. Stipules small, caducous. Leaves long petiolate, pinnately 3-foliolate; lateral leaflet base slightly asymmetric. Inflorescences racemose, axillary, slender, elongated, many flowered; bracts subtending inflorescences persistent, scaly. Flowers small, unisexual, female flowers inserted basally on rachis and slightly larger than male ones, male flowers clustered apically. Outer and inner sepals subequal. Petals opposite sepals. Male flowers: stamens 6, free; filaments opposite petals; anthers slightly shorter than filaments; connective not apically protruded. Female flowers: carpels 3, sessile; ovules ca. 20, in 2 rows on wall adjacent to ventral suture. Pistillodes smaller than carpels. Fruit a berry, single, in pairs, or 3-fascicled in each node of infructescence, indehiscent. Seeds several to many, compressed; seed coat not shiny.

• One species.

1. *Sinofranchetia chinensis* (Franchet) Hemsley, Hooker's Icon. Pl. 29: t. 2842. 1907.

串果藤 *chuan guo teng*

Parvatia chinensis Franchet, J. Bot. (Morot) 8: 281. 1894; *Holboellia chinensis* (Franchet) Diels.

Young branches farinaceous. Winter bud outer scales large. Leaves crowded, usually fascicled; petiole 10–20 cm; lateral petiolules very short, terminal one 1–3 cm; leaflets papery, abaxially glaucous or grayish green, adaxially dark green, apex acuminate; secondary veins 6 or 7 pairs; lateral leaflets smaller than terminal one;

terminal leaflet rhomboid-obovate, 9–15 × 7–12 cm, base cuneate. Raceme pendulous, 15–30 cm, clustered. Pedicel 2–3 mm. Sepals greenish white with purple stripes, obovate, ca. 2 mm, ca. 2.5 mm in female flowers. Male flowers: petals 6, fleshy, subobcordate, less than 1 mm. Filaments fleshy, free; anthers oblong. Pistillodes small. Female flowers: petals very minute. Staminodes similar to stamens in shape but smaller. Carpels ellipsoid to obovoid-oblong, 1.5–2 mm. Stigma inconspicuous. Infructescences pendulous; fruit pale purplish blue, ellipsoid, ca. 2 × 1.5 cm. Seeds ovoid, 4–6 mm; seed coat brown to grayish black. Fl. May–Jun, fr. Sep–Oct.

- Dense forests along valleys, forest margins, among shrubs. Gansu, N Guangdong, Hubei, W Hunan, S Shaanxi, Sichuan, NE Yunnan.

7. **SARGENTODOXA** Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 350. 1913.

大血藤属 da xue teng shu

Shrubs climbing, deciduous, dioecious. Stipules absent. Leaves alternate. Inflorescences from persistent scaly bracts. Flowers unisexual, in axillary racemes. Male flowers: sepals 6, petaloid, in 2 series. Petals 6, nectariferous, very small. Stamens 6, opposite petals, free; anthers 2-celled, extrorsely dehiscent by longitudinal slits, connective slightly protruded, exceeding apex of locule forming apiculate appendage. Pistillodes usually 4 or 5, sometimes fewer or more. Female flowers: sepals and petals as in male flowers. Staminodes 6. Carpels numerous, free, spirally arranged on enlarged receptacle; ovule 1 per carpel, anatropous, pendulous. Style linear; stigma small, capitate. Fruit apocarpous; receptacle fleshy; mature carpels berrylike, stipitate, 1-seeded. Seeds with fleshy albumen; embryo minute, straight.

One species: China, Laos, Vietnam.

1. *Sargentodoxa cuneata* (Oliver) Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 351. 1913.

大血藤 da xue teng

Holboellia cuneata Oliver, Hooker's Icon. Pl. 19: t. 1817. 1889; *Sargentodoxa simplicifolia* S. Z. Qu & C. L. Min.

Bark with longitudinal fissures. Stems with red sap, cross section with radiated markings; branches red-brown to brown, subterete. Winter buds with many imbricate scales; scales scarios, outer ones ovate, inner ones oblong-ovate. Leaves (1 or)3-foliolate; petiole 5–10 cm, slender, channeled; leaflets unequal; lateral leaflets subsessile, subdeltoid, extremely asymmetric with inner basal angle narrowly cuneate and outer basal angle truncate to oblique ovate, usually slightly larger than terminal one; terminal leaflet petiolules 5–10 mm; blade rhomboid-ovate, 4–14 × 3–cm, base cuneate,

apex acute. Inflorescences solitary, many-flowered, loose racemes, pendulous, 8–15 cm. Flowers fragrant, yellow to yellowish green. Pedicels 1–1.5 cm, with 1 oblong bract at base; bracteoles 2, at middle of pedicel, alternate, awl-shaped. Male flowers: sepals imbricate in bud, ± erect to spreading, narrowly oblong, 6–10 × 2–4 mm, margin slightly revolute. Petals rhomboid-orbicular, ca. 1.2 mm. Sta-mens ca. 4 mm; filaments 1–1.5 mm; anthers oblong. Female flowers: receptacle subglobose to oblong, ca. 1.4 × 1.2 cm. Fruit 20–40, dull blue, berrylike, stipitate, 7–10 mm in diam. Seeds blackish, ovoid, ca. 5 mm. Fl. Mar–Jul, fr. Jun–Oct.

Open forests on mountain slopes or in gullies; 400–1600(–2000) m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, S Shaanxi, Sichuan, SE Yunnan, Zhejiang [Laos, N Vietnam].

The stems and roots are used medicinally.