

## CONNARACEAE

牛栓藤科 niu shuan teng ke

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Trees small, shrubs, or vines, erect or scandent, evergreen or deciduous. Leaves alternate, exstipulate, petiolate; leaf blade odd-pinnate, 3-foliolate, or 1-foliolate; leaflets subopposite or alternate, usually leathery, margin entire, rarely lobulate. Inflorescences terminal, pseudoterminal, or axillary, paniculate or racemose, bracteate. Flowers bisexual, rarely unisexual, actinomorphic, small. Sepals (4 or)5, free or united at very base only, imbricate or valvate, persistent and clasping base of fruit. Petals (4 or)5, free, rarely slightly connate at middle, imbricate or valvate, rarely circinate. Stamens 5–10, hypogynous or perigynous, in 2 whorls alternately longer and shorter, those opposite petals often shorter and abortive; filaments free or shortly connate at base; anthers didymous, dorsifixed in proximal 1/2, introrse, short, dehiscing longitudinally. Disk thin or absent, surrounded by base of stamens. Carpels (1–)5(–8), free, 1-celled, hirsute. Style subulate or filiform; stigma subcapitate, simple or 2-lobed. Ovules 2 in each carpel (1 sometimes sterile), collateral, erect. Fruit a usually solitary follicle, sessile or stipitate, dehiscing usually along adaxial suture, sometimes along abaxial one, very rarely circumscissile at base, sometimes indehiscent. Seed 1(or 2), erect, usually arillate, rarely exarillate; testa thick; aril colored, fleshy; endosperm present or absent; embryo straight; cotyledons thick and fleshy in exalbuminous seeds, thin in albuminous ones.

Between 12 and 24 genera and 180–390 species: mainly in Africa and tropical Asia, some species in the subtropics, only a few species in the New World; six genera and nine species (one endemic) in China.

The number of genera and species in this family varies according to different authors. The present account is a translation of that in FRPS; a revision is much needed.

Chen Shao-xing. 1986. Connaraceae. In: Yu Te-tsun, ed., Fl. Reipubl. Popularis Sin. 38: 133–150.

- 1a. Leaf blade 3-foliolate or 1-foliolate.
  - 2a. Carpels 5; stamens usually 10; sepals imbricate; seeds exalbuminous ..... 5. *Agelaea*
  - 2b. Carpel 1; stamens ca. 10; sepals valvate; seeds thinly albuminous ..... 6. *Ellipanthus*
- 1b. Leaf blade odd-pinnate, with more than 3 leaflets.
  - 3a. Carpel 1; stamens ca. 10 ..... 4. *Connarus*
  - 3b. Carpels 5; stamens ca. 10.
    - 4a. Sepals imbricate, enlarged in fruit; petals circinate in bud, much longer than sepals ..... 2. *Roureopsis*
    - 4b. Sepals imbricate, rarely valvate, enlarged or not enlarged in fruit; petals imbricate in bud.
      - 5a. Sepals enlarged in fruit; petals longer than sepals; seeds exalbuminous ..... 3. *Rourea*
      - 5b. Sepals not enlarged in fruit; petals slightly shorter than or equaling sepals; seeds albuminous ..... 1. *Cnestis*

### 1. CNESTIS Jussieu, Gen. Pl. 374. 1789.

螫毛果属 shi mao guo shu

*Thysanus* Loureiro.

Lianas or ± scandent shrubs, rarely small trees. Leaves exstipulate, petiolate, odd-pinnate; leaflets opposite or subalternate, margin entire. Inflorescences terminal or axillary, solitary or fascicled, terminal one usually paniculate, axillary ones racemose and often borne in axils of fallen leaves on old branches; bracts minute, scalelike or lanceolate. Flowers bisexual. Sepals 5, imbricate or valvate in bud, sometimes petaloid, slightly connate at base. Petals 5, slightly shorter than or equaling sepals, connate at base, emarginate and incurved at apex. Stamens ca. 10, free, all fertile, alternately longer and shorter, those opposite sepals usually longer; filaments free or slightly connate at base. Carpels 5, free; ovary pubescent; ovules 2, erect, collateral. Style longer than ovary; stigma capitate. Follicles 1–5, sessile, pyriform, usually elongated into hornlike processes, dehiscing by a longitudinal, adaxial slit, densely tomentose abaxially, appressed hirsute adaxially; persistent sepals not enlarged. Seed 1, mostly black or dark brown, glossy, flattened; aril basal, oblique; endosperm present.

Between 13 and 40 species: mainly in tropical Africa and Madagascar, extending to SE Asia; one species in China.

**1. *Cnestis palala*** (Loureiro) Merrill, J. Straits Branch Roy. Asiat. Soc. 85: 201. 1922.

*Thysanus palala* Loureiro, Fl. Cochinch. 284. 1790;  
*Cnestis ramiflora* Griffith.

螫毛果 shi mao guo

Lianas, scandent shrubs, or small trees, 2–10 m tall.

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Branchlets gray-black, terete, tomentose when young, gradually glabrescent, longitudinally striate. Leaves odd-pinnate; petiole 2–4 cm; leaflets 5–15-paired at intervals of 0.6–1.8 cm; petiolule ca. 1 mm, tomentose; leaflet blade elliptic to oblong, 2–5 × 0.5–2 cm (proximal ones smaller), abaxially densely grayish tomentose initially, later glabrescent, adaxially glabrous or slightly tomentose, lateral veins 4–8-paired, curved ascending, anastomosing at some distance from margin, base obliquely rounded to subcordate, margin entire, apex obtuse. Inflorescences axillary, paniculate, in fascicles of 4 or 5 or more, slender, 1–3 of them 4–8 cm, the others to 3 cm; rachis and pedicels

tomentose; bracts and bracteoles scalelike. Flowers ca. 5 mm in diam. Sepals oblong, 2–3 mm, densely gray tomentose abaxially. Petals ovate-oblong, 3–4 mm, glabrous except for tuft of hairs abaxially above base, apex incurved. Stamens ca. 10, 0.1–1 mm, glabrous. Carpels 5, free, hairy. Follicles yellow or brownish, cylindric, 2–4 × 1–1.5 cm, ferruginous tomentose, beaked at apex. Seed ca. 2 × 1 cm, base surrounded by black aril.

Sheltered thickets, stream sides; 200–300 m. Hainan [Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam].

## 2. ROUREOPSIS Planchon, *Linnaea* 23: 423. 1850.

朱果藤属 *zhu guo teng shu*

*Taeniochlaena* J. D. Hooker.

Shrubs erect or scandent. Leaves exstipulate, petiolate, odd-pinnate, rarely 1-foliolate; lateral leaflets usually very oblique. Inflorescences axillary, racemose or paniculate, fascicled or very short and densely glomerate; bracts lanceolate, small, pubescent. Flowers bisexual, 5-merous; pedicel slender. Sepals 5, erect, imbricate, enlarged in fruit, base not connivent, apex barbate. Petals 5, strap-shaped, circinate in bud, much longer than sepals, apex acute. Stamens ca. 10, all fertile, alternately longer and shorter, those opposite sepals often longer; filaments cylindric, connate at base or free, glabrous; anthers dorsifixed. Carpels usually 5, hirsute abaxially, glabrous adaxially. Style slender; stigma capitate, 2-lobed. Follicle sessile, cylindric or ellipsoid, glabrous, dehiscing by an adaxial slit, apex mucronate. Seed 1; aril adnate to base; endosperm absent.

About ten species: mostly in W Africa and tropical Asia; one species in China.

Some authors treat *Roureopsis* as congeneric with *Rourea*.

**1. *Roureopsis emarginata*** (Jack) Merrill, *J. Arnold Arbor.* 33: 220. 1952.

朱果藤 *zhu guo teng*

*Cnestis emarginata* Jack, *Malayan Misc.* 2(7): 42. 1822; *Rourea emarginata* (Jack) Jongkind; *Roureopsis javanica* Planchon; *R. pubinervis* Planchon; *R. rubricarpa* C. Y. Wu.

Lianas woody or scandent shrubs, to 2 m tall. Branchlets terete, ± fulvous pubescent when young, glabrous when mature, longitudinally finely striate. Leaves odd-pinnate, rarely 1-foliolate; petiole, rachis, and petiolules ± pubescent; leaflets usually 2–4-paired; leaflet blade greenish abaxially, dark green adaxially, elliptic to elliptic-ovate, 6–12 × 3–5 cm (proximal ones smaller), herbaceous to papery, glabrous on both surfaces or sometimes appressed pubescent along midvein abaxially, veins

5–7-paired, curved ascending, distinctly looped and jointed some distance from margin, base obliquely rounded, margin entire, apex emarginate and abruptly shortly acuminate. Inflorescences axillary, rarely terminal, usually fascicles of (1 or)2 or 3 racemes; racemes 2–5 cm, 4- or 5-flowered; rachis and pedicels subglabrous; bracts minute, pubescent. Sepals 5, free, ovate to long elliptic, 5–6 × 2–3 mm, enlarged in fruit, membranous, slightly pubescent abaxially, rarely glabrous. Petals 12–25 × 1–2.5 mm, glabrous or with a few hairs on distal 1/2 abaxially. Stamens free or ± connate at base. Carpels usually glabrous. Follicles 1–3 per flower, sessile, dark red when fresh, purple-red when dry, long ellipsoid, 1.3–2.5 × 0.9–1.2 cm, glabrous, apex abruptly pointed. Seed 1, black, glossy, surrounded by fulvous aril at base.

Mixed forests; 300–1200 m. Guangxi, Yunnan [Indonesia, Laos, Malaysia, Myanmar, Thailand].

## 3. ROUREA Aublet, *Hist. Pl. Guiane* 1: 467. 1775, nom. cons.

红叶藤属 *hong ye tent shu*

*Santalodes* Kuntze, nom. rej.; *Santaloides* G. Schellenberg, nom. cons.

Lianas scandent or shrubs, sometimes trees. Leaves alternate, exstipulate, petiolate, odd-pinnate, rarely 1-foliolate; leaflets often many paired, subopposite or alternate. Inflorescences axillary or pseudoterminal, paniculate; bracts ovate-lanceolate; bracteoles lanceolate, margin fimbriate. Flowers bisexual, small. Sepals 5, imbricate, hairy or glabrous, persistent and enlarged after anthesis, closely clasping base of follicle. Petals 5, longer than sepals, glabrous. Stamens ca. 10, alternately longer and shorter, those opposite sepals longer than those opposite petals; filaments connate at base, glabrous. Carpels 5, free, only 1 maturing, hairy or glabrous; ovules 2, erect, collateral. Style slender; stigma capitate, inconspicuously 2-lobed. Follicle 1, sessile, glabrous, smooth or longitudinally delicately thinly striate, dehiscing usually along adaxial suture, rarely at base, often surrounded by campanulate persistent calyx. Seed 1, flattened; testa glossy, glabrous, with a cupular, fleshy aril adnate at base; endosperm absent.

Between 40 and 100 species: mainly in tropical regions of Africa, America, and Oceania, also in SE Asia; three species in China.

- 1a. Leaf blade 1- or 2(or 3)-paired; leaflet blade apex acute to shortly acuminate ..... 3. *R. minor*  
 1b. Leaf blade 3–8(–13)-paired, rarely 1-foliolate; leaflet blade apex acuminate or long caudate.  
 2a. Leaf blade 3–8(–13)-paired, rarely 1-foliolate; leaflet blade 1.5–4 × 0.5–2 cm, base not equilateral, apex acuminate ..... 1. *R. microphylla*  
 2b. Leaf blade 3- or 4-paired; leaflet blade 2.5–10 × 0.8–3.5 cm, base equilateral, apex long caudate ..... 2. *R. caudata*

**1. *Rourea microphylla*** (Hooker & Arnott) Planchon, *Linnaea* 23: 421. 1850.

小叶红叶藤 xiao ye hong ye teng

*Connarus microphyllus* Hooker & Arnott, Bot. Beechey Voy. 179. 1833; *Rourea minor* (Gaertner) Leenhouts subsp. *microphylla* (Hooker & Arnott) Vidal; *Santaloides microphyllum* (Hooker & Arnott) Schellenberg.

Lianas or climbing shrubs, much branched, 1–4 m tall. Branchlets brown, glabrous or sparsely pubescent when young. Leaves odd-pinnate, rarely 1-foliolate; petiole, rachis, and petiolules glabrous; leaflets 3–8(–13)-paired; leaflet blade slightly glaucous-green abaxially, glossy adaxially, ovate or lanceolate to oblong-lanceolate, 1.5–4 × 0.5–2 cm, papery to subleathery, glabrous on both surfaces, lateral veins 4–7-paired, spreading, jointed near margin, base cuneate to rounded, often oblique, margin entire, apex obtuse and acuminate. Inflorescences axillary in distal leaf axils or pseudoterminal, paniculate with 1–5 axes, usually 3–6 cm, central one often longer, others shorter; rachis and pedicels glabrous; bracts and bracteoles indistinct. Flowers 4–5 mm in diam., fragrant. Sepals ovate, 2–3 mm, about as broad as long, glabrous or minutely tomentose along margin abaxially. Petals white, yellowish, or pink, elliptic, 4–5 × 1–2 mm, glabrous, longitudinally striate, apex acute. Stamens ca. 10; filaments unequal, longer ones to 6 mm, shorter ones ca. 4 mm; anthers longitudinally lobed. Carpels free, 3–5 mm; ovary cylindrical. Follicle red when mature, cylindrical or obliquely obovoid-cylindrical, slightly curved, 1.2–1.5 × 0.5–1 cm, dehiscent along adaxial suture, longitudinally striate, base with persistent sepals, apex acute. Seed orange, oblong, ca. 1 cm, with membranous aril at base. Fl. Mar–Sep, fr. May–Mar of following year.

Sparse forests, slopes; 100–600 m. Fujian, Guangdong, Guangxi, Yunnan [India, Indonesia, Sri Lanka, Vietnam].

**2. *Rourea caudata*** Planchon, *Linnaea* 23: 419. 1850.

长尾红叶藤 chang wei hong ye teng

*Santaloides caudatum* Kuntze.

Lianas or climbing shrubs, ca. 3 m tall. Branchlets brown, terete, glabrous or hairy when young. Leaves odd-pinnate; petiole, rachis, and petiolules usually glabrous; leaflets 3- or 4-paired; leaflet blade glossy adaxially, lanceolate or oblong-lanceolate, 2.5–10 × 0.8–3.5 cm, subpapery, glabrous on both surfaces, lateral veins 5- or 6-paired, anastomosing near margin, midvein and reticulate veins distinct abaxially, base cuneate,

equilateral, margin entire, apex long caudate with obtuse tip. Inflorescences axillary, paniculate with 1–3 axes, 3.5–6 cm; rachis and pedicels shortly pubescent. Sepals ovate, 2–2.5 × 1.5–2 mm, glabrous. Petals yellowish, oblanceolate to spatulate, 5–6 × 2–3 mm, glabrous, longitudinally striate. Stamens ca. 10, alternately longer and shorter. Carpels 5, free. Follicle greenish, dark brown when dry, curved or straight, 1–2 × 0.5–1 cm, with persistent calyx up to 5 mm. Seed 0.6–1.6 × 0.4–0.9 cm, covered by aril.

Open mountain forests; below 800 m. Guangdong, Guangxi, Yunnan [India].

**3. *Rourea minor*** (Gaertner) Leenhouts in Steenis, Fl. Males. 5(4): 514. 1957.

红叶藤 hong ye teng

*Aegiceras minus* Gaertner, Fruct. Sem Pl. 1: 216. 1788; *Connarus roxburghii* Hooker & Arnott; *C. santaloides* Vahl; *Rourea millettii* Planchon; *R. santaloides* (Vahl) Wight & Arnott; *Santalodes hermanniana* Kuntze, nom. illeg. (included *C. santaloides*); *Santaloides minor* (Gaertner) G. Schellenberg; *S. roxburghii* Kuntze.

Lianas or climbing shrubs, to 25 m tall. Branchlets dark brown, terete, glabrous or sparsely pubescent when young. Leaves odd-pinnate, rarely 1-foliolate; petiole, rachis, and petiolules glabrous; leaflets 1–3-paired, usually 1-paired; leaflet blade ovate or elliptic to lanceolate, 3–12 × 2–5 cm, (terminal one ovate or long elliptic and larger), papery, glabrous and smooth on both surfaces, lateral veins 5–10-paired, jointed near margin, midvein and reticulate veins prominent abaxially, base broadly cuneate to rounded, equilateral or slightly oblique, margin entire, apex acute to shortly acuminate. Inflorescences axillary or pseudoterminal, laxly paniculate or subracemose with 1–6 axes, 3–9 cm, many flowered, central one much longer than others; rachis and pedicels glabrous. Flowers ca. 1 cm in diam., fragrant. Sepals ovate, 2–3 × 1.5–2 mm, margin ciliate at apex. Petals white or yellow, long elliptic, 4–6 × 1–1.5 mm, glabrous, longitudinally striate. Stamens 2–6 mm. Carpels free, ca. 4 mm, glabrous. Follicle dark green, turning black when dry, obliquely ellipsoid, slightly curved, 1.5–2.5 × 0.7–1.5 cm, longitudinally striate, dehiscent along adaxial suture, with persistent calyx, apex acute. Seed red, ellipsoid, 1.5–2 × 0.6–1 cm, base covered by membranous aril. Fl. Apr–Oct, fr. May–Mar of following year.

Dense mixed forests, bamboo woods, thickets, hills; below 800 m. Guangdong, Taiwan, Yunnan [Cambodia, India, Laos, Sri Lanka, Thailand, Vietnam; N Australia].

#### 4. *CONNARUS* Linnaeus, Sp. Pl. 2: 675. 1753.

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*Anisostemon* Turczaninow; *Erythrostigma* Hasskarl; *Tricholobus* Blume.

## CONNARACEAE

Lianas, climbing shrubs, or small trees. Branchlets glabrous. Leaves alternate, exstipulate, petiolate, odd-pinnate or 3-foliolate, rarely 1-foliolate; leaflets subopposite or alternate; leaflet blade entire at margin, usually with pellucid glands. Inflorescences mostly terminal, paniculate, large, or rarely subcymose or racemose in distal leaf axils. Flowers bisexual, fragrant. Sepals, petals, and stamens usually glandular. Sepals (4 or)5, broadly imbricate or subvalvate in bud, slightly connate at base, thick and fleshy, persistent but not enlarged after anthesis. Petals 5, free, subequaling or slightly longer than sepals, often coherent at middle, imbricate in bud. Stamens ca. 10, alternately longer and shorter, 5 long ones opposite sepals, 5 short ones opposite petals and often abortive; filaments connate at base; anthers oblong, locules often glandular at base; connective glandular at apex. Carpel 1; ovary globose, 1-loculed, pilose; ovules 2, collateral. Style slender, proximal 1/2 pilose, distal 1/2 glandular pubescent; stigma uniform, oblique. Follicle slightly compressed, sometimes narrowed at base into a long, slender stipe (stipe sometimes thick or almost absent), striate, dehiscent longitudinally along adaxial or sometimes abaxial suture, with persistent calyx, apex obtuse and usually shortly beaked; pericarp woody or leathery. Seed 1, somewhat reniform; testa mostly black-purple, glossy; aril cupular, crenulate or laciniate, fleshy; endosperm absent.

Between 80 and 120 species: pantropical, especially in Africa, America, and SE Asia; two species in China.

- 1a. Sepals lanceolate to ovate, apex acuminate; pistil nearly as long as long stamens; pericarp thick, woody ..... 1. *C. paniculatus*  
1b. Sepals elliptic, apex obtuse; pistil ca. 1/2 as long as long stamens; pericarp thin ..... 2. *C. yunnanensis*

**1. *Connarus paniculatus*** Roxburgh, Fl. Ind., ed. 1832, 3: 139. 1832.

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*Connarus hainanensis* Merrill; *C. tonkinensis* Lecomte.

Lianas or scandent shrubs. Branchlets ferruginous tomentose when young, glabrous when mature. Leaves odd-pinnate, rarely 1-foliolate; petiole, rachis, and petiolules glabrous; leaflets often 2- or 3-paired; leaflet blade oblong, oblong-elliptic, or lanceolate, 6–20 × 3–7.5 cm, leathery, glabrous on both surfaces, lateral veins 5–9-paired, spreading to ascending, slightly curved and anastomosing near margin, base subcuneate or subrounded, margin entire, apex acute, rarely emarginate. Inflorescences terminal or axillary, paniculate, 10–40 cm; rachis and pedicels shortly ferruginous tomentose, later glabrescent; bracts scaly. Sepals 5, lanceolate to ovate, ca. 3 mm, sparsely and shortly ferruginous tomentose abaxially, apex acuminate. Petals 5, milky yellow, oblong, 5–7 mm, shortly ferruginous tomentose abaxially, pilose adaxially, apex obtuse. Stamens ca. 10, all fertile. Carpel 1, nearly as long as long stamens, densely pubescent. Follicle long ellipsoid, slightly inflated, 3–3.5 × 1.5–2 cm, base gradually narrowed into a short, slender stipe, apex shortly beaked and slightly oblique; pericarp bright red, woody, glabrous abaxially, slightly pubescent adaxially, longitudinally striate. Seed black-purple, glossy, oblong, 1–1.7 × 0.5–1.1 cm, base covered by 2-lobed aril.

Sparse or dense forests. Hainan [Cambodia, India, Laos, Malaysia, Thailand, Vietnam].

**2. *Connarus yunnanensis*** Schellenberg in Engler, Pflanzenr. 103(IV. 127): 228. 1938.

云南牛栓藤 yun nan niu shuan teng

Shrubs climbing. Branchlets yellowish and glabrous when young. Leaves odd-pinnate; petioles, rachis, and petiolules glabrous; petiolule robust, 4–6 mm; leaflet blade adaxially glossy, narrowly oblong or elliptic, 6.5–16 × 2–5 cm, hard papery, abaxially glandular, adaxially glabrous, lateral veins 5–9-paired, prominent abaxially, reticulate veins curved and anastomosing near margin, base broadly cuneate or subrounded, margin entire, apex acute and slightly emarginate. Inflorescences terminal or axillary; rachis and pedicels densely tomentose. Sepals 5, elliptic, ca. 3 mm, pubescent, apex obtuse. Petals 5, long elliptic, 5–6 × 1.5–2 mm, shortly tomentose, with red glands. Stamens ca. 10, 5 long ones ca. 7 mm, 5 short ones ca. 3 mm and abortive. Carpel 1, ca. 3 mm, densely softly hairy. Follicle long ellipsoid, slightly compressed laterally, 2.5–3.5 × 1.5–1.8 cm, base gradually narrowed into a short stipe, apex shortly beaked; pericarp thin, glabrous abaxially, pubescent adaxially, indistinctly longitudinally striate. Seed black-purple, oblong, 2–2.5 × 1–1.2 cm, base surrounded by 2-lobed aril.

Moist dense forests. S Guangxi, Yunnan [Myanmar].

## 5. AGELAEA Solander ex Planchon, Linnaea 23: 437. 1850.

栗豆藤属 li dou teng shu

*Castanola* Llanos; *Hamiandrina* J. D. Hooker; *Troostwykia* Miquel.

Lianas or scrambling shrubs. Leaves alternate, exstipulate, petiolate, 3-foliolate. Inflorescences axillary, pseudoterminal, or terminal, paniculate, usually some of main branches subequal; bracts and bracteoles persistent; bracts terete, slightly thickened at apex; bracteoles narrowly linear. Flowers bisexual, (4 or)5-merous. Sepals imbricate in bud, minutely tomentose or rather sericeous abaxially, shortly appressed pubescent adaxially, inner ones longer, overlapping margins paler, glandular ciliate. Petals linear, distinctly longer than sepals, glabrous. Stamens usually (5 or)10(or 15), alternately longer and shorter, those opposite sepals longer than those opposite petals (which are rarely absent); filaments slightly connate at base. Carpels 5, sometimes some sterile; ovary hairy; ovules 2, erect, collateral. Style cylindrical, base hairy; stigma globose, 3-lobed, minute. Follicle red when ripe, pyriform, usually strongly recurved, often tuberculate, ± densely tomentose, dehiscent by a longitudinal slit, with persistent but not enlarged calyx, base contracted, apex rounded; pericarp rather thin. Seed 1, black, glossy, covered by orange or yellow aril; endosperm absent.

Between seven and 50 species: tropical Africa to SE Asia; one species in China.

**1. *Agelaea trinervis*** (Llanos) Merrill, Sp. Blancoan. 164. 1918.

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*Castanola trinervis* Llanos, Mem. Real Acad. Ci. Exact. Madrid, 2: 503. 1859; *Agelaea cambodiana* Pierre; *A. wallichii* J. D. Hooker; *Castanola glabrifolia* Schellenberg; *C. obliqua* Schellenberg.

Lianas or climbing shrubs. Stems ca. 5 cm thick; branchlets hairy when young, glabrous when mature. Leaves 3-foliolate; petiole 2.5–7 cm; petiolules glabrous, lateral ones ca. 1 cm; terminal leaflet blade ovate or elliptic, 6–10 × 3–4.5 cm, base subrounded, apex acuminate; lateral leaflet blades ovate, 5–7 × 2–4 cm, base rounded and slightly asymmetric; all leaflet blades leathery, initially minutely tomentose abaxially, later

glabrescent, glabrous adaxially, lateral veins 4–6-paired, usually with 1 pair at base (so base appearing 3-veined), all veins slightly prominent abaxially. Panicles axillary, dense, 2–3(–6) cm; rachis and pedicels grayish tomentose. Flowers 4–6 mm in diam., fragrant. Sepals ovate-lanceolate, 1.3–2 mm, softly gray hairy abaxially. Petals white, oblong-oblongate, 4–5 mm, glabrous. Stamens ca. 10, glabrous. Carpels 4 or 5; ovary hirsute. Style glabrous. Follicles few, obliquely obovoid, 1–2.5 × 0.5–1.2 cm, densely minutely tomentose, base slightly narrowed, apex obtuse and shortly beaked; pericarp rugulose or warty. Seed black, oblong or oblong-ovoid; aril yellow, covering 1/3–3/4 or more of seed surface.

Sparse forests. Hainan [Cambodia, Indonesia, Laos, Malaysia, Philippines, Thailand, Vietnam].

**6. ELLIPANTHUS** J. D. Hooker in Bentham & J. D. Hooker, Gen. Pl. 1: 431, 434. 1862.

单叶豆属 dan ye dou shu

Shrubs or small trees. Leaves 1-foliolate; petiole articulate; leaf blade entire at margin. Inflorescences axillary, paniculate to glomerulate-racemose, small; bracts lanceolate, small, soon falling. Flowers bisexual (when protandrous) or unisexual (when plants dioecious), 4- or 5-merous. Sepals 4 or 5, valvate in bud, densely hairy abaxially, persistent but not enlarged after anthesis. Petals 4 or 5, free, imbricate in bud, longer than sepals. Stamens 2 × as many as petals, those opposite sepals well developed, those opposite petals much smaller and staminodal; filaments connate at base into a tube. Carpel 1, somewhat laterally inserted; ovary obliquely ovoid, flattened, hairy; ovules 2, erect, collateral. Style slender, hairy; stigma disk-shaped to 2-lobed, large. Follicle yellowish to brownish when mature, ovoid, tomentose abaxially, slightly to strongly abaxially geniculate, basal part narrowed into a short to long stipe, fertile part dehiscing by a longitudinal slit, with persistent calyx; pericarp woody. Seed 1, ellipsoid, obtuse at both ends; testa mostly black and glossy, basal part covered with a yellowish to orange, thin aril; endosperm ca. 1 mm thick, hard.

Between seven and 13 species: mainly in SE Asia, also in tropical E Africa and Madagascar; one species (endemic) in China.

**1. *Ellipanthus glabrifolius*** Merrill, Philipp. J. Sci. 23: 246. 1923.

单叶豆 dan ye dou

Shrubs climbing or trees, 4–10(–25) m tall. Bark gray-brown. Branchlets terete, minutely ferruginous tomentose when young, later glabrescent. Leaves 1-foliolate; petiole 1–2 cm, slightly inflated at both ends, glabrous; leaf blade oblong or oblong-lanceolate, 7–14 × 2.5–4.5 cm, thinly leathery, glabrous on both surfaces, veins prominent abaxially, lateral veins 4–7-paired, base rounded, margin entire, apex acuminate or shortly pointed. Inflorescences axillary or terminal, paniculate or glom-

erulate-racemose, 1.5–5 cm; rachis and pedicels minutely yellowish tomentose. Flowers bisexual. Sepals 5, ovate-lanceolate, 2–3 mm, shortly tomentose abaxially. Petals 5, white, oblong-lanceolate, 6–7 mm, shortly tomentose on both surfaces. Stamens ca. 10, unequal, 5 opposite sepals well developed, 5 opposite petals abortive; filaments villous; anthers bright brown. Carpel 1, compressed ovoid, 1-celled, villous. Follicle ovoid, 12–20 mm, densely ferruginous tomentose, apex beaked. Seed 1, dark brown, slightly glossy, ca. 1.5 mm, base covered by 2-lobed aril. Fl. Oct–Mar, fr. Jul of following year.

• Dense mountain forests; low elevations. Hainan.