

THEACEAE

山茶科 shan cha ke

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Shrubs or trees, evergreen or rarely deciduous, usually bisexual, rarely dioecious (*Eurya*) or androdioecious (*Ternstroemia*). Stipules absent. Leaves simple, alternate, petiolate or rarely sessile; leaf blade secondary veins pinnate, margin usually serrate or rarely entire. Flowers axillary or subterminal, solitary or sometimes to 3(–10 or more) in a cluster or raceme, pedicellate or subsessile. Bracteoles 2–8 or rarely more, persistent or caducous, sometimes undifferentiated from sepals. Sepals 5(or 6) or rarely more, persistent. Corolla white, red, or yellow; petals 5 or rarely more, basally connate or rarely distinct, adnate to androecium. Stamens numerous, in 1–6 whorls; outer filaments basally ± connate; anthers dorsifixed or basifixed, 2-loculed, laterally and longitudinally dehiscent. Gynoecium 3–5-carpellate. Carpels connate or rarely incompletely connate to nearly distinct. Ovary superior, rarely half inferior, 3–5-loculed, placentation axile or rarely nearly basal; ovules 2–5(to ca. 100) or more per locule; styles distinct to basally connate, rarely completely united. Fruit a loculicidal capsule or indehiscent and drupaceous or baccate, with 1 to many seeds per locule; pericarp woody, leathery, or fleshy; columella persistent or ± degenerating. Seeds globose, semiglobose, compressed oblong, ovoid, or reniform, winged or wingless; testa bony, leathery, or sometimes with a fleshy red outer layer or sarcotesta (in *Anneslea* and *Ternstroemia*), smooth or honeycombed; hilum umbilicate or linear; endosperm present or absent; embryo large or small; cotyledons fleshy or thin.

About 19 genera and 600 species: tropical and subtropical Africa, tropical America, E, S, and SE Asia, SE North America, Pacific islands; 12 genera (two endemic) and 274 species (204 endemic) in China.

The greatest species diversity of Theaceae is in S China and adjacent SE Asia.

The two subfamilies of Theaceae used here are sometimes treated as separate families (Theaceae and Ternstroemiaceae).

Chang Hungta & Ren Shanxiang. 1998. Theaceae (Theoideae). In: Chang Hungta, ed., Fl. Reipubl. Popularis Sin. 49(3): ii–xiii, 1–281; Ling Laikuan. 1998. Theaceae (Ternstroemiodeae). Fl. Reipubl. Popularis Sin. 50(1): ii–vi, 1–213.

- 1a. Flowers bisexual, 0.8–12 cm in diam.; stamens numerous, in 2–6 whorls; anthers dorsifixed, ovate, connective not exerted; fruit usually capsular, dehiscent, or rarely drupaceous and indehiscent (in some *Pyrenaria*) 1. Subfam. Theoideae
- 1b. Flowers bisexual or unisexual, less than 2 cm in diam.; stamens in (1 or)2 whorls (1–5 whorls in *Adinandra*); anthers basifixed, oblong, connective exerted; fruit baccate, indehiscent, or sometimes dehiscent (in *Anneslea* and *Ternstroemia*) 2. Subfam. Ternstroemiodeae

1. Subfam. THEOIDEAE

山茶亚科 shan cha ya ke

Flowers bisexual, 0.8–12 cm in diam. Stamens numerous, in 2–6 whorls; anthers dorsifixed, ovate, connective not exerted. Fruit usually capsular, dehiscent, or rarely drupaceous and indehiscent (in some *Pyrenaria*).

About eight genera and ca. 250 species: tropical America, E, S, and SE Asia, SE North America; six genera (one endemic) and 145 species (106 endemic) in China.

- 1a. Fruit (1–)3–8 cm in diam.; seeds wingless.
 - 2a. Capsule dehiscent from apex; seeds globose, semiglobose, or polygonal; hilum umbilicate 1. *Camellia*
 - 2b. Capsule dehiscent from base or fruit drupaceous and indehiscent; seeds longitudinally compressed; hilum linear 2. *Pyrenaria*
- 1b. Fruit 2.5(–3.5) cm in diam. or less; seeds winged (sometimes wingless in *Apterosperma*).
 - 3a. Columella persistent to apex of locules; seeds with an apical wing (wing narrow or sometimes absent in *Apterosperma*)
 - 4a. Capsule oblong-cylindric 1.5–5 cm; seed apically with a conspicuous oblong membranous wing 3. *Polyspora*
 - 4b. Capsule oblate, 0.5–0.6 cm; seeds apically with a narrow wing or wingless 4. *Apterosperma*
 - 3b. Columella apically ± degenerated and not reaching the locule apex in fruit; seeds marginally winged (sometimes wingless in *Stewartia*).
 - 5a. Fruit globose to oblate; sepals not persistent in fruit or if persistent not enveloping fruit; columella in fruit extending ca. 2/3 or more of locule length 5. *Schima*
 - 5b. Fruit ovoid to conic; sepals persistent and enveloping fruit; columella in fruit degenerating or only extending ca. 1/2 of locule length 6. *Stewartia*

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1. CAMELLIA Linnaeus, Sp. Pl. 2: 698. 1753.

山茶属 shan cha shu

Shrubs or small trees, rarely large trees, evergreen. Leaves petiolate or rarely sessile and amplexicaul; leaf blade leathery to thinly leathery, margin serrate, serrulate, or rarely entire. Flowers axillary or subterminal, solitary or rarely to 3 in a cluster. In *C.* subg. *Thea* flowers clearly pedicellate; bracteoles differentiated from sepals, 2–10, spirally arranged, persistent or caducous; sepals 5(or 6), persistent, distinct or basally connate. In *C.* subg. *Camellia* flowers apparently sessile, actually with a short stout pedicel completely covered by bracteoles and sepals at anthesis; bracteoles and sepals not differentiated, ca. 10, caducous or persistent. Petals 5–8(–12), white, red, or yellow, basally ± connate. Stamens numerous, in 2–6 whorls; outer filament whorl basally ± connate into a tube and adnate to petals; anthers dorsifixed, 2-loculed, longitudinally and laterally cleft. Ovary superior, 3–5-loculed, placentation axile. Capsule globose or obovate, 3–5-loculed, sometimes reduced to 1- or 2-loculed by abortion, loculicidal into (1–)3–5 valves from apex; columella persistent or lacking. Seeds globose, semiglobose, or polygonal; testa hornlike; hilum umbilicate; cotyledons full and fleshy with high oil content; endosperm absent.

About 120 species: Bhutan, Cambodia, China, NE India, Indonesia, S Japan, S Korea, Laos, Malaysia, Myanmar, Nepal, Philippines, Thailand, Vietnam; 97 species (76 endemic) in China.

Camellia renshanxiangiae C. X. Ye & X. Q. Zheng (Acta Phytotax. Sin. 39: 160. 2001) is not treated here because we have been unable to see the type or other authentic material and are unable to evaluate the species. *Camellia renshanxiangiae* is described as having pilose anthers, which are otherwise unknown in *Camellia* but do occur in *Adinandra*.

Some of the varieties of *Camellia* used in this treatment may represent extremes in a range of variation that in reality is continuous and would be better treated by just describing the pattern of variation within an overall species. Additional study may show that fewer varieties are justified in being recognized than are represented in the present treatment.

The main economic value of *Camellia* is the production of tea made from the young leaves of *C. sinensis* var. *sinensis* and *C. sinensis* var. *assamica*. The next most economically important species is *C. oleifera* which has the longest history of cultivation and utilization in China for oil, used primarily in cooking, extracted from its seeds. Other species used locally for seed oil production include *C. chekiangoleosa*, *C. drupifera*, and *C. reticulata*.

Camellia species are of great ornamental value, especially *C. japonica*, *C. reticulata*, and *C. sasanqua* Thunberg, with by far the greatest number of named cultivars being those of *C. japonica*, although many other species have ornamental potential. Other species have been used ornamentally for hybridization, particularly with *C. japonica*, to incorporate desirable characteristics such as the yellow petal color of *C. petelotii*, the frost hardiness of *C. oleifera*, or the fragrance of *C. grijsii* and *C. lutchuensis*. The species *C. hiemalis* Nakai, *C. maliflora* Lindley, *C. rosiflora* Hooker, *C. sasanqua*, and *C. uraku* Kitamura were treated in FRPS (49(3). 1998) but occur in China only as cultivated plants and are therefore not treated here.

- 1a. Flowers clearly pedicellate; bracteoles clearly on pedicel and differentiated from sepals; sepals persistent, leathery (species nos. 1–58) 1. *C.* subg. *Thea*
- 1b. Flowers apparently sessile (actually with a short stout pedicel completely covered by bracteoles and sepals at anthesis); bracteoles followed closely by and undifferentiated from sepals; sepals caducous but sometimes persistent in young fruit, crustaceous (species nos. 59–97) 2. *C.* subg. *Camellia*

1. *Camellia* subg. *Thea* (Linnaeus) Hung T. Chang, Taxon. Gen. *Camellia*, 86. 1981.

茶亚属 cha ya shu

Thea Linnaeus, Sp. Pl. 1: 515. 1753.

Flowers axillary, solitary or to 3 in a cluster, pedicellate. Bracteoles spirally arranged on pedicel, differentiated from sepals, persistent or caducous. Sepals leathery, persistent.

About 74 species: Bhutan, China, NE India, S Japan, S Korea, Laos, Myanmar, Thailand, Vietnam; 58 species (45 endemic) in China.

Camellia sect. *Piquetia* Pierre, containing only *C. piquetiana* (Pierre) Sealy, and *C.* sect. *Cylindraca* T. L. Ming, containing only *C. cylindraca* T. L. Ming, are two additional sections in *C.* subg. *Thea* and are both endemic to Vietnam (Ming, Monogr. Gen. *Camellia*, 75, 108. 2000).

- 1a. Styles distinct or nearly so.
- 2a. Bracteoles 5 or more; androecium and gynoecium equal to petal length; filaments filiform, basal 1/2 of outer filament whorl connate into a tube; ovary 3–5-loculed (species nos. 1–10) 1. *C.* sect. *Archecamellia*
- 2b. Bracteoles 2 or 3; androecium and gynoecium ca. 1/2 petal length; filaments usually subulate, nearly distinct but outer filament whorl basally connate; ovary 3-loculed (species nos. 26–30) 4. *C.* sect. *Corallinae*
- 1b. Styles basally connate.
- 3a. Stamens in 2–5 whorls, outer filaments only basally connate; capsule 3–5-loculed, columella persistent.
- 4a. Pedicel less than 1 cm, stout, thickened toward apex; bracteoles 2; columella thick (species nos. 11–21) 2. *C.* sect. *Thea*

- 4b. Pedicel 1.5–4.2 cm, slender, not thickened toward apex; bracteoles 2–4; columella slender (species nos. 22–25) 3. *C.* sect. *Longipedicellatae*
- 3b. Stamens in 2 whorls, outer filament whorl connate for ca. 2/3 of length; capsule small, 1(–4)-loculed, usually 1-seeded, rarely more, columella nearly abortive.
- 5a. Petals glabrous; ovary and style glabrous (species nos. 31–49) 5. *C.* sect. *Theopsis*
- 5b. Petals outside farinose-puberulent; ovary and style tomentellate (species nos. 50–58) 6. *C.* sect. *Eriandria*

1. *Camellia* sect. *Archecamellia* Sealy, Rev. Gen. *Camellia*, 36. 1958.

古茶组 gu cha zu

Camellia sect. *Chrysanthae* Hung T. Chang; *C.* sect. *Pleurocarpae* Hung T. Chang.

Flowers axillary or subterminal, solitary or rarely paired, medium in size. Pedicel thick, erect; bracteoles 5–10, persistent. Sepals persistent. Corolla yellow or pale yellow, rarely red; inner petals basally connate and adnate to androecium. Stamens in 3–5 whorls; filaments filiform, puberulent or glabrous, basal 1/2 of outer whorl connate into a tube. Ovary apex sunken or 3–5-lobed; styles 3–5, distinct. Capsule apex sunken.

Eighteen species: S and SW China, Vietnam; ten species (seven endemic) in China.

Camellia aurea Hung T. Chang is in this section and is treated in FRPS (49(3): 103. 1998) as occurring in both Guangxi and Vietnam, but the species occurs only in Vietnam.

1a. Ovary tomentose.

- 2a. Terminal bud large, terete, puberulent; leaf blade oblong-elliptic to oblong; flowers ca. 4 cm in diam.; bracteoles ± covering pedicel; seeds yellow pubescent 1. *C. chrysanthoides*
- 2b. Terminal bud small, ovoid, glabrous; leaf blade broadly obovate, obovate-elliptic, or elliptic; flowers 1.5–2.5 cm in diam.; bracteoles not covering pedicel; seeds glabrous 2. *C. micrantha*

1b. Ovary glabrous.

- 3a. Terminal buds oblong, large; current year branchlets, petioles, and abaxial surface of leaf blades pubescent; leaf blade midvein and secondary veins adaxially clearly impressed 3. *C. impressinervis*
- 3b. Terminal buds ovoid, small; current year branchlets, petioles, and abaxial surface of leaf blades glabrous; leaf blade midvein flat or slightly impressed and secondary veins adaxially not impressed, slightly impressed, or impressed.
- 4a. Bracteoles 7–10; flowers (2–)5–6 cm in diam.; petals golden yellow, fleshy; capsule (1.5–)4–6 cm in diam.
- 5a. Pedicel (5–)10–15 mm; bracteoles spreading, not covering pedicel, glabrous; sepals glabrous or inside white puberulent, margin ciliate 4. *C. petelotii*
- 5b. Pedicel ca. 5 mm; bracteoles appressed and covering pedicel, inside white sericeous; sepals inside white sericeous 5. *C. euphlebia*
- 4b. Bracteoles 5 or 6; flowers 1.5–4.5 cm in diam.; petals yellow or pale yellow, membranous; capsule 1.5–3.5 cm in diam. ((4–)6–8 cm in *C. fascicularis*).
- 6a. Sepals yellowish green, membranous; petals 0.4–1 cm in diam.; capsule 1.5–3 cm in diam.; seeds glabrous.
- 7a. Leaf blade elliptic, obovate-elliptic, or oblong-ovate, secondary veins adaxially slightly impressed; sepals inside glabrous 9. *C. indochinensis*
- 7b. Leaf blade ovate, secondary veins adaxially visible to obscure; sepals inside white puberulent 10. *C. pingguoensis*
- 6b. Sepals green, leathery; petals 0.8–4(–5) cm in diam.; capsule 2.5–3.5(–8) cm in diam.; seeds pubescent, pilose, or villous.
- 8a. Petiole 0.3–1 cm; pedicel 3–5 mm, bracteoles ± covering pedicel 8. *C. flavida*
- 8b. Petiole 0.7–1.5 cm; pedicel 6–10 mm, bracteoles not covering pedicel.
- 9a. Leaf blade 10–19.5 × 5–9.5 cm, apex abruptly and shortly caudate to caudate; sepals 7–9 mm; capsule globose to obovate, (4–)6–8 cm in diam. 6. *C. fascicularis*
- 9b. Leaf blade 7.5–11.5 × 3–5 cm, apex shortly acuminate; sepals ca. 5 mm; capsule obovate, 3–3.5 cm in diam. 7. *C. huana*

1. *Camellia chrysanthoides* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 18(3): 73. 1979.

薄叶金花茶 bo ye jin hua cha

Camellia longzhouensis J. Y. Luo; *C. xiashiensis* S. Ye Liang & C. Z. Deng.

Shrubs or trees, 1.5–5 m tall. Current year branchlets purplish brown, glabrous; terminal buds large, terete, gray puberulent. Petiole 6–10 mm, glabrous, adaxially grooved; leaf blade oblong-elliptic to oblong, 10–19 × 3.5–6.5 cm, leathery to thinly leathery, abaxially pale green, brown glandular punctate, and becoming pale brown when dry, adaxially dark green, both

surfaces glabrous, midvein abaxially elevated and adaxially channeled, secondary veins 10–12 on each side of midvein, abaxially raised, and adaxially impressed, base cuneate to obtuse, margin serrulate, apex abruptly shortly caudate to caudate. Flowers axillary, solitary, ca. 4 cm in diam. Pedicel 3–4 mm; bracteoles 5 or 6, ± covering pedicel, semiorbicular, 1–2 mm, outside gray puberulent, inside glabrous. Sepals 5, broadly ovate to suborbicular, 3–3.5 mm, outside gray puberulent, inside glabrous, margin ciliolate. Petals ca. 9, yellow; outer 2 petals sepaloid, suborbicular, ca. 5 mm, outside puberulent; inner petals broadly obovate to oblong-elliptic, 1–1.9 × 0.8–1.5 cm, basally connate and adnate to androecium. Stamens ca. 1.3 cm, glabrous; outer filament whorl basally connate into a 2–3 mm tube. Ovary white tomentose, 3-loculed; styles 3, distinct, 1–1.2 cm, glabrous or basally pubescent. Capsule flattened globose, (2 or)3-coccal, ca. 1.5 × 2.5–4.5 cm, 2- or 3-grooved; pericarp ca. 1 mm thick. Seeds brown, globose or hemispherical, yellow pubescent. Fl. Dec, fr. Sep. $2n = 30^*$.

• Evergreen broad-leaved forests on rock or hills; 100–800 m. Guangxi (Longzhou, Pingxiang).

2. *Camellia micrantha* S. Ye Liang & Y. C. Zhong, Acta Sci. Nat. Univ. Sunyatseni 27(4): 110. 1988.

小花金花茶 xiao hua jin hua cha

Shrubs 2–3 m tall. Young branches yellowish brown; current year branchlets purplish red, glabrous; terminal bud small, ovoid, glabrous. Petiole 6–8 mm, glabrous; leaf blade broadly obovate, obovate-elliptic, or elliptic, 8.5–10.5(–17.5) × 3.5–5.5(–7.5) cm, leathery, abaxially pale green and brown glandular punctate, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially channeled, secondary veins 7 or 8 on each side of midvein, abaxially elevated, and adaxially impressed, base broadly cuneate to obtuse, margin serrulate, apex acute to shortly caudate. Flowers axillary, solitary or to 3 in a cluster, 1.5–2.5 cm in diam. Pedicel 3–5(–7) mm; bracteoles 5–7, not covering pedicel, ovate to semi-orbicular, 1.5–2.5 mm, glabrous, margin ciliolate. Sepals 5, suborbicular, 3–4 × 4–6 mm, outside puberulent, inside glabrous, margin ciliolate. Petals 6–8, pale yellow but slightly pink in bud; outer 2 or 3 petals suborbicular, 6–7 mm; inner petals elliptic to obovate-elliptic, 9–15 × 5–8.5 mm, basally connate for ca. 2 mm. Stamens 7–9 mm, glabrous; outer filament whorl basally connate into a ca. 3 mm tube. Ovary globose, ca. 1 mm in diam., white pubescent or glabrescent; styles 3, distinct, 6–8 mm, glabrous. Capsule obovate, 1.5–2 × ca. 3 cm; pericarp 1–2 mm thick. Seeds brown, hemispherical, glabrous. Fl. Dec–Jan, fr. Sep–Oct.

• Evergreen broad-leaved forests; 100–400 m. Guangxi (Ningming).

3. *Camellia impressinervis* Hung T. Chang & S. Ye Liang, Acta Sci. Nat. Univ. Sunyatseni 18(3): 72. 1979.

凹脉金花茶 ao mai jin hua cha

Shrubs or trees, 1.5–5 m tall. Young branches grayish brown, glabrous; current year branchlets purplish brown, yellow pubescent; terminal buds oblong, large, glabrous. Petiole ca. 1 cm, pubescent, adaxially grooved; leaf blade elliptic to

oblong-elliptic, 12–18(–22) × 3–8.5 cm, leathery, abaxially pale green, reddish brown glandular punctate, and sparsely pubescent, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially channeled, secondary veins 9–11 on each side of midvein, abaxially elevated, and adaxially impressed, base rounded to obtuse, margin serrulate, apex abruptly shortly caudate to caudate. Flowers axillary, solitary, ca. 5 cm in diam. Pedicel ca. 5 mm; bracteoles 5 or 6, ± covering pedicel, lunate, 1–2.5 mm, glabrous, margin ciliolate. Sepals 5, ovate to broadly ovate, 6–10 mm, glabrous, margin ciliolate. Petals 11 or 12, yellow; outer 4 or 5 petals obovate to obovate-elliptic, 1.3–2 × 0.9–1.5 cm, nearly distinct; inner petals obovate, ca. 3 × 1.5–1.8 cm, basally connate for 4–5 mm, apex rounded. Stamens ca. 2 cm, glabrous; outer filament whorl basally connate into a ca. 5 mm tube. Ovary ovoid, ca. 2 mm in diam., glabrous, 3-loculed; styles 3, distinct, 2–2.3 cm. Capsule obovate, 2-coccal, ca. 3 cm in diam., glabrous; pericarp 1–1.5 mm thick. Seeds brown, pubescent. Fl. Jan–Mar, fr. Oct. $2n = 30^*$.

• Evergreen broad-leaved forests on calcareous hills; 100–500 m. Guangxi (Longzhou).

4. *Camellia petelotii* (Merrill) Sealy, Kew Bull. 4: 219. 1949.

金花茶 jin hua cha

Shrubs or trees, (1.5–)2–5 m tall. Young branches grayish brown; current year branchlets purplish brown, 2–3 mm thick, glabrous. Petiole 1–2 cm, glabrous; leaf blade elliptic, oblong-elliptic, or oblong, 9–18(–23) × 3–6(–7.5) cm, leathery, abaxially pale green, brown glandular punctate, and becoming pale brown when dry, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially flat or slightly impressed, secondary veins 8–10 on each side of midvein, abaxially elevated, and adaxially impressed, base broadly cuneate to subrounded, margin serrulate, apex shortly caudate. Flowers axillary or subterminal, solitary or paired, (2–)5–6 cm in diam. Pedicel (5–)10–15 mm, erect, apically thickened; bracteoles (6–)8–10, spreading, not covering pedicel, lunate to broadly ovate, 2–3 × 3–5 mm, leathery, glabrous, margin ciliolate. Sepals 5, ovate to broadly ovate, (4–)6–8 × 6–9 mm, leathery, glabrous or inside white puberulent, margin ciliolate. Petals 10–14, golden yellow, fleshy; outer 4 or 5 petals broadly elliptic to suborbicular, 1.5–2 × 1–1.5 cm, margin ciliolate; inner petals elliptic to oblong-elliptic, 2–3.5 × 1.4–1.8 cm, basally connate for 6–8 mm. Stamens numerous, 2–2.5 cm, glabrous; outer filament whorl basally connate into a 7–10 mm tube. Ovary globose, ca. 2.5 mm in diam., glabrous, 3-loculed; styles 3, distinct, 1.5–2 cm. Capsule obovate, (1.2–)2.5–3.5 × (1.5–)4–6 cm, (2 or)3-loculed with 3 seeds per locule, apex sunken; pericarp 3–5 mm thick when dry, woody. Seeds brown, hemispherical, 1.5–2 cm in diam., sparsely yellowish brown pilose. Fl. Nov–Feb, fr. Sep–Nov. $2n = 30$.

Forests in river valleys or along streams; 100–900 m. S Guangxi [N Vietnam].

1a. Leaf blade oblong-elliptic to oblong, 9–18(–23) × 3–6(–7.5) cm; flowers 5–6 cm in diam.; pedicel 10–15 mm, bracteoles 8–10; sepals glabrous; capsule 2.5–3.5 × 4–6 cm, 3-loculed 4a. var. *petelotii*

- 1b. Leaf blade elliptic, 10–14 × 4–6 cm; flowers 2–3 cm in diam.; pedicel ca. 5 mm, bracteoles ca. 6; sepals inside white puberulent; capsule 1.2–1.5 × 1.5–2.5 cm, 2-loculed 4b. var. *microcarpa*

4a. *Camellia petelotii* var. *petelotii*

金花茶(原变种) jin hua cha (yuan bian zhong)

Thea petelotii Merrill, Univ. Calif. Publ. Bot. 10: 427. 1924; *Camellia achrysantha* Hung T. Chang & S. Ye Liang; *C. chrysantha* (Hu) Tuyama; *C. chrysantha* f. *longistyla* S. L. Mo & Y. C. Zhong; *C. nitidissima* C. W. Chi; *C. nitidissima* var. *phaeopubisperma* S. Ye Liang & Z. H. Tang; *Theopsis chrysantha* Hu.

Leaf blade oblong-elliptic to oblong, 9–18(–23) × 3–6(–7.5) cm. Flowers 5–6 cm in diam. Pedicel 10–15 mm; bracteoles 8–10. Sepals glabrous. Capsule 2.5–3.5 × 4–6 cm, 3-loculed. Fl. Jan–Feb, fr. Oct–Nov.

Forests in river valleys or along streams; 200–900 m. S Guangxi [N Vietnam].

4b. *Camellia petelotii* var. *microcarpa* (S. L. Mo & S. Z. Huang) T. L. Ming & W. J. Zhang, Acta Bot. Yunnan. 15: 10. 1993.

小果金花茶 xiao guo jin hua cha

Camellia chrysantha var. *microcarpa* S. L. Mo & S. Z. Huang, Acta Phytotax. Sin. 17(2): 90. 1979; *C. microcarpa* (S. L. Mo & S. Z. Huang) S. L. Mo; *C. nitidissima* var. *microcarpa* (S. L. Mo & S. Z. Huang) Hung T. Chang & C. X. Ye.

Leaf blade elliptic, 10–14 × 4–6 cm. Flowers 2–3 cm in diam. Pedicel ca. 5 mm; bracteoles ca. 6. Sepals inside white puberulent. Capsule 1.2–1.5 × 1.5–2.5 cm, 2-loculed. Fl. Nov–Dec, fr. Sep–Oct.

• Forests in river valleys or along streams; 100–200 m. S Guangxi (Yongning).

5. *Camellia euphlebica* Merrill ex Sealy, Kew Bull. 4: 216. 1949.

显脉金花茶 xian mai jin hua cha

Camellia chrysantha (Hu) Tuyama var. *macrophylla* S. L. Mo & S. Z. Huang; *C. euphlebica* var. *macrophylla* (S. L. Mo & S. Z. Huang) C. X. Ye & J. Y. Liang.

Shrubs or trees, 2–5 m tall. Young branches grayish brown; current year branchlets purplish brown, thick, glabrous. Petiole 0.9–1.3 cm, stout, glabrous, adaxially grooved; leaf blade elliptic to broadly elliptic (11–)14–20(–25) × (4.5–)5–8(–15) cm, leathery, abaxially pale green, brown glandular punctate, and becoming pale brown when dry, adaxially dark green and slightly shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 11–13 on each side of midvein, abaxially raised, and adaxially slightly impressed, base obtuse to subrounded, margin serrulate, apex abruptly shortly caudate to caudate and with a blunt tip. Flowers axillary or subterminal, solitary or paired. Pedicel ca. 5(–7) mm, thick; bracteoles (7 or)8, appressed and covering pedicel,

semiorbicular, 1–3 × 3–5 mm, leathery, outside green and glabrous, inside brown and white sericeous, margin ciliolate. Sepals 5, semiorbicular to broadly ovate, 4–5 × 5–7 mm, leathery, outside green and glabrous, inside brown and white sericeous, margin ciliolate. Petals 7–9, golden yellow, ± fleshy; outer 2 or 3 petals sepeloid, suborbicular, 1–1.5 cm, concave; inner petals broadly obovate to obovate-elliptic, 2.5–4 × 2–2.5 cm, glabrous, basally connate for 5–10 mm and adnate to androecium, apex rounded. Stamens numerous, 2–3.5 cm, glabrous; outer filament whorl basally connate for 1–1.5 cm. Ovary ovoid, ca. 2.5 mm in diam., glabrous, 3-loculed; styles 3, distinct, 2–3.5 cm. Capsule obovate, 3-loculed, 2–3 × 3.5–6 cm, 3-loculed with 1 or 2 seeds per locule, apex sunken; pericarp 2–3 mm thick when dry. Seeds brown, globose or hemispherical, 1.5–2 cm in diam., glabrous. Fl. Dec, fr. Oct. $2n = 30$.

Evergreen broad-leaved forests along streams; 100–500 m. Guangxi (Fangcheng) [N Vietnam].

6. *Camellia fascicularis* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 30(2): 81. 1991.

云南金花茶 yun nan jin hua cha

Camellia euphlebica Merrill ex Sealy var. *yunnanensis* C. J. Wang & G. S. Fan.

Shrubs or trees, 2–8 m tall. Young branches grayish brown; current year branchlets purplish brown, glabrous. Petiole 1–1.5 cm, glabrous; leaf blade elliptic to oblong-elliptic, 10–19.5 × 5–9.5 cm, thinly leathery, abaxially pale green and brown glandular punctate, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially slightly raised, secondary veins 9 or 10 on each side of midvein, slender, abaxially raised, and adaxially slightly impressed, base cuneate to broadly cuneate, margin serrate, apex abruptly shortly caudate to caudate and with an obtuse tip. Flowers axillary, solitary or paired, 3.5–4.5 cm in diam. Pedicel 6–8 mm, thick, thickened toward apex; bracteoles 5 or 6, not covering pedicel, ovate to semiorbicular, 1–2 × 2–3 mm, outside glabrous or sparsely puberulent, inside white puberulent, margin ciliolate. Sepals 5, suborbicular, 7–9 mm, leathery, outside sparsely puberulent to subglabrous, inside white pubescent, margin ciliolate. Petals 7 or 8, pale yellow; outer 2 petals suborbicular, 1.3–1.5 × 1.1–1.5 cm, concave, outside white puberulent; inner petals elliptic to oblong-elliptic, 2–3 × 1.5–2 cm, glabrous, basally connate for 2–5 mm. Stamens ca. 1.8 cm, glabrous; outer filament whorl basally connate for ca. 5 mm. Ovary ovoid, ca. 3 mm, 3-grooved, glabrous, 3-loculed, apically 3-lobed; styles 3, distinct, ca. 2 cm. Capsule globose to obovate, (2 or)3-loculed, 4–6 × (4–)6–8 cm; pericarp 3–6 mm thick when dry. Seeds brown, hemispherical, densely yellow pubescent. Fl. Dec, fr. Sep. $2n = 30^*$.

• Forests on hills or slopes or in valleys; 300–1800 m. SE Yunnan.

7. *Camellia huana* T. L. Ming & W. J. Zhang, Acta Bot. Yunnan. 15: 12. 1993.

贵州金花茶 gui zhou jin hua cha

Camellia liberofilamenta Hung T. Chang & C. H. Yang; *C. tianeensis* S. Y. Liang & Y. T. Luo.

Shrubs 1–3 m tall. Young branches grayish yellow, with brown lenticels; current year branchlets purplish red, slender, glabrous. Petiole 7–12 mm, glabrous; leaf blade elliptic to oblong-elliptic, 7–11.5 × 3–5 cm, thinly leathery, abaxially pale green and brown glandular punctate, adaxially dark green, shiny, and becoming yellowish green when dry, both surfaces glabrous, midvein abaxially elevated and adaxially slightly impressed, secondary veins 6 or 7 on each side of midvein, abaxially raised, and adaxially visible, base cuneate, margin serrate, apex shortly acuminate. Flowers subterminal, solitary, 3–3.5 cm in diam. Pedicel 6–10 mm, thickened toward apex; bracteoles 5 or 6, not covering pedicel, semiobovate to ovate, 0.5–2 mm, outside glabrous, inside white puberulent, margin ciliolate. Sepals 5, ovate to suborbicular, ca. 5 mm, leathery, outside green and glabrous, inside white puberulent, margin ciliolate. Petals 7–9, pale yellow; outer 2 or 3 petals broadly elliptic to obovate, 1–1.2 × 0.8–1 cm; inner petals obovate-elliptic, 1.5–2 × 1–1.5 cm, basally connate for ca. 2 mm. Stamens ca. 1.5 cm, glabrous; outer filament whorl basally connate for ca. 4 mm. Ovary globose, ca. 2 mm in diam., glabrous; styles 3, distinct, ca. 1.4 cm. Capsule obovate, ca. 1.5 × 3–3.5 cm, 3-loculed with 2 seeds per locule; pericarp 1–1.5 mm thick. Seeds brown, hemispherical, reddish brown villous. Fl. Feb, fr. Oct. $2n = 30^*$.

• Forests or thickets in valleys or on calcareous hills; 600–800 m. Guangxi (Tian'e), Guizhou (Ceheng, Luodian).

8. *Camellia flavida* Hung T. Chang, Taxon. Gen. *Camellia*, 103. 1981.

淡黄金花茶 dan huang jin hua cha

Shrubs 1–3.5 m tall. Young branches grayish brown; current year branchlets purplish red, glabrous. Petiole 3–10 mm, glabrous, adaxially grooved; leaf blade elliptic to oblong-elliptic, 8–16(–17.5) × 3–6.5 cm, thinly leathery, abaxially pale green, brown glandular punctate, and becoming pale brown when dry, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 7–9 on each side of midvein, abaxially raised, and adaxially slightly impressed, reticulate veins abaxially slightly raised and adaxially visible, base cuneate to obtuse, margin serrulate, apex acuminate to shortly caudate. Flowers axillary, solitary. Pedicel 3–5 mm; bracteoles 5 or 6, ± covering pedicel, semiobovate to ovate, 1.5–2.5 × 2–3.5 mm, outside glabrous, inside white puberulent, margin ciliolate. Sepals 5, 3.5–5 × 4.5–6 mm, outside glabrous, inside white puberulent, margin ciliolate. Petals 7–13, pale yellow, rarely purplish in bud, obovate to obovate-elliptic, 1.2–2.5 × 0.9–1.5 cm; inner petals basally connate for ca. 2 mm. Stamens 1–1.5 cm, glabrous; outer filament whorl basally connate for 3–5 mm. Ovary globose, ca. 1.5 mm in diam., glabrous, (2 or)3(–5)-loculed; styles 3, distinct, 1–1.3 cm. Capsule obovate, 2.5–3.5 cm in diam., (2 or)3(–5)-loculed with 1 or 2 seeds per locule; pericarp ca. 1 mm thick. Seeds brown, globose or hemispherical, 1–1.5 cm in diam., reddish brown villous. Fl. Nov–Jan, fr. Sep–Oct. $2n = 30^*$.

• Evergreen broad-leaved forests on calcareous hills; 100–500 m. S and SW Guangxi.

1a. Petiole 3–6 mm; ovary (2 or)3-loculed 8a. var. *flavida*

1b. Petiole ca. 10 mm; ovary 2–5-loculed 8b. var. *patens*

8a. *Camellia flavida* var. *flavida*

淡黄金花茶(原变种) dan huang jin hua cha (yuan bian zhong)

Camellia flavida f. *polypetala* R. G. Li & S. Q. He; *C. grandis* (C. F. Liang & S. L. Mo) Hung T. Chang & S. Ye Liang; *C. longgangensis* C. F. Liang & S. L. Mo; *C. longgangensis* var. *grandis* C. F. Liang & S. L. Mo; *C. longruensis* S. Ye Liang & X. J. Dong; *C. ptilosperma* S. Ye Liang.

Petiole 3–6 mm. Ovary (2 or)3-loculed. Fl. Nov–Dec, fr. Sep–Oct.

• Evergreen broad-leaved forests on calcareous hills; 100–500 m. Guangxi (Longzhou, Ningming, Pingxiang).

8b. *Camellia flavida* var. *patens* (S. L. Mo & Y. C. Zhong) T. L. Ming, Acta Bot. Yunnan. 21: 152. 1999.

多变淡黄金花茶 duo bian dan huang jin hua cha

Camellia longgangensis var. *patens* S. L. Mo & Y. C. Zhong, Guihaia 5: 354. 1985; *C. multipetala* S. Ye Liang & C. Z. Deng; *C. quinqueloculosa* S. L. Mo & Y. C. Zhong; *C. wumingensis* S. Ye Liang & C. R. Fu.

Petiole ca. 1 cm. Ovary 2–5-loculed. Fl. Dec–Jan, fr. Sep–Oct.

• Evergreen broad-leaved forests on calcareous hills; 100–500 m. Guangxi (Fusui, Wuming).

9. *Camellia indochinensis* Merrill, J. Arnold Arbor. 20: 347. 1939.

柠檬花茶 ning meng jin hua cha

Shrubs 1–4 m tall. Young branches yellowish brown; current year branchlets purplish brown, slender, glabrous. Petiole 5–8 mm, glabrous, adaxially grooved; leaf blade elliptic, obovate-elliptic, or oblong-ovate, 6–10.5 × (2.5–)3–4.5 cm, thinly leathery, abaxially pale green, brown glandular punctate, and becoming glaucous when dry, adaxially dark green and becoming grayish green when dry, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6 or 7 on each side of midvein, abaxially raised, and adaxially slightly impressed, reticulate veins abaxially slightly raised and adaxially visible, base broadly cuneate, margin serrulate, apex acute to acuminate. Flowers axillary, solitary, 1–3.5 cm in diam. Pedicel 3–13 mm, slender; bracteoles 5 or 6, not covering pedicel, semiobovate to broadly ovate, 0.5–1.5 × 1–2.5 mm, glabrous or outside farinose-puberulent, margin ciliolate. Sepals 5, orbicular, 2–3 mm, concave, glabrous or outside farinose-puberulent, margin ciliolate. Petals 8 or 9, pale yellow to yellowish white; outer 3 or 4 petals suborbicular, 5–7 × 4–6 mm; inner petals obovate to oblong, 8–15 × 5–6 mm, basally connate for ca. 2 mm. Stamens 8–10 mm, glabrous; outer filament whorl basally connate for 3–4 mm. Ovary ovoid, ca. 1.5 mm in diam., glabrous; styles 3, distinct, ca. 1 cm. Capsule obovate, (2 or)3-coccal, 1–1.5 × 1.5–2.5 cm; pericarp 1–1.5 mm thick. Seeds hemispherical, brown, glabrous. Fl. Dec–Jan, fr. Sep–Oct. $2n = 30$.

Forests on calcareous hills, in valleys, or along streams; (near sea level to) 100–400 m. S Guangxi [N Vietnam].

- 1a. Flowers 1–2 cm in diam.; pedicel 3–4 mm 9a. var. *indochinensis*
 1b. Flowers 2.5–3.5 cm in diam.; pedicel (5–)7–13 mm 9b. var. *tunghinensis*

9a. *Camellia indochinensis* var. *indochinensis*

柠檬金花茶(原变种) ning meng jin hua cha (yuan bian zhong)

Camellia limonia C. F. Liang & S. L. Mo; *C. limonia* f. *obovata* S. L. Mo & Y. C. Zhong; *C. parvipetala* J. Y. Liang & Z. M. Su; *Thea indochinensis* (Merrill) Gagnepain.

Flowers 1–2 cm in diam. Pedicel 3–4 mm. Fl. Dec–Jan, fr. Sep–Oct.

Forests on calcareous hills or in valleys; (near sea level to) 100–400 m. S Guangxi [N Vietnam].

9b. *Camellia indochinensis* var. *tunghinensis* (Hung T. Chang) T. L. Ming & W. J. Zhang, Acta Bot. Yunnan. 15: 14. 1993.

东兴金花茶 dong xing jin hua cha

Camellia tunghinensis Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 18(3): 73. 1979.

Flowers 2.5–3.5 cm in diam. Pedicel (0.5–)0.7–1.3 cm. Fl. Dec–Jan, fr. Oct.

• Forests in valleys or along streams; 100–300 m. Guangxi (Fangcheng).

10. *Camellia pingguoensis* D. Fang, Acta Bot. Yunnan. 2: 339. 1980.

平果金花茶 ping guo jin hua cha

Shrubs 1–3 m tall. Young branches grayish yellow; current year branchlets purplish red, slender, glabrous. Petiole 6–10 mm, glabrous; leaf blade ovate to long ovate, 5.5–7.5(–9.5) × 2–3.8 cm, thinly leathery, abaxially pale green and brown glandular punctate, adaxially dark green and shiny, both surfaces glabrous, midvein raised on both surfaces, secondary veins 6 or 7 on each side of midvein, abaxially raised, and adaxially

visible to obscure, base broadly cuneate to obtuse, margin serrulate, apex acuminate to acute. Flowers axillary or subterminal, solitary, 1.5–4.5 cm in diam. Pedicel 3–5 mm; bracteoles 5 or 6(or 7), not covering pedicel, ovate to semiorbicular, 0.5–1.5 mm, membranous, glabrous or outside farinose puberulent, margin ciliolate. Sepals 5, suborbicular, 2–8 mm, outside farinose puberulent, inside white puberulent, margin ciliolate. Petals 7 or 8, pale yellow; outer 2 or 3 petals suborbicular, 6–8 mm; inner petals obovate, 10–13 × 6–10 mm, basally connate for 1–2 mm. Stamens 7–9 mm, glabrous; outer filament whorl basally connate for ca. 3 mm. Ovary subglobose, ca. 1 mm in diam., glabrous, 3-loculed; styles 3, distinct, 6–9 mm. Capsule globose to subglobose, 2-coccal, 1.2–1.5 × 1.5–3 cm, (1 or)2(or 3)-loculed; pericarp 1–1.5 mm thick. Seeds brown, hemispherical, ca. 1 cm in diam., glabrous. Fl. Dec–Jan, fr. Sep. $2n = 30^*$.

• Forests on calcareous hills; 100–500(–700) m. Guangxi (Pingguo, Tiandeng).

- 1a. Flowers 1.5–2.5 cm in diam.; sepals yellowish green, 2–4 mm 10a. var. *pingguoensis*
 1b. Flowers 3.5–4.5 cm in diam.; sepals green, 5–8 mm 10b. var. *terminalis*

10a. *Camellia pingguoensis* var. *pingguoensis*

平果金花茶(原变种) ping guo jin hua cha (yuan bian zhong)

Flowers 1.5–2.5 cm in diam. Sepals yellowish green, 2–4 mm.

• Evergreen broad-leaved forests on calcareous hills; 200–400(–700) m. Guangxi (Pingguo).

10b. *Camellia pingguoensis* var. *terminalis* (J. Y. Liang & Z. M. Su) T. L. Ming & W. J. Zhang, Acta Bot. Yunnan. 15: 14. 1993.

顶生金花茶 ding sheng jin hua cha

Camellia terminalis J. Y. Liang & Z. M. Su, Guihaia 5: 183. 1985.

Flowers subterminal, 3.5–4.5 cm in diam. Sepals green, 5–8 mm, leathery.

• Forests on calcareous hills; 100–500 m. Guangxi (Tiandeng).

2. *Camellia* sect. *Thea* (Linnaeus) Dyer in J. D. Hooker, Fl. Brit. India 1: 292. 1874.

茶组 cha zu

Thea Linnaeus, Sp. Pl. 1: 515. 1753; *Camellia* sect. *Glaberrimae* Hung T. Chang; *Theaphylla* Rafinesque; *Tsia* Adanson.

Pedicel thick, thickened toward apex; bracteoles 2(or 3), caducous. Sepals persistent. Petals white, basally connate. Stamens numerous, in 4 or 5 whorls, glabrous; outer filament whorl basally connate into a tube. Ovary 3–5-loculed; style apically 3–5-parted or lobed.

Twelve species: S China, NE India, S Japan, S Korea, Laos, Myanmar, Thailand, Vietnam; 11 species (nine endemic) in China.

- 1a. Ovary (3 or)4- or 5-loculed, style apically 5-lobed or 3–5-parted.
 2a. Ovary tomentose.
 3a. Current year branchlets and leaf blades glabrous; pedicel, sepals outside, and petals glabrous; styles glabrous; capsule obovate, pericarp 1–2 mm thick 14. *C. taliensis*

- 3b. Current year branchlets and leaf blades abaxially along midvein pubescent; pedicel sparsely pubescent or glabrous, sepals outside gray puberulent or glabrous, and petals farinose-puberulent; styles densely pubescent; capsule globose, pericarp 5–8 mm thick 15. *C. crassicolumna*
- 2b. Ovary glabrous.
- 4a. Petiole and pedicel pubescent 12. *C. grandibracteata*
- 4b. Petiole and pedicel glabrous.
- 5a. Petiole ca. 5 mm; sepals 5–6 mm, margin ciliate 11. *C. tachangensis*
- 5b. Petiole 8–12 mm; sepals 7–10 mm, margin not ciliate 13. *C. kwangsiensis*
- 1b. Ovary 3-loculed, style apically 3-lobed or 3-parted.
- 6a. Ovary glabrous.
- 7a. Current year branchlets, terminal buds, and leaf blades abaxially pubescent; leaf blade reticulate veins slightly raised on both surfaces; sepals inside glabrous 18. *C. leptophylla*
- 7b. Current year branchlets and leaf blades glabrous or sparsely yellow puberulent; leaf blade reticulate veins obscure on both surfaces; sepals inside sericeous.
- 8a. Terminal buds pubescent; leaf blade elliptic to oblong-elliptic, 4–6.5 cm wide; pedicel 9–13 mm; sepals 6–8 mm; capsule 3-loculed, 5–8 cm in diam., pericarp 4–5 mm thick 16. *C. gymnogyna*
- 8b. Terminal buds glabrous; leaf blade oblong-elliptic to oblong-oblongeolate, 2.5–4 cm wide; pedicel 6–8 mm; sepals 2.5–4 mm; capsule 1- or 2-loculed, fertile, 1.5–2 cm in diam., pericarp ca. 1 mm thick 17. *C. costata*
- 6b. Ovary pubescent, tomentose, or subglabrous.
- 9a. Current year branchlets white pubescent; leaf blade 5–14 cm; sepals outside glabrous or sparsely pubescent, inside densely sericeous 21. *C. sinensis*
- 9b. Current year branchlets yellowish brown villous or grayish yellow pubescent; leaf blade 12–29 cm; sepals outside pubescent, inside glabrous.
- 10a. Leaf blade elliptic to oblong-elliptic, 5.5–12.5 cm wide, midvein adaxially impressed; sepals 3–3.5 mm 19. *C. fangchengensis*
- 10b. Leaf blade oblong, (3–)4–6 cm wide, midvein adaxially flat; sepals 5–6 mm 20. *C. ptilophylla*

11. *Camellia tachangensis* F. C. Zhang, Acta Bot. Yunnan. 2: 341. 1980.

大厂茶 da chang cha

Trees 7–15 m tall. Young branches yellowish brown; current year branchlets purplish brown, glabrous; terminal buds large, glabrous or sparsely white pubescent. Petiole purplish red, ca. 5 mm, glabrous; leaf blade elliptic, oblong-elliptic, or broadly elliptic, (9–)12–18 × 3–6(–8) cm, leathery to thinly leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein purplish red, abaxially elevated, and adaxially slightly raised, secondary veins 8–10 on each side of midvein and raised on both surfaces, base cuneate to broadly cuneate, margin serrate or undulate-serrate, apex acute to shortly acuminate and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster, 4–6 cm in diam. Pedicel 0.8–1.4 cm, thickened toward apex, glabrous; bracteoles 2 or 3, caducous, ovate, 2.5–3 mm, outside glabrous, inside white sericeous. Sepals 5(or 6), persistent, broadly ovate to suborbicular, 5–6 mm, outside glabrous, inside white sericeous, margin ciliate. Petals 10–13, white, broadly obovate, 2.5–3 × 2–2.5 cm, basally slightly connate, apex rounded. Stamens 1.5–2 cm, glabrous; outer filament whorl basally connate for ca. 3 mm. Ovary globose, glabrous, (3 or)4- or 5-loculed; style 1.5–2 cm, apically 3–5-parted for 4–8 mm. Capsule globose to obovate, 2–3 × 3–5 cm, 3–5-loculed with 1 or 2 seeds per locule; pericarp 1–2 mm thick when dry. Seeds pale brown, globose or hemispherical, 1–1.5 cm in diam., glabrous. Fl. Oct–Jan, fr. Sep–Oct. $2n = 30^*$.

- Evergreen broad-leaved and coniferous forests; 900–2300 m.

Chongqing, NW Guangxi, N and W Guizhou, SE Sichuan, E and NE Yunnan.

- 1a. Terminal buds glabrous; leaf blade oblong-elliptic to elliptic, margin serrate; ovary (4 or)5-loculed 11a. var. *tachangensis*
- 1b. Terminal buds sparsely white pubescent; leaf blade broadly elliptic, margin undulate-serrate; ovary 3(or 4)-loculed 11b. var. *remotiserrata*

11a. *Camellia tachangensis* var. *tachangensis*

大厂茶(原变种) da chang cha (yuan bian zhong)

Camellia quinquelocularis Hung T. Chang & S. Ye Liang; *C. tetracocca* Hung T. Chang.

Terminal buds glabrous. Leaf blade oblong-elliptic to elliptic, margin serrate. Ovary (4 or)5-loculed. Fl. Oct–Nov, fr. Sep–Oct.

- Evergreen broad-leaved forests; 1500–2300 m. NW Guangxi, W Guizhou, E Yunnan.

11b. *Camellia tachangensis* var. *remotiserrata* (Hung T. Chang et al.) T. L. Ming, Fl. Yunnan. 8: 276. 1997.

疏齿大厂茶 shu chi da chang cha

Camellia remotiserrata Hung T. Chang et al., Acta Sci. Nat. Univ. Sunyatseni 29(2): 87. 1990; *C. gymnogyna* Hung T. Chang var. *remotiserrata* (Hung T. Chang et al.) T. L. Ming; *C. gymnogynoides* Hung T. Chang & B. H. Chen; *C. jinyunshanica* Hung T. Chang & J. H. Xiong; *C. nanchuanica* Hung T. Chang & J. H. Xiong.

Terminal buds sparsely white pubescent. Leaf blade broadly elliptic, margin undulate-serrate. Ovary 3(or 4)-loculed. Fl. Nov–Jan, fr. Sep–Oct.

• Evergreen broad-leaved and coniferous forests; 900–1400 m. Chongqing, N Guizhou, SE Sichuan, NE Yunnan.

12. *Camellia grandibracteata* Hung T. Chang & F. L. Yu, Acta Sci. Nat. Univ. Sunyatseni 23(1): 3. 1984.

大苞茶 da bao cha

Trees 6–12 m tall. Young branches pale brown, glabrous; current year branchlets gray pubescent; terminal buds white sericeous. Petiole ca. 5 mm, pubescent; leaf blade elliptic to oblong-elliptic, 10–14 × 4–5.5 cm, thinly leathery, abaxially pale green and sparsely pubescent, adaxially dark green, glabrous, and shiny, midvein abaxially elevated and adaxially flat, secondary veins 8–10 on each side of midvein, abaxially raised, and adaxially visible, base cuneate to broadly cuneate, margin serrulate, apex acute to shortly acuminate. Flowers axillary, solitary or paired, 4–5 cm in diam. Pedicel 6–7 mm, thickened toward apex, pubescent; bracteoles 2, ovate, ca. 4 mm. Sepals 5, ovate, 5–6 mm, outside glabrous, inside white sericeous. Petals 7–9, white, obovate, 2–2.5 cm; inner 5 petals basally connate. Stamens ca. 1 cm, glabrous; outer filament whorl basally connate for ca. 4 mm. Ovary globose, glabrous, 5-loculed; style ca. 1.5 cm, apically 5-lobed. Capsule oblate, ca. 2 × 3–4 cm, 5-loculed with 1 seed per locule; pericarp 1–2 mm thick when dry. Seeds brown, globose, ca. 1 cm in diam. Fl. Nov, fr. Sep. $2n = 30^*$.

• Near villages; 1700–1900 m. Yunnan (Yunxian).

13. *Camellia kwangsiensis* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 20(1): 89. 1981.

广西茶 guang xi cha

Shrubs or trees, 3–6 m tall. Young branches pale brown, glabrous; current year branchlets purplish brown, gray pubescent; terminal buds white sericeous. Petiole purplish brown, 0.8–1.2 cm, glabrous, abaxially grooved; leaf blade oblong-elliptic to oblong, 8–12(–17) × 3–5(–7) cm, leathery, abaxially pale green, sparsely pubescent or glabrescent, and becoming pale brown when dry, adaxially dark green and becoming grayish brown when dry, shiny, and glabrous, midvein abaxially elevated and adaxially slightly raised, secondary veins 9–11 on each side of midvein and raised on both surfaces, base broadly cuneate, margin sharply serrulate, apex acuminate to shortly acuminate. Flowers axillary or subterminal, solitary or paired. Pedicel 7–10 mm, thickened toward apex, glabrous; bracteoles 2, caducous. Sepals 5, persistent, broadly ovate to suborbicular, 7–10 mm, leathery, outside glabrous or farinose-puberulent, inside white sericeous, margin membranous. Petals 8–10, white, broadly obovate, 2–2.5 cm, outside glabrous or farinose-puberulent, basally connate. Stamens 1.1–1.8 cm, glabrous; outer filament whorl connate for basal 1/3. Ovary globose, glabrous, 5-loculed; style ca. 1.8 cm, apically 5-parted for ca. 6 mm. Capsule globose, ca. 4 cm in diam., 5-loculed with 2 seeds per locule; pericarp 5–6 mm thick when dry. Seeds brown, hemispherical, ca. 1.5 cm in diam. Fl. Nov–Dec, fr. Sep–Oct.

• Evergreen broad-leaved forests, mixed forests; 1500–1900 m. W Guangxi, SE Yunnan.

1a. Sepals and petals outside glabrous

..... 13a. var. *kwangsiensis*

1b. Sepals and petals outside

farinose-puberulent 13b. var. *kwangnanica*

13a. *Camellia kwangsiensis* var. *kwangsiensis*

广西茶(原变种) guang xi cha (yuan bian zhong)

Sepals and petals outside glabrous. Fl. Nov–Dec, fr. Sep–Oct.

• Mixed forests; 1500–1900 m. W Guangxi, SE Yunnan.

13b. *Camellia kwangsiensis* var. *kwangnanica* (Hung T. Chang & B. H. Chen) T. L. Ming, Acta Bot. Yunnan. 14: 118. 1992.

毛萼广西茶 mao e guang xi cha

Camellia kwangnanica Hung T. Chang & B. H. Chen, Acta Sci. Nat. Univ. Sunyatseni 23(1): 4. 1984.

Sepals and petals outside farinose-puberulent. Fl. Nov–Dec, fr. Sep. $2n = 30^*$.

• Evergreen broad-leaved forests; 1500–1900 m. SE Yunnan (Guangnan).

14. *Camellia taliensis* (W. W. Smith) Melchior in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 21: 131. 1925.

大理茶 da li cha

Thea taliensis W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 73. 1917; *Camellia changningensis* F. C. Zhang et al.; *C. irrawadiensis* Burua; *C. pentastyla* Hung T. Chang; *C. quinquebracteata* Hung T. Chang & C. X. Ye; *Gordonia yunnanensis* (Hu) H. L. Li; *Polyspora yunnanensis* Hu.

Shrubs or trees, 2–8 m tall. Young branches grayish brown; current year branchlets purplish brown, glabrous; terminal buds glabrous or sparsely pubescent. Petiole 5–10 mm, glabrous; leaf blade elliptic to oblong-elliptic, 8.5–15 × 3–5.5 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein pale yellow, abaxially elevated, and adaxially slightly raised, secondary veins 7 or 8 on each side of midvein and slightly raised on both surfaces, base cuneate to broadly cuneate, margin sparsely serrate to undulate-serrate, apex acute to shortly acuminate and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster, ca. 5 cm in diam. Pedicel ca. 1 cm, thickened toward apex, glabrous; bracteoles 2 or 3(or 4), caducous. Sepals 5, persistent, ovate, 3–4 × 4–6 mm, leathery, outside glabrous, inside white sericeous, margin ciliolate. Petals 7–10, white, obovate to broadly obovate, 1.5–3.5 × 1–2 cm, apex rounded; inner petals basally connate. Stamens ca. 2 cm, glabrous; outer filament whorl basally connate for ca. 6 mm. Ovary white tomentose, 5-loculed; style ca. 2 cm, glabrous, apically 5-lobed to 5-parted. Capsule oblate, ca. 3 × 5 cm, 5-loculed with 2 seeds per locule; pericarp 1–2 mm thick when dry. Seeds brown, hemispherical, 1.5–1.8 cm in diam. Fl. Oct–Nov, fr. Sep–Oct. $2n = 30$.

Forests on mountain slopes or in valleys; 1300–2400(–2700) m. W Yunnan [N Myanmar, N Thailand].

15. *Camellia crassicumna* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 20(1): 91. 1981.

厚轴茶 *hou zhou cha*

Trees 5–15 m tall. Young branches yellowish brown, glabrous; current year branchlets green, sparsely gray pubescent or glabrous; terminal buds white sericeous. Petiole 5–10 mm, sparsely pubescent to subglabrous; leaf blade elliptic, oblong-elliptic, or oblong, (8–)10–13(–17) × (2–)4–6 cm, leathery, abaxially pale green and pubescent along midvein when young, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially slightly raised, secondary veins 8–10 on each side of midvein, slender, and ± raised on both surfaces, base cuneate to broadly cuneate, margin serrate, apex acute to shortly caudate and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster, 4–5.5 cm in diam. Pedicel 5–10 mm, thickened toward apex, sparsely pubescent or glabrous; bracteoles 2, caducous. Sepals 5, persistent, ovate, 5–8 mm, outside gray puberulent or glabrous, inside white sericeous or glabrous. Petals 9–12, white; outer 4–6 petals sepaloid, ovate, ca. 1.5 cm; inner petals obovate, 2–2.5 cm, outside farinose-puberulent, basally connate. Stamens ca. 1.5 cm, glabrous; outer filament whorl basally connate for ca. 5 mm. Ovary white tomentose, (3–)5-loculed; style ca. 2 cm, densely white pubescent, apically (3–)5-parted for ca. 8 mm. Capsule globose, 5–6 cm in diam., (3 or)4- or 5-loculed with (1 or)2 seeds per locule; pericarp 5–8 mm thick. Seeds brown, hemispherical or globose, 2–2.5 cm in diam. Fl. Nov–Dec, fr. Sep–Oct. $2n = 30^*$.

• Evergreen broad-leaved forests; (1600–)1800–2500 m. W Guizhou, SE Yunnan.

- 1a. Current year branchlets sparsely gray pubescent, pedicel sparsely pubescent, sepals outside gray puberulent and inside white sericeous 15a. var. *crassicumna*
 1b. Current year branchlets, pedicels, and sepals glabrous 15b. var. *multiplex*

15a. *Camellia crassicumna* var. *crassicumna*

厚轴茶(原变种) *hou zhou cha* (*yuan bian zhong*)

Camellia atrothea Hung T. Chang & H. S. Wang; *C. crassicumna* var. *shangbaensis* F. C. Zhang; *C. crispula* Hung T. Chang; *C. haaniensis* Hung T. Chang & F. L. Yu; *C. makuanica* Hung T. Chang & Y. J. Tang; *C. purpurea* Hung T. Chang & B. H. Chen; *C. rotundata* Hung T. Chang & F. L. Yu.

Current year branchlets sparsely gray pubescent. Pedicel sparsely pubescent. Sepals outside gray puberulent, inside white sericeous. Fl. Nov–Dec, fr. Sep–Oct.

• Evergreen broad-leaved forests; (1600–)1800–2500 m. SE Yunnan.

15b. *Camellia crassicumna* var. *multiplex* (Hung T. Chang & Y. J. Tang) T. L. Ming, Acta Bot. Yunnan. 14: 121. 1992.

光萼厚轴茶 *guang e hou zhou cha*

Camellia multiplex Hung T. Chang & Y. J. Tang, Acta Sci. Nat. Univ. Sunyatseni 23(1): 7. 1984.

Current year branchlets, pedicels, and sepals glabrous. Fl. Nov–Dec, fr. Sep.

• Evergreen broad-leaved forests; 1900–2300 m. W Guizhou, SE Yunnan.

16. *Camellia gymnogyna* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 20(1): 94. 1981.

秃房茶 *tu fang cha*

Camellia glaberrima Hung T. Chang.

Shrubs or trees, 3–8(–10) m tall. Young branches pale brown; current year branchlets purplish brown, glabrous; terminal buds grayish yellow pubescent. Petiole 7–12 mm, glabrous, adaxially grooved; leaf blade elliptic to oblong-elliptic, 9–18 × 4–6.5 cm, leathery to thinly leathery, abaxially pale green, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially slightly raised, secondary veins 9–11 on each side of midvein, abaxially raised, and adaxially visible to slightly raised, base cuneate to broadly cuneate, margin serrate, apex shortly caudate to caudate. Flowers axillary, solitary or paired, ca. 4 cm in diam. Pedicel 0.9–1.3 cm, glabrous, thickened toward apex; bracteoles 2, caducous. Sepals 5, persistent, suborbicular to broadly ovate, (4–)6–8 mm, outside glabrous, inside pale yellow sericeous, apex rounded. Petals 6–8, white, broadly obovate 1.5–2.5 × 1.5–1.8 cm, basally connate, apex rounded. Stamens (1.5–)2 cm, glabrous; outer filament whorl basally connate for ca. 1/3 of length. Ovary glabrous, 3-loculed; style ca. 2 cm, apically 3-parted for 6–9 mm. Capsule globose, 5–8 cm in diam., 3-loculed with 2 seeds per locule; pericarp 4–5 mm thick. Seeds brown, hemispherical, ca. 2 cm in diam. Fl. Dec–Jan, fr. Sep–Oct. $2n = 30^*$.

• Evergreen broad-leaved forests; (1000–)1500–1800 m. W Guangdong, N Guangxi, S Guizhou, SE Yunnan.

17. *Camellia costata* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 20(1): 94. 1981.

突肋茶 *tu le cha*

Camellia danzaiensis K. M. Lan; *C. kwangtungensis* Hung T. Chang; *C. yungkiangensis* Hung T. Chang.

Shrubs or trees, 3–8(–10) m tall. Young branches grayish brown; current year branchlets purplish brown, glabrous; terminal buds glabrous. Petiole purplish brown, 5–8 mm, glabrous; leaf blade oblong-elliptic to oblong-obovate, 8–13(–15) × 2.5–4(–5.2) cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially slightly raised, secondary veins 7–9 on each side of midvein, abaxially slightly raised to obscure, and adaxially raised, base cuneate to broadly cuneate, margin undulate-serrate, apex acuminate to caudate. Flowers axillary, solitary or paired. Pedicel 6–8 mm but elongated to 1.4 cm in fruit, glabrous; bracteoles 2, caducous. Sepals 5, persistent, broadly ovate to suborbicular, 2.5–4 mm, outside glabrous or sparsely puberulent, inside white sericeous. Petals 6–8, white, obovate,

1.5–2.2 cm, basally connate. Stamens ca. 1 cm, glabrous; outer filament whorl basally connate. Ovary glabrous, 3-loculed; style ca. 1 cm, apically 3-lobed. Capsule globose or 2-coccal, 1–1.5 × 1.5–2 cm, 1- or 2-loculed with 1 seed per locule; pericarp ca. 1 mm thick. Seeds brown, hemispherical. Fl. Jan–Feb, fr. Oct. $2n = 30^*$, 90^* .

• Evergreen broad-leaved forests; 700–1100 m. NW Guangdong, N Guangxi, SE Guizhou.

18. *Camellia leptophylla* S. Ye Liang ex Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 20(1): 95. 1981.

膜叶茶 mo ye cha

Shrubs or trees, 2–5 m tall. Young branches pale brown, glabrous; current year branchlets purplish brown, sparsely yellow puberulent; terminal buds pale yellow sericeous. Petiole 4–6 mm, sparsely pubescent or glabrescent; leaf blade thinly elliptic to oblong-elliptic, (8–)9–15 × (3–)3.5–5.5 cm, leathery, abaxially pale green and very sparsely appressed pubescent when young but glabrescent, adaxially dark green, shiny, and becoming yellowish green to pale brown when dry, midvein abaxially elevated and adaxially slightly raised, secondary veins 8 or 9 on each side of midvein and clearly raised on both surfaces, reticulate veins slightly raised on both surfaces, base broadly cuneate, margin serrate, apex shortly acuminate. Flowers axillary, solitary or paired. Pedicel 3–5 mm, erect, sparsely pubescent or glabrescent; bracteoles 2, caducous. Sepals 5, persistent, broadly ovate to suborbicular, 6–7 mm, glabrous, margin membranous and ciliolate. Petals only seen in bud, 7–9, white, obovate, 1–1.3 cm, basally slightly connate. Stamens glabrous; outer filament whorl basally slightly connate for ca. 1.5 mm. Ovary glabrous, 3-loculed; style ca. 1 cm, apically 3-parted. Capsule globose or 2-coccal, ca. 2 × 2–3 cm, 1- or 2-loculed with 1 seed per locule; pericarp ca. 1 mm thick. Seeds brown, globose, ca. 1.4 cm in diam. Fl. Nov–Dec, fr. Sep–Oct. $2n = 30^*$.

• Forests, thickets; 600–900 m. W Guangxi.

19. *Camellia fangchengensis* S. Ye Liang & Y. C. Zhong, Acta Sci. Nat. Univ. Sunyatseni 20(3): 118. 1981 [*“fang-chensis”* & *“fangchengensis”*].

防城茶 fang cheng cha

Shrubs or trees, 3–5 m tall. Young branches grayish brown, glabrous; current year branchlets purplish brown, thick, terete, yellowish brown villous; terminal buds sericeous. Petiole 5–8 mm, yellow pubescent, adaxially grooved; leaf blade elliptic to oblong-elliptic, 13–29 × 5.5–12.5 cm, leathery to thinly leathery, abaxially pale green, densely pubescent, and becoming grayish green to grayish brown when dry, adaxially dark green, glabrous, and becoming yellowish green when dry, midvein abaxially elevated and adaxially impressed, secondary veins 10–12 on each side of midvein and raised on both surfaces, base broadly cuneate to rounded, margin serrulate, apex shortly acuminate to acute and with a blunt tip. Flowers axillary, solitary or paired, 2–3 cm in diam. Pedicel 5–10 mm, recurved, yellow pubescent; bracteoles 2, caducous. Sepals 5, persistent, suborbicular, 3–3.5 × 2–3 mm, outside grayish

brown sericeous, inside glabrous, margin ciliolate. Petals 5–7, white, suborbicular, 1–1.5 × 0.7–1 cm, basally slightly connate, apex rounded; outer 2 or 3 petals sepaloid, outside sericeous. Stamens numerous, ca. 1 cm, glabrous; outer filament whorl basally slightly connate. Ovary globose, 2–3 mm in diam., pale yellow tomentose, 3-loculed; style ca. 8 mm, glabrous or basally pubescent, apically 3-lobed. Capsule 3-coccal oblate, ca. 1.5 × 2–3 cm, 3-loculed with usually 1 seed per locule; pericarp ca. 1 mm thick, splitting into 3 valves. Seeds yellowish brown, subglobose, ca. 1.5 cm in diam. Fl. Nov–Dec, fr. Sep–Oct.

• Forests on lower hills or in valleys; 200–400 m. Guangxi (Fangcheng).

20. *Camellia pitlophylla* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 20(1): 98. 1981.

毛叶茶 mao ye cha

Camellia pubescens Hung T. Chang & C. X. Ye.

Shrubs or trees, to 6 m tall. Year-old branchlets straw colored, glabrous; current year branchlets densely grayish yellow pubescent. Petiole 8–10 mm, densely pubescent; leaf blade oblong, (9–)12–21 × (3–)4–6 cm, leathery, abaxially pale green, appressed pubescent but densely villous along midvein, and becoming grayish brown when dry, adaxially dark green, glabrous, and becoming dull when dry, midvein abaxially elevated and adaxially flat, secondary veins 8–10 on each side of midvein and visible to slightly raised on both surfaces, base cuneate to broadly cuneate, margin serrulate, apex acuminate. Flowers axillary or subterminal, solitary, 2.5–3 cm in diam. Pedicel 5–7 mm, densely grayish yellow pubescent; bracteoles 3, caducous. Sepals 5 or 6, persistent, broadly ovate to suborbicular, 5–6 mm, outside grayish yellow sericeous, inside glabrous. Petals 5(–8), white, broadly obovate, 1.5–1.8 cm, basally slightly connate. Stamens ca. 1 cm, glabrous; outer filament whorl basally connate for ca. 2 mm. Ovary densely grayish yellow pubescent, 3-loculed; style ca. 1 cm, glabrous or basally pubescent, apically 3-lobed. Capsule globose or 3-coccal oblate, ca. 1.5 × 2 cm, 1–3-loculed with 1 or 2 seeds per locule; pericarp ca. 1 mm thick, splitting into 3 valves. Seeds brown, hemispherical or globose, ca. 1.5 cm in diam. Fl. Dec, fr. Sep–Oct.

• Forests; 200–500 m. N Guangdong, S Hunan.

21. *Camellia sinensis* (Linnaeus) Kuntze, Trudy Imp. S.-Peterburgsk. Bot. Sada 10: 195. 1887.

茶 cha

Shrubs or trees, 1–5(–9) m tall. Young branches grayish yellow, glabrous; current year branchlets purplish red, white pubescent; terminal buds silvery gray sericeous. Petiole 4–7 mm, pubescent, glabrescent; leaf blade elliptic, oblong-elliptic, or oblong, 5–14 × 2–7.5 cm, leathery, abaxially pale green and glabrous or pubescent, adaxially dark green, shiny, and glabrous, midvein ± raised on both surfaces, secondary veins 7–9 on each side of midvein and ± raised on both surfaces, reticulate veins visible on both surfaces, base cuneate to broadly cuneate, margin serrate to serrulate, apex bluntly acute to acuminate and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster, 2.5–3.5 cm in diam. Pedicel 5–10 mm, recurved, pubescent or

glabrous, thickened toward apex; bracteoles 2, caducous, ovate, ca. 2 mm. Sepals 5, persistent, broadly ovate to suborbicular, 3–5 mm, outside glabrous or white pubescent, inside white sericeous, margin ciliolate. Petals 6–8, white; outer 1–3 petals sepaled; inner petals obovate to broadly obovate, 1.5–2 × 1.2–2 cm, basally connate, apex rounded. Stamens numerous, 0.8–1.3 cm, glabrous; outer filament whorl basally connate for ca. 2 mm. Ovary globose, densely white pubescent, tomentose, or subglabrous, 3-loculed; style ca. 1 cm, glabrous or base pubescent, apically 3-lobed. Capsule obovate, 2-coccal, or rarely globose, 1–1.5 × 1.5–3 cm, 1- or 2-loculed with 1 seed per locule; pericarp ca. 1 mm thick. Seeds brown subglobose, 1–1.4 cm in diam. Fl. Oct–Feb, fr. Aug–Oct.

Evergreen broad-leaved forests, thickets; 100–2200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, SE Xizang, Yunnan, Zhejiang [NE India, S Japan, S Korea, Laos, Myanmar, Thailand, Vietnam].

Tea is made from the vegetative buds and young leaves of *Camellia sinensis* var. *sinensis* and *C. sinensis* var. *assamica*. There is a long history of the use and cultivation of tea in China. Tea is usually distinguished by the Chinese people as small leaf tea (var. *sinensis*) with a more northern distribution and large leaf tea (var. *assamica*) with a more southern distribution. However, the other varieties of *C. sinensis* and even some other species of *Camellia* are locally used as tea. The distinction between green tea and black tea concerns the processing of the leaves whether they are just wilted before drying (green tea) or wilted and then fermented before drying (black tea).

Because of extensive cultivation, it is often difficult to know for certain whether specific collections of var. *sinensis* and var. *assamica* are wild, cultivated, or escaped. For this reason, the actual wild distribution of these two varieties is uncertain.

- 1a. Leaf blade apex acute to bluntly acute and with an obtuse tip; ovary densely pubescent or tomentose.
 2a. Sepals outside glabrous 21a. var. *sinensis*
 2b. Sepals outside white pubescent ... 21b. var. *pubilimba*
 1b. Leaf blade apex acuminate; ovary glabrous at least apically.
 3a. Leaf blade abaxially densely spreading villous along midvein; ovary apically glabrous 21c. var. *assamica*
 3b. Leaf blade abaxially appressed pubescent; ovary glabrous or base rarely sparsely pubescent 21d. var. *dehungensis*

21a. *Camellia sinensis* var. *sinensis*

茶(原变种) cha (yuan bian zhong)

Thea sinensis Linnaeus, Sp. Pl. 1: 515. 1753; *Camellia arborescens* Hung T. Chang & F. L. Yu; *C. longlingensis* F. C. Zhang et al.; *C. oleosa* (Loureiro) Rehder; *C. sinensis* f. *formosensis* Kitamura; *C. sinensis* f. *macrophylla* (Siebold) Kitamura; *C. sinensis* f. *parvifolia* (Miquel) Sealy; *C. sinensis* var. *waldeniae* (S. Y. Hu) Hung T. Chang; *C. thea* Link; *C. waldeniae* S. Y. Hu; *T. bohea* Linnaeus; *T. cantonensis* Loureiro; *T. chinensis* Sims; *T. cochinchinensis* Loureiro; *T. grandifolia* Salisbury; *T. olearia* Loureiro ex Gomes; *T. oleosa* Loureiro; *T. parvifolia* Salisbury (1796), not Hayata (1913); *T. sinensis* var. *macrophylla* Siebold; *T. sinensis* var. *parvifolia* Miquel; *T. viridis* Linnaeus; *Theaphylla cantonensis* (Loureiro) Rafinesque.

Leaf blade abaxially glabrous or sparsely pubescent only when young, apex bluntly acute. Sepals outside glabrous. Ovary densely white pubescent. Fl. Oct–Dec, fr. Sep–Oct. $2n = 30, 45, 60$.

Evergreen broad-leaved forests, thickets; 100–2200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, SE Xizang, Yunnan, Zhejiang [NE India, S Japan, S Korea].

This taxon is widely cultivated in tropical and subtropical parts of the world. Because of its extensive long-term cultivation, the original wild distribution in E Asia is obscure although certainly much more restricted than the current distribution.

21b. *Camellia sinensis* var. *pubilimba* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 20(1): 98. 1981.

白毛茶 bai mao cha

Camellia angustifolia Hung T. Chang; *C. dishiensis* F. C. Zhang et al.; *C. parvisepala* Hung T. Chang.

Leaf blade abaxially densely white pubescent, apex acute and with an obtuse tip. Flowers small. Sepals outside white pubescent. Ovary tomentose. Fl. Oct–Dec, fr. Aug–Oct.

• Evergreen broad-leaved forests; 200–1500 m. W Guangdong, Guangxi, Hainan, SE Yunnan.

21c. *Camellia sinensis* var. *assamica* (J. W. Masters) Kitamura, Acta Phytotax. Geobot. 14: 59. 1950.

普洱茶 pu er cha

Thea assamica J. W. Masters, J. Agric. Soc. India 3: 63. 1844; *Camellia assamica* (J. W. Masters) Hung T. Chang; *C. assamica* var. *kucha* (Hung T. Chang & H. S. Wang) Hung T. Chang & H. S. Wang; *C. assamica* var. *polyneura* (Hung T. Chang & Y. J. Tang) Hung T. Chang; *C. multiseepala* Hung T. Chang & Y. J. Tang; *C. polyneura* Hung T. Chang & Y. J. Tang; *C. sinensis* var. *kucha* Hung T. Chang & H. S. Wang; *C. theifera* Griffith; *T. chinensis* var. *assamica* (J. W. Masters) Pierre; *T. viridis* var. *assamica* (J. W. Masters) Choisy.

Leaf blade elliptic, 8–14 × 3.5–7.5 cm, abaxially densely spreading villous along midvein, apex acuminate. Ovary apically glabrous. Fl. Dec–Feb, fr. Aug–Oct. $2n = 30$.

Evergreen broad-leaved forests; (100–)500–1500(–1900) m. S Guangdong, S Guangxi, Hainan, S Yunnan [Laos, Myanmar, Thailand, Vietnam].

Camellia sinensis var. *assamica* is the source of Puer (普洱) tea which is a black (fermented) tea from Yunnan.

21d. *Camellia sinensis* var. *dehungensis* (Hung T. Chang & B. H. Chen) T. L. Ming, Acta Bot. Yunnan. 14: 128. 1992.

德宏茶 de hong cha

Camellia dehungensis Hung T. Chang & B. H. Chen, Acta Sci. Nat. Univ. Sunyatseni 23(1): 8. 1984; *C. parvisepaloides* Hung T. Chang & H. S. Wang.

Leaf blade elliptic, 11–17 × 4–7 cm, abaxially pubescent, apex acuminate to acute. Ovary glabrous, base rarely sparsely pubescent. Fl. Dec–Jan, fr. Sep–Oct.

• Evergreen broad-leaved forests; 100–1600(–2000) m. S Yunnan.

3. *Camellia* sect. *Longipedicellatae* Hung T. Chang, Taxon. Gen. *Camellia*, 98. 1981 [*“Longipedicellata”*].

长梗茶组 chang geng cha zu

Camellia sect. *Longissimae* Hung T. Chang.

Flowers axillary. Pedicel slender, elongate; bracteoles 2–4, persistent or caducous. Sepals 5, persistent. Petals 7–9, white, nearly distinct. Stamens in 2 or 3 whorls; filament filiform, glabrous or pubescent; outer filament whorl basally connate. Ovary 3(or 4)-loculed; style 3-parted to nearly distinct.

Five species: SW China, Laos, Vietnam; four species (three endemic) in China.

- 1a. Bracteoles caducous 25. *C. longissima*
 1b. Bracteoles persistent.
 2a. Ovary glabrous 22. *C. longipedicellata*
 2b. Ovary tomentose.
 3a. Current year branchlets, abaxial surface of leaf blades, and petioles glabrous; leaf blade oblong to oblong-lanceolate, 16–25 × 3.5–7 cm; petiole 6–10 mm 23. *C. hekouensis*
 3b. Current year branchlets, midvein of leaf blade abaxial surface, and petioles pubescent; leaf blade narrowly lanceolate, 6–11 × 1.4–2.8 cm; petiole 2–4 mm 24. *C. gracilipes*

22. *Camellia longipedicellata* (Hu) Hung T. Chang & D. Fang, Acta Phytotax. Sin. 18: 229. 1980.

长梗茶 chang geng cha

Theopsis longipedicellata Hu, Acta Phytotax. Sin. 10: 141. 1965.

Shrubs 1–2 m tall. Young branches grayish brown, slender, glabrescent; current year branchlets purplish brown, pubescent. Petiole ca. 2 mm, pubescent; leaf blade broadly ovate, elliptic, or oblong-elliptic, 4–7 × 1.5–3.5 cm, leathery, abaxially pale green, brown glandular punctate, and sparsely pubescent along midvein, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5 or 6 on each side of midvein, abaxially raised, and adaxially slightly impressed, base cuneate to obtuse, margin serrulate, apex acute to acuminate and with an obtuse tip. Bract solitary at base of pedicel, ovate, ca. 1.5 mm, outside pubescent, margin ciliolate. Flowers axillary or subterminal, solitary, ca. 4.5 cm in diam. Pedicel 1.2–2 cm, slender, glabrous; bracteoles 3 or 4, persistent, ovate, 1–2 mm, margin ciliolate. Sepals 5–7, broadly ovate, 4–7 mm, glabrous, margin ciliolate. Petals ca. 9, white, obovate, 2–3 × 1.5–2 cm, basally slightly connate. Stamens ca. 1 cm; outer filament whorl glabrous, basally connate into a 3–5 mm tube; inner filaments nearly distinct, white pilose. Ovary globose, ca. 2 mm in diam., glabrous, 3(or 4)-loculed; styles 3(or 4), distinct, ca. 1 cm but elongating after anthesis. Capsule obovate, 1–1.5 cm in diam., 3(or 4)-loculed; pericarp ca. 1 mm thick. Seeds brown, pubescent. Fl. Dec–Feb, fr. Sep–Oct.

- Thickets on calcareous hills; ca. 200 m. C Guangxi.

23. *Camellia hekouensis* C. J. Wang & G. S. Fan, Acta Bot. Yunnan. 10: 365. 1988.

河口长梗茶 he kou chang geng cha

Shrubs or trees, 3–4.5 m tall. Year-old branchlets purplish brown; current year branchlets green, glabrous. Petiole 6–10 mm, glabrous; leaf blade oblong to oblong-lanceolate, 16–25 × 3.5–7 cm, thinly leathery, abaxially pale green and becoming pale brown when dry, adaxially dark green, both surfaces gla-

brous, midvein raised, secondary veins 13–18 on each side of midvein and raised on both surfaces, reticulate veins slightly raised or obscure on both surfaces, base broadly cuneate to rounded, margin serrulate, apex abruptly shortly caudate to long caudate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 2.5–3.5 cm, slender, glabrous; bracteoles 3, persistent, ovate, ca. 1 mm, glabrous. Sepals 5, broadly ovate to suborbicular, 3–5 × 3–4 mm, glabrous, margin ciliolate. Petals 7, white, nearly distinct, obovate to obovate-elliptic, 7–10 × 6–7 mm, glabrous. Stamens ca. 7 mm, glabrous; outer filament whorl basally connate for ca. 1 mm. Ovary ovoid, ca. 1.5 mm in diam., densely pale yellow tomentose, 3-loculed; style ca. 5 mm, 3-parted to near base, base pubescent or glabrous. Capsule not seen. Fl. Nov–Dec.

- Forests on hilly slopes or in valleys; 300–500 m. SE Yunnan (Hekou).

24. *Camellia gracilipes* Merrill ex Sealy, Kew Bull. 4: 218. 1949.

狭叶长梗茶 xia ye chang geng cha

Shrubs 1.8–3 m tall. Young branches grayish brown, slender, glabrous; current year branchlets purplish red, gray pubescent. Petiole 2–4 mm, pubescent; leaf blade narrowly lanceolate, 6–11 × 1.4–2.8 cm, leathery, abaxially pale green, pubescent along midvein, and becoming yellowish brown when dry, adaxially dark green and glabrous, midvein abaxially raised and adaxially impressed, secondary veins 6 or 7 on each side of midvein, abaxially raised, and adaxially impressed, base rounded to obtuse, margin sparsely serrate, apex long acuminate to caudate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 3–3.5 cm, slender, glabrous; bracteoles 2, persistent, long ovate, ca. 1 × 0.5 mm, membranous, glabrous, apex apiculate. Sepals 5, semiorbicular to broadly elliptic, 1.5–2.5 × 2–4 cm, glabrous, margin ciliolate. Petals 7, white, obovate to broadly obovate; outer 2 petals ca. 7 mm; inner petals nearly distinct, 10–11 × 6–10 mm, outside silky gray sericeous, inside glabrous. Stamens ca. 6 mm, glabrous; outer filament whorl basally connate for 1–2 mm. Ovary ovoid, ca. 2 mm, yellow tomentose, 3-loculed; style ca. 7 mm, 3-parted to near base, basal 1/2 pubescent. Capsule ovoid, 2.5–3.5 × 2–2.5 cm, usually 1-

loculed with 1 seed; pericarp ca. 1 mm thick. Seed brown, globose, glabrous. Fl. Nov–Dec, fr. Sep–Oct.

Thickets; 100–300 m. Guangxi (Fangcheng) [N Vietnam].

25. *Camellia longissima* Hung T. Chang & S. Ye Liang in Hung T. Chang, *Taxon. Gen. Camellia*, 124. 1981.

超长梗茶 chao chang geng cha

Shrubs or trees, 3.5–5 m tall. Young branches grayish white to straw colored; current year branchlets purplish brown, glabrous. Petiole 2–7 mm, glabrous; leaf blade obovate-elliptic to obovate-oblong, 9–19 × 4–8.5 cm, papery, abaxially pale green, adaxially dark green, both surfaces glabrous, midvein abaxially raised and adaxially ± impressed, secondary veins 14–

19 on each side of midvein, abaxially raised, and adaxially ± impressed, base cuneate to broadly cuneate, margin serrulate, apex abruptly caudate with a 1–1.5 cm cauda. Flowers axillary, solitary or paired. Pedicel 1.7–4.5 cm, slender, glabrous; bracteoles 2–4, caducous. Sepals 5, broadly ovate to suborbicular, 4–5 × 3–4 mm, outside glabrous, inside white pubescent, margin ciliolate. Petals 7 or 8, white, nearly distinct, obovate-elliptic, ca. 10 × 7–8 mm. Stamens 7–8 mm, glabrous; outer filament whorl basally connate for ca. 1 mm. Ovary globose, ca. 1 mm in diam., glabrous, 3-loculed; style 6–8 mm, apically 3-parted for ca. 1/3 of its length, glabrous. Capsule not seen. Fl. Dec.

• Evergreen broad-leaved forests; 400–500 m. Guangxi (Longzhou).

4. *Camellia* sect. *Corallinae* Sealy, Rev. Gen. *Camellia*, 132. 1958 [“*Corallina*”].

短蕊茶组 duan rui cha zu

Camellia sect. *Brachyandrae* Hung T. Chang.

Flowers axillary or subterminal, solitary or to 3 in a cluster, small. Bracteoles 2 or 3, persistent, contiguous with sepals, rarely absent. Sepals (4 or 5 or 6), persistent, basally connate into a shallow cup. Petals 5–7(–9), white or rarely yellow; inner 5 petals basally connate and adnate to androecium. Stamens in 2(or 3) whorls, short, ca. 1/2 as long as petals; filament usually subulate; outer filament whorl basally connate. Styles distinct or nearly so.

Nine species: S China, N Vietnam; five species (four endemic) in China.

1a. Leaf blade base auriculate-cordate; seeds pubescent.

2a. Current year branchlets glabrous; leaf blade oblong to oblong-lanceolate, 9–23.5 cm; petals yellow; ovary glabrous 26. *C. amplexifolia*

2b. Current year branchlets spreading hirsute; leaf blade elliptic to ovate-oblong, 2–5.5 cm; petals white; ovary tomentose 27. *C. pilosperma*

1b. Leaf blade base rounded, cuneate, or obtuse; seeds glabrous.

3a. Ovary white pubescent 30. *C. xanthochroma*

3b. Ovary glabrous.

4a. Leaf blade elliptic to oblong-elliptic, secondary veins adaxially impressed, apex abruptly shortly caudate; pedicel 4–5 mm; ovary base with a terete disk 28. *C. gilbertii*

4b. Leaf blade oblong to oblong-lanceolate, secondary veins adaxially obscure, apex obtuse; pedicel ca. 1.5 mm; ovary base without a disk 29. *C. parviflora*

26. *Camellia amplexifolia* Merrill & Chun, *Sunyatsenia* 5: 129. 1940.

抱茎短蕊茶 bao jing duan rui cha

Theopsis amplexifolia (Merrill & Chun) Hu.

Shrubs to 4 m tall. Young branches grayish brown; current year branchlets purplish brown, thick, glabrous. Petiole 1–2 mm, glabrous; leaf blade oblong to oblong-lanceolate, 9–23.5 × 3–5.5(–6.5) cm, leathery, abaxially pale green but becoming brown when dry, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 9–11 on each side of midvein, slender, and slightly raised on both surfaces, base cordate and amplexicaul, margin undulate-serrate to subentire, apex acute to obtuse. Flowers axillary, solitary or paired. Pedicel ca. 2 mm, glabrous; bracteoles 2 or 3, persistent, semiorbicular to broadly ovate, 1–1.5 mm, glabrous. Calyx campanulate, 3–4 mm; lobes 5, persistent, unequal, broadly ovate, 2–4 mm, concave, crustaceous, glabrous, margin membranous and ciliolate. Petals 5 or 6, yellow, broadly ovate, 5–7 mm, basally connate for ca. 2 mm, apex rounded.

Stamens ca. 20, 4–4.5 mm, glabrous, basally connate into a short tube. Ovary glabrous, 3-loculed; styles 3, distinct, ca. 3 mm. Capsule oblate, ca. 1 × 1.3 cm, 3-loculed with 1 or 2 seeds per locule; pericarp ca. 1.7 mm thick. Seeds brown, hemispherical, pubescent. Fl. May–Jun, fr. Oct.

• Forests; ca. 1100 m. Hainan (Baoting).

27. *Camellia pilosperma* S. Ye Liang, *Acta Phytotax. Sin.* 17(2): 95. 1979.

毛籽短蕊茶 mao zi duan rui cha

Shrubs 1–3 m tall. Young branches grayish brown; current year branchlets spreading hirsute, indumentum persistent. Petiole 1.5–2 mm, hirtellous; leaf blade elliptic to ovate-oblong, 2–5.5 × 1–2.5 cm, leathery, abaxially pale green and sparsely pubescent, adaxially dark green and hirtellous along midvein, both surfaces becoming dark brown when dry, midvein abaxially raised and adaxially impressed, secondary veins 5–7 on each side of midvein, abaxially raised, and adaxially impressed, base auriculate-cordate, margin serrulate, apex obtuse. Flowers axillary, solitary or paired, 2–2.5 cm in diam. Pedicel ca. 2 mm;

bracteoles 2 or 3(or 4), covering pedicel, semiorbicular to suborbicular, 0.5–2 mm, glabrous. Sepals 5(or 6), suborbicular, 4–5 mm, crustaceous, margin broadly membranous and ciliate. Petals 5–7, white, obovate to obovate-elliptic, 1.2–2 × 0.7–1.2 cm, apex emarginate, basally connate for ca. 2 mm. Stamens ca. 1.2 cm, glabrous; outer filament whorl basally connate for ca. 2 mm. Ovary tomentose, 3-loculed; styles 3, distinct to basal 1/3 connate, ca. 1 cm. Capsule oblate, 5–7 × 7–10 mm, 3-loculed with 1 or 2 seeds per locule; pericarp ca. 1 mm thick. Seeds globose or hemispherical, 4–5 mm in diam., pubescent. Fl. Jan–Feb, fr. Oct–Nov.

- Thickets; 100–500 m. Guangxi (Zhaoping).

28. *Camellia gilbertii* (A. Chevalier) Sealy, Rev. Gen. *Camellia*, 136. 1958.

中越短蕊茶 zhong yue duan rui cha

Thea gilbertii A. Chevalier, Bull. Econ. Indochine 21: 531. 1919.

Shrubs to 2 m tall. Young branches grayish yellow, slender; current year branchlets purplish red, pubescent or glabrescent. Petiole purplish red, 5–8 mm, sparsely pubescent; leaf blade elliptic to oblong-elliptic, 7–13 × 3–5 cm, thinly leathery, abaxially pale green and sparsely pubescent along midvein, adaxially green, both surfaces glabrous, midvein abaxially raised and adaxially impressed, secondary veins 6 or 7 on each side of midvein, abaxially raised, and adaxially impressed, base cuneate, margin obtusely serrate, apex abruptly shortly caudate. Flowers axillary, solitary. Pedicel 4–5 mm, glabrous; bracteoles 2 or 3, persistent, ovate to semiorbicular, 0.5–1 mm, glabrous. Sepals 5 or 6, broadly ovate, 2–3 × 3–4 mm, glabrous. Petals 5 or 6, white, broadly obovate to suborbicular, 6–7 × 3.5–5.5 mm, basally connate for ca. 2 mm, apex rounded. Stamens ca. 20, ca. 4 mm, glabrous; filaments subulate; outer filament whorl basally connate for ca. 2 mm. Gynoecium ca. 2.5 mm, glabrous, seated on a fleshy shortly cylindrical lobulate disk ca. 1 mm high. Ovary globose, ca. 1.5 mm in diam., glabrous, 3-loculed; styles 3, distinct, ca. 1 mm. Capsule not seen. Fl. Nov–Dec.

Forests, thickest; near sea level to 2000 m. Yunnan (Hekou) [N Vietnam].

29. *Camellia parviflora* Merrill & Chun ex Sealy, Rev. Gen. *Camellia*, 139. 1958.

细花短蕊茶 xi hua duan rui cha

Shrubs to 3 m tall. Young branches grayish white, slender;

current year branchlets pubescent or glabrescent. Petiole 3–5 mm, sparsely pubescent or glabrescent; leaf blade oblong to oblong-lanceolate, 4–7(–14) × (1–)1.5–3(–3.5) cm, thinly leathery, abaxially pale green and sparsely pubescent along midvein or glabrescent, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins obscure on both surfaces, base cuneate, margin widely undulate-dentate, apex obtuse. Flowers axillary or subterminal, solitary, 8–10 mm in diam. Pedicel ca. 1.5 mm; bracteoles 2, persistent, semiorbicular, 1–1.5 mm, glabrous, margin ciliate. Sepals 5(or 6), persistent, suborbicular, 2.5–4 mm, leathery, glabrous, margin membranous and ciliate. Petals 5 or 6, white, obovate to obovate-elliptic, 7–8 × 3.5–5.5 mm, basally connate for 2–3 mm, apex rounded. Stamens ca. 4 mm, glabrous; filament subulate, basally connate for ca. 1.5 mm. Ovary glabrous, 3-loculed; styles 3, distinct, ca. 3 mm. Capsule oblate, 1–1.5 cm in diam.; pericarp 1–1.5 mm thick. Seeds brown, hemispherical. Fl. Apr–May, fr. Nov.

- Rain forests; 300–500 m. S and SW Hainan.

30. *Camellia xanthochroma* K. M. Feng & L. S. Xie, Acta Bot. Yunnan. 2: 424. 1980.

黄花短蕊茶 huang hua duan rui cha

Camellia brachyandra Hung T. Chang.

Shrubs 2–4 m tall. Young branches grayish brown, slender; current year branchlets brown, glabrous. Petiole 3–7 mm, thick, glabrous, abaxially grooved; leaf blade oblong to oblong-elliptic, (6.5–)12–21 × (2–)4–7 cm, thinly leathery, abaxially pale green, adaxially green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 11–13 on each side of midvein, abaxially raised, and adaxially visible to slightly impressed, base rounded to obtuse, margin widely undulate-serrate to subentire, apex obtuse. Flowers axillary, solitary or to 3 in a cluster, 1–1.2 cm in diam. Pedicel ca. 2 mm, glabrous; bracteoles 2(or 3), persistent, broadly ovate, ca. 2 mm, glabrous. Sepals 5 or 6, persistent, pale yellow, suborbicular, 3–4 mm, leathery, glabrous, margin membranous. Petals 6–8, broadly obovate, 6–7 mm, basally slightly connate, apex rounded. Stamens 12–16, 3–4 mm; filaments glabrous, basally connate. Ovary globose, ca. 2 mm in diam., white pubescent, 3-loculed; styles 3, distinct, ca. 2 mm, glabrous. Capsule oblate, ca. 8 × 10 mm, 3(or 4)-loculed; pericarp ca. 2 mm thick. Fl. Jul–Aug, fr. Oct–Dec.

- Forests along streams; 100–200 m. S Hainan (Sanya).

5. *Camellia* sect. **Theopsis** Cohen-Stuart, Meded. Proefstat. Thee 40: 69. 1916.

连蕊茶组 lian rui cha zu

Camellia subg. *Metacamellia* Hung T. Chang; *Theopsis* (Cohen-Stuart) Nakai.

Leaf blade often small, thinly leathery, adaxially hirtellous along midvein. Flowers axillary, solitary or paired, small. Bracteoles (2 or)3–5(–8), persistent. Sepals 5, basally ± connate. Petals 5(–7), white, basally connate and adnate with androecium. Stamens in 2 whorls, glabrous; outer filament whorl basal 2/3 usually connate into a tube. Gynoecium glabrous. Ovary 3(–5)-loculed. Capsule 1(–4)-loculed, usually 1-seeded, rarely more; columella nearly abortive; pericarp ca. 1 mm thick, leathery, splitting into 3 valves.

Nineteen species: China, S Japan, Myanmar, Thailand, Vietnam; 19 species (14 endemic) in China.

1a. Current year branchlets glabrous or puberulent, sometimes only obviously minutely puberulent under magnification.

- 2a. Sepals linear-lanceolate, 5–10 mm, apex caudate-acuminate 37. *C. longicalyx*
- 2b. Sepals broader than linear-lanceolate, 1–5(–8) mm, apex rounded, obtuse, or caudate.
- 3a. Young branches slender and ascendant; pedicel 8–12 mm, not thickened toward apex; calyx ca. 2/3 connate 49. *C. elongata*
- 3b. Young branches spreading; pedicel 2–5 mm, thickened toward apex; calyx ca. 1/2 or less connate.
- 4a. Leaf blade glabrous, midvein adaxially impressed 36. *C. glabricostata*
- 4b. Leaf blade minutely hirtellous, midvein adaxially raised.
- 5a. Leaf blade oblong-elliptic, elliptic, or oblong-lanceolate; sepals and petals outside not farinose-puberulent; sepal margins membranous 34. *C. cuspidata*
- 5b. Leaf blade lanceolate to linear-lanceolate; sepals and petals outside farinose-puberulent; sepal margins ciliolate 35. *C. viridicalyx*
- 1b. Current year branchlets densely pubescent, hispidulous, hirsute, or spreading villous.
- 6a. Current year branchlets spreading villous, hirsute, or pubescent.
- 7a. Filaments white pilose 47. *C. tsingpiensis*
- 7b. Filaments glabrous.
- 8a. Leaves distichous; leaf blade ovate to elliptic-ovate, 1–2.5 cm, base rounded to subcordate; sepals outside glabrous 44. *C. trichoclada*
- 8b. Leaves not distichous; leaf blade elliptic, oblong-elliptic, or ovate-lanceolate, 2–8 cm, base broadly cuneate to cuneate; sepals outside villous.
- 9a. Leaf blade 4–8 × 2–3.5 cm; petiole 3–5 mm; calyx lobes inside yellow sericeous; petals 2–2.5 cm 45. *C. fraterna*
- 9b. Leaf blade 2–4.8 × 1–1.7 cm; petiole 1.5–3 mm; calyx lobes inside glabrous; petals 1–1.8 cm 46. *C. transarisanensis*
- 6b. Current year branchlets densely pubescent or hispidulous.
- 10a. Style usually divided to middle, apically parted for (1–)2.5–9 mm.
- 11a. Style (4 or)5-parted 31. *C. stuartiana*
- 11b. Style 3-parted.
- 12a. Style parted for 7–9 mm 33. *C. crassipes*
- 12b. Style parted for 2.5–5 mm.
- 13a. Leaf blade elliptic, elliptic-ovate, ovate, or oblong-ovate, 2–7 × 1–2.5 cm, base rounded to obtuse, apex broadly obtuse, bluntly acute, or bluntly acuminate; bracteoles outside glabrous; stamens 0.9–1.2 cm; style 0.8–1.2 cm; capsule apex convex 32. *C. forrestii*
- 13b. Leaf blade oblong-lanceolate, lanceolate, or narrowly lanceolate, 5–10 × 1.5–3 cm, base cuneate to broadly cuneate, apex long acuminate to caudate; bracteoles outside pubescent; stamens 1.1–1.4 cm; style 1.2–1.5 cm; capsule apex apiculate 40. *C. tsaii*
- 10b. Style apically 3-lobed or 3-parted, apically parted for ca. 1.5 mm or less.
- 14a. Leaf blade 2–4.5 cm.
- 15a. Bracteoles 4–8, covering pedicel 41. *C. lutchuensis*
- 15b. Bracteoles 3–5, not covering pedicel.
- 16a. Pedicel 2–4 mm, stout, bracteoles outside glabrous; calyx lobes 2–2.5 mm 42. *C. rosthorniana*
- 16b. Pedicel 4–10 mm but to 15 mm in fruit, slender, bracteoles outside puberulent near apex; calyx lobes 1–1.5 mm 43. *C. euryoides*
- 14b. Leaf blade 5–10(–12) cm.
- 17a. Calyx lobes outside glabrous 38. *C. synaptica*
- 17b. Calyx lobes outside pubescent.
- 18a. Pedicel 2–5 mm; calyx 3–4.5 mm 39. *C. costei*
- 18b. Pedicel ca. 7 mm; calyx 5–5.6 mm 48. *C. cupiformis*

31. *Camellia stuartiana* Sealy, Kew Bull. 4: 220. 1949.

五室连蕊茶 wu shi lian rui cha

Shrubs or trees, 2–6 m tall. Young branches grayish brown, glabrous; current year branchlets yellow pubescent. Petiole 3–5 mm, pubescent; leaf blade oblong-elliptic to elliptic, 7–12 × 3–4 cm, thinly leathery, abaxially pale green and sparsely pilose, adaxially dark green and hirtellous along midvein, midvein abaxially raised and adaxially visible to slightly raised, secondary veins 8–10 on each side of midvein, abaxially ± raised, and adaxially visible to slightly impressed, reticulate veins adaxially visible to slightly impressed, base broadly cuneate,

margin serrulate, apex caudate. Flowers axillary or subterminal, solitary or paired. Pedicel 2–3 mm; bracteoles 4 or 5, persistent, broadly triangular to ovate, 1–1.5 mm, outside grayish villous, inside glabrous, margin ciliolate. Calyx cupular; lobes 5, broadly ovate to suborbicular, 2–3 mm, outside densely grayish villous, inside glabrous, basally connate for ca. 1 mm. Petals 5–7, white, broadly obovate to obovate-elliptic, 1.5–1.7 cm, outside villous toward apex, basally connate for ca. 4 mm, apex rounded to retuse. Stamens 1.2–1.5 cm, glabrous; outer filament whorl basally connate for 6–7 mm. Ovary ovoid, glabrous, (4 or)5-loculed; style 1.5–1.7 cm, (4 or)5-parted for 7–9 mm. Capsule globose, ca. 2 cm in diam., 1-loculed with 1 seed; pericarp

ca. 1 mm thick. Seed brown, globose, ca. 1.7 cm in diam. Fl. Feb–Mar, fr. Aug–Sep.

- Forests; ca. 1500 m. Yunnan (Hekou, Yuanjiang).

32. *Camellia forrestii* (Diels) Cohen-Stuart, Meded. Proefstat. Thee 40: 68. 1916.

云南连蕊茶 *yun nan lian rui cha*

Shrubs or trees, 1–6(–8) m tall. Older branches grayish brown, bark splitting longitudinally, exfoliating, and becoming smooth and gray; current year branchlets densely shortly pubescent to hispidulous, indumentum persisting through second year. Petiole 2–4 mm, densely shortly pubescent to hispidulous; leaf blade elliptic, elliptic-ovate, ovate, or oblong-ovate, 2–7 × 1–2.5 cm, leathery to thinly leathery, abaxially pale green and sparsely pubescent but with a dense indumentum along midvein or glabrescent, adaxially dark green and hirtellous along midvein, midvein raised on both surfaces, secondary veins obscure to slightly raised on both surfaces, base rounded to obtuse, margin serrulate to crenulate-serrulate, apex broadly obtuse, bluntly acute, or bluntly acuminate. Flowers axillary, solitary or paired, 1.5–2.5 cm in diam. Pedicel 2–4.5 mm, thickened toward apex; bracteoles 3 or 4, persistent, semiorbicular, triangular-ovate, or broadly ovate, 1–2 mm, outside glabrous, margin ciliolate, apex rounded, obtuse, or acute. Calyx cupular, 5–6 mm; lobes 5, persistent, unequal, semiorbicular, broadly ovate, triangular-ovate, or long ovate, 2.5–10 mm, leathery, outside glabrous or apically pubescent, inside puberulent, margin membranous, apex rounded, obtuse, or acute. Petals 5 or 6, white but sometimes pink or purplish red in bud, broadly obovate, unequal, 0.6–1.5 cm, basally connate for ca. 2 mm, apex rounded to retuse. Stamens 0.9–1.2 cm, glabrous; outer filament whorl basally connate for 2–3.5(–5) mm. Ovary ovoid, 1–2 mm in diam., glabrous, 3-loculed; style 0.8–1.2 cm, apically 3-parted for 2.5–5 mm. Capsule ovoid, 1.2–1.5 cm in diam., 1-loculed with 1 seed, apex convex; pericarp ca. 1 mm thick, leathery. Seed brown, globose, ca. 1 cm in diam., smooth. Fl. Nov–May, fr. Sep–Oct. $2n = 30, 60, 90$.

Forests, thickets; (1200–)1600–2900(–3200) m. Yunnan [N Vietnam].

- 1a. Sepals triangular-ovate to long ovate, apex acute 32c. var. *acutisepala*
 1b. Sepals broadly ovate to suborbicular, apex rounded to obtuse.
 2a. Flower buds white, rarely pink; sepal 2.5–5 mm, margins narrowly membranous 32a. var. *forrestii*
 2b. Flower buds lightly purplish red; sepal 7–10 mm, margins widely membranous 32b. var. *pentamera*

32a. *Camellia forrestii* var. *forrestii*

云南连蕊茶(原变种) *yun nan lian rui cha (yuan bian zhong)*

Thea forrestii Diels, Notes Roy. Bot. Gard. Edinburgh 5: 284. 1912; *Camellia liui* H. T. Tsai & K. M. Feng; *C. polygama* (Hu) Hu; *C. truncata* Hung T. Chang & C. X. Ye; *T. polygama* Hu; *Theopsis forrestii* (Diels) Nakai; *T. polygama* (Hu) Nakai.

Leaf blade ovate, elliptic-ovate, or oblong-ovate, apex usually obtuse but sometimes bluntly acute to bluntly acuminate. Flower buds white, rarely pink. Sepals 2.5–5 mm, margins narrowly membranous. Fl. Jan–Mar, fr. Sep–Oct.

Forests, thickets; (1200–)1600–2800(–3200) m. Yunnan [N Vietnam].

32b. *Camellia forrestii* var. *pentamera* (Hung T. Chang) T. L. Ming, Acta Bot. Yunnan. 21: 153. 1999.

膜萼云南连蕊茶 *mo e yun nan lian rui cha*

Camellia pentamera Hung T. Chang, Taxon. Gen. *Camellia*, 90. 1981.

Flower buds lightly purplish red. Sepals broadly ovate, 7–10 mm, margin widely membranous. Fl. Feb–May, fr. Sep–Oct.

- Thickets; 2000–2500 m. Yunnan (Wenshan).

32c. *Camellia forrestii* var. *acutisepala* (H. T. Tsai & K. M. Feng) Hung T. Chang, Taxon. Gen. *Camellia*, 138. 1981.

尖萼云南连蕊茶 *jian e yun nan lian rui cha*

Camellia acutisepala H. T. Tsai & K. M. Feng, Acta Phytotax. Sin. 1: 189. 1951, not Hung T. Chang (1991).

Bracteoles and sepals triangular-ovate to long ovate, apex acute. Fl. Nov–Feb, fr. Sep.

- Forests, thickets; 1900–2900 m. C Yunnan.

33. *Camellia crassipes* Sealy, Kew Bull. 4: 215. 1949.

粗梗连蕊茶 *cu geng lian rui cha*

Camellia yangkiangensis Hung T. Chang.

Shrubs or trees, 1.5–5(–12) m tall. Current year branchlets densely brown hispidulous, indumentum ± persistent. Petiole 3–5 mm, hispidulous; leaf blade elliptic-ovate to elliptic, (3.5–)4–6.5 × 1.5–2.5 cm, leathery, abaxially pale green and villous along midvein, adaxially dark green, slightly shiny, and hirtellous along midvein, midvein raised on both surfaces, secondary veins 6–8 on each side of midvein, abaxially raised, and adaxially slightly impressed but sometimes obscure on both surfaces, base broadly cuneate to obtuse, margin serrulate, apex bluntly acuminate to caudate. Flowers axillary or subterminal, solitary or paired. Pedicel ca. 4 mm, stout, thickened toward apex, hispidulous; bracteoles 2 or 3, persistent, bluntly triangular to broadly ovate, 2.5–3 mm, outside yellowish brown pubescent, inside sericeous, margin ciliolate. Calyx cupular, 5–6 mm; lobes 5, persistent, broadly ovate to suborbicular, 3–4 mm, thickly crustaceous, outside densely yellowish brown pubescent, inside sericeous, margin thin and ciliolate. Petals 5 or 6, white, broadly obovate, 1.3–2 × 1–1.8 cm, outside sparsely puberulent, basally connate for ca. 3 mm, apex rounded to slightly retuse. Stamens 1.5–1.8 cm, glabrous; outer filament whorl basally connate for ca. 3 mm. Ovary glabrous, 3-loculed; style 1.5–1.8 cm, apically 3-parted for 7–9 mm. Capsule subglobose, ca. 1.6 cm in diam., 1-loculed with 1 seed; pericarp ca. 1 mm thick. Seed brown, subglobose, ca. 1.3 cm in diam. Fl. Feb–Mar, fr. Oct. $2n = 30^*$.

- Evergreen broad-leaved forests, mixed forests, thickets; 900–2500 m. C, NE, and SE Yunnan.

34. *Camellia cuspidata* (Kochs) H. J. Veitch, Gard. Chron., ser. 3, 51: 228, 262. 1912.

连蕊茶 *lian rui cha*

Shrubs or trees, 1–5 m tall. Young branches yellowish brown to grayish brown; current year branchlets straw colored, slender, glabrous or very minutely puberulent when young, soon glabrescent. Petiole 2–5 mm, glabrous or puberulent; leaf blade leathery to thinly leathery, oblong-elliptic, elliptic, or oblong-lanceolate, 5–7.5(–11) × 1.5–3(–4) cm, abaxially pale green and glabrous, adaxially dark green, slightly shiny, and hirtellous along midvein, secondary veins 6–8 on each side of midvein and obscure on both surfaces, base cuneate to broadly cuneate, margin serrulate, apex bluntly acuminate to caudate. Flowers axillary or subterminal, solitary, 2–3 cm in diam. Pedicel 2–8(–15) mm, thickened toward apex; bracteoles 3 or 4, persistent, ovate to semiorbicular, 1–2.5 mm, abaxially glabrous, pubescent, or puberulent. Calyx cupular, 2.5–10 mm; lobes 5, persistent, unequal, broadly ovate, semiorbicular to suborbicular, 2–5(–8) × 2–5.5, thinly leathery, outside glabrous, pubescent, or puberulent, inside puberulent, basally connate for 1–5(–7) mm, margin membranous, apex obtuse. Petals 5–7, white or pale red, obovate or elliptic to suborbicular, 1.3–2.5(–5) × 1–1.6(–3.5) cm, basally connate for 3–3.7 mm and adnate to androecium, apex truncate to emarginate. Stamens 1.5–1.8 cm; filaments glabrous or inner whorl sparsely pubescent; outer filament whorl basally connate into a 3–8 mm tube. Ovary ovoid, ca. 1.5 mm, glabrous, 3-loculed; style 1.5–2.2 cm, apically 3-lobed for 2–3 mm. Capsule globose, 1–2 cm in diam., 1-loculed with 1 seed; pericarp green or reddish, becoming brown when dry, ca. 1 mm thick. Seed brown, globose, ca. 1 cm in diam. Fl. Dec–Apr, fr. Aug–Oct. $2n = 30^*$.

• Forests, thickets, thickets along riverbanks; (100–)500–1500(–2200) m. S Anhui, Fujian, N Guangdong, N Guangxi, Guizhou, Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan, S Yunnan, Zhejiang.

- 1a. Bracteoles and sepals outside pubescent to puberulent 34d. var. *chekiangensis*
 1b. Bracteoles and sepals outside glabrous.
 2a. Inner filament whorl sparsely pubescent 34c. var. *trichandra*
 2b. Filaments glabrous.
 3a. Pedicel 2–3 mm; calyx 2.5–4 mm; sepals basally slightly connate for ca. 1 mm; petals 1.3–2.2 × ca. 1.6 cm; capsule 1–1.2 cm in diam. 34a. var. *cuspidata*
 3b. Pedicel 5.5–8 mm; calyx 6–10 mm; sepals basally connate for 2.5–5(–7) mm; petals 2.5–3.5 cm; capsule ca. 2 cm in diam. 34b. var. *grandiflora*

34a. *Camellia cuspidata* var. *cuspidata*

连蕊茶(原变种) *lian rui cha* (*yuan bian zhong*)

Thea cuspidata Kochs, Bot. Jahrb. Syst. 27: 586. 1900; *Camellia parvicuspidata* Hung T. Chang; *T. rosiflora* (Hooker) Kuntze var. *glabra* Kochs.

Pedicel 2–3 mm. Flowers 2–3 cm in diam. Bracteoles and sepals outside glabrous. Sepals 2.5–4 mm, basally connate for ca. 1 mm. Petals 1.3–2.2 × 1–1.6 cm, basally connate for ca. 3 mm. Stamens 1.5–1.8 cm, glabrous; outer filament whorl connate for 3–4 mm. Capsule globose, 1–1.2 cm in diam. Fl. Feb–Mar, fr. Sep–Oct.

• Forests, thickets; (300–)500–1500(–2200) m. S Anhui, Fujian, N Guangdong, N Guangxi, Guizhou, Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan, S Yunnan, Zhejiang.

34b. *Camellia cuspidata* var. *grandiflora* Sealy, Kew Bull. 4: 216. 1949.

大花连蕊茶 *da hua lian rui cha*

Camellia acutissima Hung T. Chang; *C. longicuspis* S. Ye Liang ex Hung T. Chang; *C. macrosepala* Hung T. Chang; *C. septempetala* Hung T. Chang & L. L. Qi; *C. septempetala* var. *rubra* Hung T. Chang & L. L. Qi.

Pedicel 5.5–8(–15) mm. Flowers ± slightly reddish in bud. Bracteoles and sepals outside glabrous. Sepals 6–10 mm, basally connate for 2.5–7 mm. Petals 2.5–3.5 cm. Capsule ca. 2 cm in diam. Fl. Feb–Apr, fr. Aug–Oct.

• Forests, thickets; 700–1100 m. N Guangdong, N Guangxi, S Hunan, W Jiangxi.

34c. *Camellia cuspidata* var. *trichandra* (Hung T. Chang) T. L. Ming, Acta Bot. Yunnan. 21: 153. 1999.

毛丝连蕊茶 *mao si lian rui cha*

Camellia trichandra Hung T. Chang, Taxon. Gen. *Camellia*, 168. 1981.

Outer filament whorl connate for basal 1/2 into a tube, glabrous; inner filaments pubescent. Capsule 3-loculed with 1 seed per locule. Fl. Dec, fr. Sep–Oct.

• Thickets along riverbanks; ca. 1100 m. Guangxi (Bose, Lingyun).

34d. *Camellia cuspidata* var. *chekiangensis* Sealy, Rev. Gen. *Camellia*, 58. 1958.

浙江连蕊茶 *zhe jiang lian rui cha*

Camellia campanisepala Hung T. Chang; *C. jiuyishanica* Hung T. Chang & L. L. Qi; *C. lancilimba* Hung T. Chang.

Bracteoles and sepals outside yellow pubescent to puberulent. Fl. Dec–Mar, fr. Aug–Oct.

• Forests, thickets; (300–)400–1000(–1200) m. Fujian, N Guangdong, N Guangxi, Hunan, Jiangxi, Zhejiang.

35. *Camellia viridicalyx* Hung T. Chang & S. Ye Liang in Hung T. Chang, Taxon. Gen. *Camellia*, 164. 1981.

绿萼连蕊茶 *lü e lian rui cha*

Shrubs 1–3 m tall. Young branches grayish brown, slender, glabrous; current year branchlets reddish brown, puberulent. Petiole 2–3 mm, puberulent; leaf blade lanceolate to linear-lanceolate, 3.5–5.5(–7) × 0.9–1.7 cm, leathery or papery, abaxially pale green and glabrous, adaxially dark green, not

shiny, and hirtellous along midvein, midvein abaxially raised and adaxially visible, secondary veins obscure on both surfaces, base broadly cuneate, margin serrulate, apex acuminate to caudate. Flowers axillary, solitary or paired, 1–2 cm in diam. Pedicel 2–5 mm; bracteoles 4 or 5, sometimes covering pedicel, green or becoming purplish red, suborbicular to broadly ovate, 0.5–2 mm, outside farinose-puberulent or glabrous, inside puberulent, margin ciliolate. Sepals 5, green or becoming purplish red, broadly ovate to suborbicular, 1–5 mm, leathery, outside farinose-puberulent, inside puberulent or glabrous, basally connate for 1–2 mm into a shallow cup, margin ciliolate. Petals only seen in bud, obovate in bud, outside farinose-puberulent. Outer filament whorl connate for basal $\pm 1/2$, distinct parts and inner filaments sparsely pilose or glabrous. Ovary glabrous, 3-loculed; style apically 3-lobed. Capsule globose, ca. 1.8 cm in diam., 1-loculed with 1 or 2 seeds. Fl. Jan–Mar.

• Forests, thickets, thickets along riverbanks; 100–900 m. NE Guangxi, Guizhou (Luodian), S Hunan.

- 1a. Leaf blade lanceolate to narrowly lanceolate, 3.5–5.5(–7) \times 1.2–1.7 cm, leathery; flowers 1.5–2 cm in diam.; pedicel 2–3 mm; bracteoles 1–2 mm, covering pedicel; sepals 4–5 mm, outside farinose-puberulent, inside puberulent; filaments pilose 35a. var. *viridicalyx*
- 1b. Leaf blade linear-lanceolate, ca. 5 \times 0.9–1.2 cm, papery; flowers ca. 1 cm in diam.; pedicel 4–5 mm, slender; bracteoles ca. 0.5 mm, not covering pedicel; sepals 1–1.5 mm, glabrous; filaments glabrous 35b. var. *linearifolia*

35a. *Camellia viridicalyx* var. *viridicalyx*

绿萼连蕊茶(原变种) lü e lian rui cha (yuan bian zhong)

Leaf blade lanceolate to narrowly lanceolate, 3.5–5.5(–7) \times 1.2–1.7 cm, leathery. Flowers 1.5–2 cm in diam. Pedicel 2–3 mm; bracteoles 1–2 mm, covering pedicel. Sepals 4–5 mm, outside farinose-puberulent, inside puberulent. Filaments pilose. Fl. Jan–Mar.

• Forests, thickets; 400–900 m. NE Guangxi, S Hunan.

35b. *Camellia viridicalyx* var. *linearifolia* T. L. Ming, Acta Bot. Yunnan. 21: 158. 1999.

线叶连蕊茶 xian ye lian rui cha

Leaf blade linear-lanceolate, ca. 5 \times 0.9–1.2 cm, papery. Flowers ca. 1 cm in diam. Pedicel 4–5 mm, slender; bracteoles ca. 0.5 mm, not covering pedicel. Sepals 1–1.5 mm, glabrous. Filaments glabrous. Fl. Jan.

• Thickets along riverbanks; 100–200 m. Guizhou (Luodian).

36. *Camellia glabricostata* T. L. Ming, Acta Bot. Yunnan. 21: 159. 1999.

秃肋连蕊茶 tu le lian rui cha

Shrubs or trees, 1–5 m tall. Young branches slender; current year branchlets purplish red, glabrous. Petiole 3–5 mm,

glabrous; leaf blade oblong, 5–9.5 \times 2–3.5 cm, papery, abaxially pale green, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6–9 on each side of midvein and adaxially slightly raised or obscure on both surfaces, base broadly cuneate, margin serrulate, apex caudate. Flowers axillary, solitary. Pedicel ca. 2 mm; bracteoles ca. 5, covering pedicel, broadly ovate, 0.5–1.5 mm, margin ciliolate. Sepals 5, nearly distinct, ovate to elliptic-ovate, 2–2.5 mm, outside apically white pubescent, margin ciliolate. Petals 5, white, pink in bud, obovate-elliptic 7–8 mm, basally connate for ca. 2 mm. Stamens ca. 6 mm; outer filament whorl basally connate into a tube, distinct part densely white villous. Ovary glabrous, 3-loculed; style ca. 6 mm, apically 3-lobed. Capsule not seen. Fl. Jan.

Forests; 200–300 m. Guangxi (Pingxiang) [N Vietnam].

37. *Camellia longicalyx* Hung T. Chang, Taxon. Gen. *Camellia*, 136. 1981.

长萼连蕊茶 chang e lian rui cha

Camellia lanceisepala L. K. Ling.

Shrubs 1–4 m tall. Young branches grayish brown; current year branchlets straw colored, slender, glabrous. Petiole 2–4 mm, adaxially hirtellous; leaf blade oblong-elliptic, ovate-elliptic, or oblong, 3.7–7.5 \times 1.3–3 cm, leathery, abaxially pale green and glabrous, adaxially dark green, shiny, and hirtellous along midvein, secondary veins slightly raised or obscure on both surfaces, base broadly cuneate, margin serrate, apex caudate-acuminate to caudate. Flowers axillary, solitary or paired, 3–3.5 cm in diam. Pedicel 3–8 mm, glabrous, thickened toward apex; bracteoles 4 or 5, linear-lanceolate, 2.5–5 mm, glabrous. Sepals 5, persistent, linear-lanceolate, 5–10 mm, glabrous, margin membranous and ciliolate, apex caudate-acuminate. Petals 5, white, obovate to obovate-lanceolate, 1.5–2 cm, basally slightly connate. Stamens 1.3–1.8 cm, glabrous; outer filament whorl basally connate into a tube. Ovary glabrous, 3-loculed; style ca. 1.5 cm, apically 3-lobed. Capsule not seen. Fl. Feb–Mar.

• Forests; 200–300 m. Fujian (Taining), Guangxi (Quanzhou).

38. *Camellia synaptica* Sealy, Kew Bull. 4: 221. 1949.

川滇连蕊茶 chuan dian lian rui cha

Shrubs or trees, 1–6 m tall. Young branches grayish brown, glabrescent; current year branchlets grayish yellow pubescent. Petiole 2–5 mm, pubescent; leaf blade elliptic to oblong-elliptic, 5–9(–12) \times 2–4.5 cm, thinly leathery, abaxially pale green and sparsely pubescent along midvein or glabrescent, adaxially dark green and hirtellous along midvein, midvein raised on both surfaces, secondary veins 7 or 8 on each side of midvein and obscure on both surfaces, base cuneate to broadly cuneate, margin serrulate, apex caudate to long caudate. Flowers axillary or subterminal, solitary or paired, 2–2.5 cm in diam. Pedicel 5–7 mm, thickened toward apex, glabrous; bracteoles 4 or 5, triangular-ovate to semiorbicular, 0.5–1.5 mm, outside glabrous, margin ciliolate. Calyx shallowly cupular, 4–5 mm; lobes 5, broadly ovate to suborbicular, 2–2.5 mm, glabrous or inside sericeous, margin membranous and ciliolate.

Petals 5 or 6, white, ovate-elliptic to broadly obovate, 1.5–2.3 × 1–1.7 cm, basally connate for 3–5 mm, apex emarginate. Stamens 1.5–1.8 cm; outer filament whorl basally connate into a fleshy tube, distinct part and inner filaments glabrous or sparsely pilose. Ovary ca. 1.5 mm, glabrous; style 1.4–1.8 cm, apically 3-parted for ca. 1 mm. Capsule elliptic-globose, 1.5–2 × 1.2–1.5 cm, 1-loculed with 1 seed; pericarp ca. 1 mm thick. Seed brown, globose, 1.1–1.4 cm in diam. Fl. Feb–Mar, fr. Sep–Oct.

- Forests, thickets; 500–1700 m. W Hunan, Sichuan, NE Yunnan.

- 1a. Petiole 3–5 mm; sepals inside glabrous; filaments glabrous 38a. var. *synaptica*
 1b. Petiole 2–3 mm; sepals inside sericeous; filaments sparsely pilose 38b. var. *parviovata*

38a. *Camellia synaptica* var. *synaptica*

川滇连蕊茶(原变种) chuan dian lian rui cha (yuan bian zhong)

Camellia longicarpa Hung T. Chang; *C. tsaii* Hu var. *synaptica* (Sealy) Hung T. Chang; *Thea chinensis* Sims var. *androxantha* H. Léveillé.

Petiole 3–5 mm. Sepals inside glabrous. Filaments glabrous.

- Forests, thickets; 500–1700 m. W Hunan, Sichuan, NE Yunnan.

38b. *Camellia synaptica* var. *parviovata* (Hung T. Chang & S. S. Wang) T. L. Ming, Acta Bot. Yunnan. 21: 154. 1999.

毛蕊川滇连蕊茶 mao rui chuan dian lian rui cha

Camellia parviovata Hung T. Chang & S. S. Wang in Hung T. Chang, Taxon. Gen. *Camellia*, 163. 1981.

Petiole 2–3 mm. Sepals inside sericeous. Filaments sparsely pilose.

- Forests; 900–1000 m. Sichuan (Emei Shan).

39. *Camellia costei* H. Léveillé, Repert. Spec. Nov. Regni Veg. 10: 148. 1911.

贵州连蕊茶 gui zhou lian rui cha

Camellia dubia Sealy; *C. subacutissima* Hung T. Chang; *Thea costei* (H. Léveillé) Rehder.

Shrubs or trees, 1.5–5(–8) m tall. Young branches grayish brown, slender; year-old branchlets glabrous or glabrescent; current year branchlets grayish yellow shortly pubescent. Petiole 2–5 mm, pubescent; leaf blade elliptic to oblong-elliptic, 5–8 × 1.5–3.5 cm, papery to thinly leathery, abaxially pale green and strigose or glabrescent, adaxially dark green, slightly shiny, and hirtellous along midvein, midvein raised on both surfaces, secondary veins 6–8 on each side of midvein, abaxially slightly raised, and adaxially visible, base cuneate, broadly cuneate, or obtuse, margin serrulate to crenulate-serrulate, apex bluntly acuminate to caudate. Flowers axillary, solitary. Pedicel 2–5 mm, elongating in fruit, pubescent; bracteoles 4 or 5, semiobovate to triangular-ovate, 0.5–1.5 mm, outside apically densely pubescent, margin ciliolate. Calyx cupular, 3–4.5 mm;

lobes triangular-ovate to ovate, 1.5–3 mm, outside apically densely pubescent, inside glabrous, margin ciliolate. Petals 5(–7), white or pale purplish red in bud, obovate to broadly obovate, 1–2.5 cm, basally connate for 3–5 mm, apex emarginate. Stamens 1.2–1.8 cm, glabrous; outer filament whorl basally connate into fleshy tube for (4–)5–9 mm. Ovary ovoid, ca. 1 mm, glabrous; style 1–1.7 cm, apically 3-lobed, lobes ca. 0.5 mm. Capsule subglobose, 1–1.5 cm in diam., 1-loculed with 1 seed; pericarp green to purplish red, leathery, becoming dark brown and crustaceous when dry. Seed chestnut brown, subglobose, 0.9–1.3 cm in diam., smooth. Fl. Feb–Mar, fr. Sep–Oct. $2n = 30^*$.

- Forests, thickets; 400–1500(–2000) m. N Guangxi, Guizhou, W Hubei, W Hunan, E and W Sichuan, NE and SE Yunnan.

40. *Camellia tsaii* Hu, Bull. Fan Mem. Inst. Biol., Bot. 8: 132. 1938.

窄叶连蕊茶 zhai ye lian rui cha

Camellia callidonta Hung T. Chang; *C. crassipetala* Hung T. Chang; *C. pseudoelongata* Hung T. Chang & S. X. Ren; *Thea fusiger* Gagnepain; *T. tsaii* (Hu) Gagnepain.

Shrubs or trees, 1–7.5(–10) m tall. Older branches grayish brown, glabrous; young branches slender; current year branchlets gray, densely appressed-pubescent. Petiole 3–5 mm, pubescent; leaf blade oblong-lanceolate, lanceolate, or narrowly lanceolate, 5–10 × 1.5–3 cm, papery, abaxially pale green and sparsely villous along midvein, adaxially dark green, shiny, and hirtellous along midvein, midvein abaxially raised and adaxially impressed, secondary veins 8–10 pairs and slightly raised on both surfaces, base cuneate to broadly cuneate, margin minutely serrulate, apex long acuminate to caudate. Flowers axillary, solitary or paired, ca. 2.5 cm in diam. Pedicel 2–5 mm, glabrous; bracteoles (3 or)4 or 5, semiobovate to broadly ovate, 0.5–1.5 mm, outside pubescent, margin ciliolate. Calyx shallowly cupular, 2.5–5 mm; lobes 5, broadly ovate to suborbicular, 2–2.5 mm, thinly leathery, outside appressed pubescent, inside sericeous, margin narrowly membranous and ciliolate, apex with a dark point. Petals 5, white, obovate to broadly obovate, 1.5–1.7 cm, basally connate for 2–3 mm, apex rounded to emarginate. Stamens 1.1–1.4 cm, glabrous; outer filament whorl basally irregularly connate for 4–7 mm into a cup. Gynoecium 1.4–1.7 cm, glabrous. Ovary ovoid, ca. 1.5 mm in diam., 3-loculed; style 1.2–1.5 cm, apically 3-parted for 4–5 mm. Capsule ovoid, ca. 1.5 cm in diam., 1-loculed with 1 seed, apex apiculate; pericarp thinly leathery, splitting into 3 valves. Seed chestnut brown, globose, ca. 1.3 cm in diam. Fl. Feb–Mar, fr. Sep–Oct. $2n = 30, 60$.

- Evergreen broad-leaved forests, thickets; 1500–2600 m. SE and SW Yunnan [N Myanmar, N Vietnam].

41. *Camellia lutchuensis* T. Itô, J. Coll. Sci. Imp. Univ. Tokyo 12: 332. 1899.

台湾连蕊茶 tai wan lian rui cha

Shrubs or rarely trees, 2–3(–6) m tall. Young branches grayish brown, spreading villous and pubescent or puberulent, indumentum persisting 2–3 years. Petiole 1–3 mm, pubescent; leaf blade oblong-elliptic, oblong, or lanceolate, 2–4.5 ×

(0.6–)1–1.8 cm, thinly leathery, abaxially pale green and pilose along midvein or glabrescent, adaxially bright green and hirtellous along midvein, midvein raised on both surfaces, secondary veins 6–8 on each side of midvein and slightly raised on both surfaces, base cuneate to broadly cuneate, margin serrulate, apex bluntly acute to acuminate. Flowers solitary, fragrant. Pedicel 1–2.5 mm; bracteoles 4–8, covering pedicel, broadly ovate to semiorbicular, 0.5–2 mm, glabrous, margin ciliolate. Sepals 5, nearly distinct, ovate, broadly ovate, or lanceolate, (1–)2.5–3 mm, glabrous, margin ciliolate, apex rounded. Petals 5 or 6, white, obovate to broadly obovate, (0.6–)1–1.5 × (0.4–)0.9–1.2 cm, basally connate for 2–4 mm, apex emarginate. Stamens (0.5–)1–1.2 cm, glabrous; outer filament whorl basally connate for (2–)5–6 mm into a tube. Gynoecium 6–13 mm, glabrous. Ovary ovoid, ca. 1.5 mm in diam., 3-loculed; style (0.5–)1–1.2 cm, apically 3-parted for ca. 1.5 mm. Capsule subglobose, ca. 1 cm in diam., 1-loculed with 1 seed; pericarp thin, splitting into 3 valves. Seed dark brown, globose, ca. 7 mm in diam. Fl. Jan–Mar, fr. Sep–Oct. $2n = 30, 90$.

Forests, thickets; (below 100–)400–1400(–2400) m. S Guangxi, Hong Kong, Taiwan [Japan (Ryukyu Islands)].

- 1a. Current year branchlets spreading villous and pubescent; leaf blade oblong-elliptic to oblong, 2.5–4.5 × 1–1.8 cm; pedicel ca. 2.5 mm, bracteoles 4–8; sepals ovate to broadly ovate, 2.5–3 mm; petals 1–1.5 × 0.9–1.2 cm; stamens 1–1.2 cm 41a. var. *lutchuensis*
- 1b. Current year branchlets puberulent; leaf blade lanceolate, 2–3.5 × 0.6–0.9 cm; pedicel 1–2 mm, bracteoles 4 or 5; sepals lanceolate, 1–1.5 mm; petals 0.6–0.8 × 0.4–0.6 cm; stamens 5–7 mm 41b. var. *minutiflora*

41a. *Camellia lutchuensis* var. *lutchuensis*

台湾连蕊茶(原变种) tai wan lian rui cha (yuan bian zhong)

Camellia transnokoensis Hayata; *Thea transnokoensis* (Hayata) Makino & Nemoto; *Theopsis transnokoensis* (Hayata) Nakai.

Current year branchlets spreading villous and pubescent. Leaf blade oblong-elliptic to oblong, 2.5–4.5 × 1–1.8 cm. Pedicel ca. 2.5 mm; bracteoles 4–8, 0.5–2 mm. Sepals ovate to broadly ovate, 2.5–3 mm. Petals 1–1.5 × 0.9–1.2 cm. Stamens 1–1.2 cm. Gynoecium ca. 1.3 cm. Fl. Jan–Mar, fr. Sep–Oct.

Forests, thickets; (below 100–)400–1400(–2400) m. Taiwan [Japan (Ryukyu Islands)].

41b. *Camellia lutchuensis* var. *minutiflora* (Hung T. Chang) T. L. Ming, Acta Bot. Yunnan. 21: 154. 1999.

微花连蕊茶 wei hua lian rui cha

Camellia minutiflora Hung T. Chang, Taxon. Gen. *Camellia*, 140. 1981.

Current year branchlets puberulent. Leaf blade lanceolate, 2–3.5 × 0.6–0.9 cm. Pedicel 1–2 mm; bracteoles 4 or 5, 0.3–0.7

mm. Sepals lanceolate, 1–1.5 mm. Petals 6–8 × 4–6 mm. Stamens 5–7 mm. Gynoecium ca. 7 mm. Fl. Jan–Feb.

- Forests; 300–500 m. S Guangxi, Hong Kong.

42. *Camellia rosthorniana* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 61: 108. 1924.

川鄂连蕊茶 chuan e lian rui cha

Camellia buxifolia Hung T. Chang; *C. lipoensis* Hung T. Chang & Z. R. Xu; *Thea rosthorniana* (Handel-Mazzetti) Handel-Mazzetti.

Shrubs 1.5–3 m tall. Older branches reddish brown, glabrous; young branches slender; current year branchlets densely grayish yellow pubescent, indumentum ± persistent. Petiole 1–2 mm, pubescent; leaf blade oblong-elliptic, elliptic, or ovate, 2.5–4.5 × 1–2 cm, thinly leathery, abaxially pale green and glabrous, adaxially dark green, shiny, and hirtellous along midvein, midvein raised on both surfaces, secondary veins 6 or 7 on each side of midvein, abaxially obscure, and adaxially slightly impressed, base broadly cuneate, margin crenate-serrulate, apex acuminate and with a blunt tip. Flowers solitary, 1.2–1.5 cm in diam. Pedicel 2–4 mm, thick, glabrous; bracteoles 3–5, not covering pedicel, ovate to broadly ovate, 0.5–1.5 mm, glabrous, margin ciliolate. Calyx shallowly cupular, 2.5–3 mm; lobes broadly ovate to suborbicular, 2–2.5 mm, both surfaces glabrous or outside apically sparsely pubescent, margin ciliolate. Petals 5–7, white, broadly obovate, 8–14 × 5–8 mm, basally connate for ca. 3 mm, apex emarginate. Stamens ca. 1 cm, glabrous; outer filament whorl basally connate for 3.5–4 mm. Gynoecium 1–1.4 cm, glabrous. Ovary ovoid, ca. 1.5 mm; style 0.9–1.3 cm, apically 3-parted for ca. 1 mm. Capsule subglobose, 1–1.4 cm in diam., usually 1-loculed with 1 seed; pericarp green to brown, thinly leathery, splitting into 3 valves. Seed brown, globose, 7–10 mm in diam. Fl. Feb–Mar, fr. Sep–Oct.

- Forests, thickets; (100–)600–1400 m. N Guangxi, N Guizhou, W Hubei, W Hunan, E Sichuan.

43. *Camellia euryoides* Lindley, Bot. Reg. 12: t. 983. 1826.

桫叶连蕊茶 ling ye lian rui cha

Shrubs or rarely trees, 1–4(–6) m tall. Older branches purplish brown, glabrous; young branches reddish brown, sparsely pubescent; current year branchlets slender, densely grayish yellow pubescent. Petiole 1–3 mm, pubescent; leaf blade elliptic, elliptic-ovate, or lanceolate, 2–4.7 × 0.8–2 cm, thinly leathery, abaxially pale green and sparsely appressed villous or glabrescent, adaxially dark green and hirtellous along midvein, midvein ± raised on both surfaces, secondary veins 5–7 on each side of midvein and obscure on both surfaces, base cuneate to broadly cuneate, margin serrulate, apex bluntly acuminate. Flowers axillary or subterminal, solitary, ca. 1.5 cm in diam. Pedicel 4–10 mm, elongating to 1.5 cm in fruit, slender, glabrous, thickened toward apex; bracteoles (3 or)4 or 5, not covering pedicel, triangular to broadly ovate, 0.5–1.5 mm, outside puberulent near apex, margin ciliolate. Calyx shallowly cupular, 2–2.5 mm; lobes 5, broadly ovate to semiorbicular, 1–1.5 mm, outside puberulent near apex, inside sericeous, margin

ciliolate. Petals 5, white, obovate to broadly obovate, 1–1.8 cm, basally connate for 3–5 mm, apex emarginate to truncate. Stamens 0.9–1.5 cm, glabrous or villous; outer filament whorl basally connate for 3–9 mm into a cup. Ovary ovoid, 1.5–2 mm, glabrous; style 1–1.9 cm, apically 3-parted for ca. 1 mm. Capsule subglobose, 1–1.5 cm in diam., 1-loculed with 1 seed; pericarp green to brown, thinly leathery. Seed brown, globose, ca. 1 cm in diam. Fl. Mar–May, fr. Aug–Oct.

• Forests, thickets; 300–1500 m. Fujian, N Guangdong, SE Hunan, Jiangxi, Sichuan, Taiwan.

- 1a. Leaf blade elliptic to elliptic-ovate, 2–4.5 × 0.8–2 cm; pedicel 6–10 mm; stamens ca. 1.5 cm, glabrous; outer filament whorl basally connate for 7–9 mm 43a. var. *euryooides*
 1b. Leaf blade lanceolate, 3–4.7 × 1–1.8 cm; pedicel 4–5 mm; stamens ca. 0.9 cm, villous; outer filament whorl basally connate for ca. 3 mm 43b. var. *nokoensis*

43a. *Camellia euryoides* var. *euryooides*

柃叶连蕊茶(原变种) ling ye lian rui cha (yuan bian zhong)

Camellia parvilimba Merrill & F. P. Metcalf; *C. parvilimba* var. *brevipes* Hung T. Chang; *C. theiformis* Hance; *Thea euryoides* (Lindley) Booth; *T. theiformis* (Hance) Kuntze; *Theopsis parvilimba* (Merrill & F. P. Metcalf) Nakai.

Leaf blade elliptic to elliptic-ovate, 2–4.5 × 0.8–2 cm. Pedicel 6–10 mm, slender. Stamens ca. 1.5 cm, glabrous; outer filament whorl basally connate for 7–9 mm. Fl. Mar–May, fr. Sep–Oct.

• Forests, thickets; 300–900 m. Fujian, N Guangdong, Jiangxi.

43b. *Camellia euryoides* var. *nokoensis* (Hayata) T. L. Ming, Acta Bot. Yunnan. 21: 154. 1999.

毛蕊柃叶连蕊茶 mao rui ling ye lian rui cha

Camellia nokoensis Hayata, Icon. Pl. Formosan. 8: 10. 1919; *C. tofuii* S. S. Chien; *Thea nokoensis* (Hayata) Makino & Nemoto; *Theopsis nokoensis* (Hayata) Nakai.

Leaf blade lanceolate, 3–4.7 × 1–1.8 cm. Pedicel 4–5 mm. Stamens ca. 9 mm, villous; outer filament whorl basally connate for ca. 3 mm. Fl. Mar–May, fr. Aug–Oct.

• Forests, thickets; 500–1500 m. SE Hunan, Jiangxi, Sichuan, Taiwan.

44. *Camellia trichoclada* (Rehder) S. S. Chien, Contr. Biol. Lab. Sci. Soc. China, Bot. Ser. 12: 100. 1939.

毛枝连蕊茶 mao zhi lian rui cha

Thea trichoclada Rehder, J. Arnold Arbor. 8: 176. 1927; *Camellia trichoclada* f. *leucantha* P. L. Chiu; *Theopsis trichoclada* (Rehder) Nakai.

Shrubs 1–2 m tall, many branched. Young branches grayish brown, glabrous; year-old branchlets reddish brown, indumentum persistent; current year branchlets slender, with small leaves set closely together and distichously arranged, densely

yellow spreading villous. Petiole 1–1.5 mm, villous; leaf blade ovate to elliptic-ovate, 1.2–2.5 × 0.6–1.3(–1.7) cm, thinly leathery, abaxially pale green and glabrous, adaxially dark green and hirtellous along midvein, midvein raised on both surfaces, secondary veins ca. 6 on each side of midvein, abaxially obscure, and adaxially slightly raised, base rounded to subcordate, margin crenulate-serrulate, apex obtuse to slightly emarginate. Flowers axillary or subterminal, solitary or paired, ca. 2 cm in diam. Pedicel 2–4 mm, glabrous; bracteoles 4 or 5, semiorbicular to broadly ovate, 0.5–1 mm, glabrous. Calyx shallowly cupular, 2–2.5 mm; lobes broadly ovate to suborbicular, 1–2 mm, glabrous, margin ciliolate. Petals 5 or 6, white, pink in bud, obovate to obovate-elliptic, 0.8–1.5 cm, basally connate for 3–4 mm. Stamens 1–1.2 cm, glabrous; outer filament whorl basally connate for 5–6 mm into a cup. Ovary ovoid, 1.5–3 cm, glabrous, 3-loculed; style 0.9–1.2 cm, apically 3-lobed. Capsule subglobose, ca. 3 cm in diam., 1-loculed with 1 seed; pericarp green to pink, thinly leathery. Seed pale brown, globose 7–8 mm in diam. Fl. Nov–Dec, fr. Sep–Oct.

• Forests, thickets; 200–800 m. E Fujian, S Zhejiang.

45. *Camellia fraterna* Hance, Ann. Sci. Nat., Bot., sér. 4, 18: 218. 1862.

毛花连蕊茶 mao hua lian rui cha

Thea fraterna (Hance) Kuntze; *Theopsis fraterna* (Hance) Nakai.

Shrubs 1–4 m tall. Young branches purplish brown, glabrous; year-old branchlets with indumentum ± persistent; current year branchlets densely spreading villous and hirsute. Petiole 3–5 mm, villous; leaf blade elliptic to oblong-elliptic, 4–8 × (1.5–)2–3.5 cm, thinly leathery, abaxially pale green and sparsely appressed villous, adaxially dark green, shiny, and hirtellous along midvein, midvein abaxially raised and adaxially impressed, secondary veins 7–9 on each side of midvein, abaxially slightly raised, and adaxially slightly impressed, base cuneate to broadly cuneate, margin serrulate, apex bluntly acuminate. Flowers axillary, solitary or paired, 2.5–4 cm in diam. Pedicel 3–4 mm, thick, villous; bracteoles 4 or 5, covering pedicel, ovate, 1–2 mm, outside densely yellowish brown villous. Calyx cupular, 4–5 mm; lobes 5, broadly ovate to suborbicular, 2–3.5 mm, outside densely yellowish brown villous, inside yellow sericeous. Petals 5 or 6, white or sometimes pale pink, obovate to broadly obovate, 2–2.5 cm, basally connate for 3–5 mm, outside glabrous or puberulent toward apex. Stamens 1.5–2 cm, glabrous; outer filament whorl basally connate for 0.8–1.2 cm. Ovary ovoid, 1–2 mm, glabrous, 3-loculed; style 1.4–1.8 cm, apically 3-parted for 1–2 mm. Capsule globose, 1.5–2 cm in diam., 1-loculed with 1 seed; pericarp thinly leathery. Seed chestnut brown, globose, 1.3–1.8 cm in diam. Fl. Feb–Mar, fr. Sep–Oct. 2n = 90*.

• Forests, thickets; (below 100–)300–1100 m. Anhui, Fujian, Henan, S Jiangsu, Jiangxi, Zhejiang.

46. *Camellia transarisanensis* (Hayata) Cohen-Stuart, Bull. Jard. Bot. Buitenzorg, sér. 3, 1: 320. 1919.

毛萼连蕊茶 mao e lian rui cha

Thea transarisanensis Hayata, Icon. Pl. Formosan. 5: 10. 1915, based on *T. parvifolia* Hayata, Icon. Pl. Formosan. 3: 45. 1913, not Salisbury (1796); *Camellia handelii* Sealy; *C. parvifolia* Cohen-Stuart; *Theopsis transarisanensis* (Hayata) Nakai.

Shrubs 1.5–3 m tall, many branched. Young branches grayish brown, glabrous; year-old branchlets purplish brown, with indumentum ± persistent; current year branchlets yellow spreading villous and hirsute. Petiole 1.5–3 mm, spreading villous and hirsute; leaf blade elliptic, oblong-elliptic, or ovate-lanceolate, (1.6–)2–4.8 × 1–1.7 cm, thinly leathery, abaxially pale green and sparsely appressed villous or glabrescent, adaxially dark green and hirtellous along midvein, midvein raised on both surfaces, secondary veins obscure, base broadly cuneate, margin crenulate-serrulate, apex obtuse, bluntly acute, or acuminate. Flowers axillary, solitary or paired, ca. 2.5 cm in diam. Pedicel 2.5–4 mm, thickened toward apex; bracteoles 3–5, triangular to broadly ovate, 0.5–1.5 mm, outside yellow villous. Calyx cupular, ca. 4 mm; lobes 5, broadly ovate to suborbicular, 2–3 mm, outside densely yellow villous, inside glabrous, margin ciliolate. Petals 5 or 6, white, obovate to broadly obovate, 1.1–1.8 × 0.8–1.3 cm, basally connate for 3–6 mm, apex rounded to emarginate. Stamens 1.3–1.6 cm, glabrous; outer filament whorl basally connate for ca. 1 cm. Ovary ovoid, 1–2 mm, glabrous; style 1.1–1.4 cm, apically 3-parted for ca. 1 mm. Capsule subglobose, ca. 1.5 cm in diam., 1-loculed with 1 seed; pericarp thinly leathery. Seed brown, globose, 1–1.2 cm in diam. Fl. Mar, fr. Oct.

• Thicket; below 100–500 m. Fujian, N Guangxi, S Guizhou, Hunan, Jiangxi, Taiwan, SE Yunnan.

47. *Camellia tsingpienensis* Hu, Bull. Fan Mem. Inst. Biol., Bot. 8: 129. 1938.

屏边连蕊茶 ping bian lian rui cha

Shrubs or trees, 2–6 m tall. Young branches grayish brown; current year branchlets spreading villous and pubescent, indumentum ± persistent. Petiole 3–5 mm, spreading villous and pubescent; leaf blade lanceolate, oblong, or ovate-lanceolate, 5–8.5(–12) × (1.5–)2–3.5 cm, papery, abaxially pale green and sparsely villous but densely villous along midvein, adaxially dark green and hirtellous along midvein, midvein raised on both surfaces, secondary veins 6–8 on each side of midvein and slightly raised on both surfaces, base rounded to obtuse, margin serrulate, apex caudate to acuminate. Flowers axillary, solitary or paired. Pedicel ca. 2 mm; bracteoles 4 or 5, covering pedicel, lunate to semiorbicular, 1–2 mm, glabrous or pubescent. Sepals 5, nearly distinct, orbicular to suborbicular, 2–3.5 mm, glabrous or pubescent, margin ciliolate, apex rounded. Petals 5, white, obovate to broadly obovate, 10–15 × 0.6–0.7 cm, basally connate for 2–3 mm, apex rounded to slightly emarginate. Stamens 0.8–1.3 cm; outer filament whorl basally connate for 5–7 mm, distinct part white pilose. Ovary ovoid, glabrous, 3-loculed; style 0.9–1.2 cm, apically 3-parted for ca. 1 mm. Capsule globose, ca. 1.5 cm in diam., 1-loculed with 1 seed; pericarp thinly leathery, splitting into 3 valves. Seed brown, globose, ca. 1.3 cm in diam. Fl. Oct–Dec, fr. Aug–Sep. $2n = 30$.

Forests, thickets; 800–1900 m. Guangxi, SE Guizhou, SE Yunnan [N Vietnam].

- 1a. Sepals outside glabrous 47a. var. *tsingpienensis*
 1b. Sepals outside ± pubescent.
 2a. Sepals outside pubescent; leaf blade 5–8.5 × 2–3 cm 47b. var. *pubisepala*
 2b. Sepals outside only apically pubescent; leaf blade 8.5–12 × 2.5–3.5 cm 47c. var. *macrophylla*

47a. *Camellia tsingpienensis* var. *tsingpienensis*

屏边连蕊茶(原变种) ping bian lian rui cha (yuan bian zhong)

Current year branchlets spreading villous and pubescent. Leaf blade lanceolate to ovate-lanceolate, 5–8.5 × 2–3 cm. Bracteoles and sepals outside glabrous. Fl. Oct–Dec, fr. Aug–Sep.

Evergreen broad-leaved forests, thickets; 800–1900 m. Guangxi, SE Yunnan [N Vietnam].

47b. *Camellia tsingpienensis* var. *pubisepala* Hung T. Chang, Taxon. Gen. *Camellia*, 163. 1981.

毛萼屏边连蕊茶 mao e ping bian lian rui cha

Camellia lancicalyx Hung T. Chang; *C. parvicaudata* Hung T. Chang.

Current year branchlets spreading villous and pubescent. Leaf blade lanceolate to ovate-lanceolate, 5–8.5 × 2–3 cm. Bracteoles and sepals outside pubescent. Petals outside ± puberulent. Fl. Oct–Nov, fr. Aug–Sep.

• Evergreen broad-leaved forests, thickets; 1000–1700 m. N Guangxi, SE Guizhou, SE Yunnan.

47c. *Camellia tsingpienensis* var. *macrophylla* T. L. Ming, Acta Bot. Yunnan. 19: 222. 1997.

大叶屏边连蕊茶 da ye ping bian lian rui cha

Current year branchlets pubescent. Leaf blade oblong, 8.5–12 × 2.5–3.5 cm. Sepals outside apically pubescent. Fl. Nov.

• Forests; ca. 1500 m. SE Yunnan (Maguan).

48. *Camellia cupiformis* T. L. Ming, Acta Bot. Yunnan. 19: 222. 1997.

滇南连蕊茶 dian nan lian rui cha

Shrubs ca. 3 m tall. Young branches grayish brown; year-old branchlets reddish brown, glabrous; current year branchlets grayish yellow pubescent. Petiole 2–3 mm, grayish yellow pubescent; leaf blade oblong-elliptic to elliptic, 5–7.5 × 1.8–2.5 cm, leathery, abaxially pale green and sparsely villous along midvein or glabrescent, adaxially dark green and hirtellous along midvein, midvein raised on both surfaces, secondary veins slightly raised on both surfaces or adaxially obscure, base broadly cuneate, margin serrulate, apex caudate. Flowers axillary, solitary or paired. Pedicel ca. 7 mm, ca. 3 mm thick, glabrous or sparsely pubescent, thickened toward apex; bracteoles 3, ovate, 0.5–1 mm, outside pubescent, margin ciliolate. Calyx narrowly campanulate, 5–5.6 mm; lobes 5, unequal, semi-orbicular to suborbicular, 1.5–2.5 mm, outside apically puberulent.

lent, margin ciliolate. Petals and stamens not seen. Ovary globose, ca. 2.5 mm in diam., glabrous, 3-loculed; style ca. 1 cm, apically 3-lobed. Capsule not seen. Fl. Jan.

- Forests in ravines; ca. 1600 m. Yunnan (Lincang).

49. *Camellia elongata* (Rehder & E. H. Wilson) Rehder, J. Arnold Arbor. 3: 224. 1922.

长管连蕊茶 chang guan lian rui cha

Thea elongata Rehder & E. H. Wilson in Sargent, Pl. Wilson. 2: 392. 1915; *T. caudata* (Wallich) Seemann var. *faberi* Kochs; *Theopsis elongata* (Rehder & E. H. Wilson) Nakai.

Shrubs or small trees, 2–6 m tall. Older branches dark brown; young branches slender, ascending; current year branchlets grayish yellow, glabrous. Petiole 2–4 mm, glabrous; leaf blade narrowly oblong to oblong-lanceolate, 4–6.5 × 1–1.8 cm, thinly leathery, abaxially pale green, adaxially dark green, both surfaces glabrous, midvein abaxially raised and adaxially impressed, secondary veins 6–8 on each side of midvein and visi-

ble or slightly raised on both surfaces, base cuneate, margin basal 1/2 entire and apical 1/2 shallowly and bluntly serrulate, apex long acuminate to caudate. Flowers solitary. Pedicel 0.8–1.2 cm, slender, glabrous, thickened toward apex; bracteoles 3 or 4, broadly triangular to ovate, 0.5–1.5 mm, margin ciliolate, apex obtuse. Calyx narrowly campanulate, 4–5 mm; lobes 5, semiorbicular to bluntly triangular, 1.5–2 mm, outside glabrous, inside puberulent, margin ciliolate. Corolla white, 2–2.5 cm, basally connate into a 0.8–1.4 cm a tube; lobes 5–7, oblong-oblancheolate, 10–13 × 6–8 mm, apex obtuse to rounded. Stamens 1.6–1.8 cm; outer filament whorl basally connate into a 1.3–1.5 cm tube; inner filaments sparsely pubescent. Gynoecium 1.8–1.9 cm, glabrous. Ovary ovoid, 3-loculed; style 1.7–1.8 cm, apically 3-parted for ca. 1 mm. Capsule ellipsoid to subglobose, 1.5–2 cm in diam., 1-loculed with 1 seed; pericarp thinly leathery, splitting into 3 valves. Seed chestnut brown, subglobose, 1.5–1.8 in diam. Fl. Oct–Dec, fr. Aug.

- Broad-leaved forests, thickets; 1000–1800 m. Sichuan (Emei Shan).

6. *Camellia* sect. *Eriandria* Cohen-Stuart, Meded. Proefstat. Thee 40: 69. 1916.

毛蕊茶组 mao rui cha zu

Camellia sect. *Camelliopsis* (Pierre) Sealy; *Camelliastrum* Nakai; *Thea* sect. *Camelliopsis* Pierre.

Leaf blade small, thinly leathery, abaxially hirtellous along midvein. Flowers small. Petals white, outside farinose-puberulent. Stamens pilose or glabrous; filaments in 2 whorls; outer filament whorl connate for basal 2/3 into a tube. Ovary and style tomentellate. Capsule small, only 1 locule developed; pericarp splitting into 3 valves; columella nearly abortive.

Nine species: Bhutan, China, NW India, N Myanmar, N Vietnam; nine species (eight endemic) in China.

- 1a. Filaments (at least outer ones) glabrous; style apically glabrous.
 - 2a. Young branches white maculate; sepals outside glabrous, margin broadly membranous 50. *C. punctata*
 - 2b. Young branches not maculate; sepals outside glabrous, apically puberulent, pubescent, or tomentose, margin not membranous.
 - 3a. Calyx cupular, 7–8 mm, densely pubescent to tomentose 53. *C. assimiloides*
 - 3b. Calyx shallowly cupular, 1.5–3.5 mm, glabrous, sparsely pubescent, or puberulent.
 - 4a. Leaf blade 4–8 × 2–3 cm; calyx lobes 3–3.5 mm; style ca. 1.3 cm 51. *C. lawii*
 - 4b. Leaf blade 2–3.5 × 1–1.5 cm; calyx lobes 1.5–2 mm; style 0.8–0.9 cm 52. *C. villicarpa*
- 1b. Filaments densely villous; style densely pubescent.
 - 5a. Current year branchlets pubescent.
 - 6a. Pedicel 7–10 mm; bracteoles not covering pedicel 54. *C. candida*
 - 6b. Pedicel 2–4 mm; bracteoles ± covering pedicel.
 - 7a. Calyx 7–8 mm; inner petals basally connate for ca. 6 mm; outer filament whorl basally connate for 1–1.8 cm, distinct part glabrous 53. *C. assimiloides*
 - 7b. Calyx 3–3.5(–5) mm; inner petals basally connate for 2–3 mm; outer filament whorl basally connate for 0.6–0.8 cm, distinct part densely villous 55. *C. caudata*
 - 5b. Current year branchlets spreading villous.
 - 8a. Bracteoles and sepals lanceolate to narrowly lanceolate, apex long acuminate 56. *C. salicifolia*
 - 8b. Bracteoles and sepals ovate, suborbicular, or semiorbicular, apex rounded.
 - 9a. Leaf blade 2.5–4.5 cm, base rounded, apex bluntly acuminate 57. *C. melliana*
 - 9b. Leaf blade 4–10 cm, base shallowly cordate to subtruncate, apex acuminate to caudate 58. *C. cordifolia*

50. *Camellia punctata* (Kochs) Cohen-Stuart, Meded. Proefstat. Thee 40: 68. 1916.

斑植毛蕊茶 ban zhi mao rui cha

Thea punctata Kochs, Bot. Jahrb. Syst. 27: 584. 1900.

Shrubs 1–4 m tall. Young branches grayish brown with

white macula, glabrescent; current year branchlets slender, densely white appressed pubescent. Petiole 2–4 cm, densely puberulent; leaf blade elliptic to oblong-ovate, 4–8 × 1.7–2.5 cm, papery to thinly leathery, abaxially pale green and villous along midvein, adaxially dark green and hirtellous along midvein, base broadly cuneate, margin shallowly undulate serrulate, apex bluntly acuminate to caudate. Flowers axillary, soli-

tary or paired. Pedicel ca. 3 mm; bracteoles 5, covering pedicel, semiorbicular, 0.5–1.5 mm, glabrous. Sepals 5, suborbicular, 3–4 mm, crustaceous, glabrous, margin membranous. Petals 5–7, white, broadly obovate, 7–12 × 6–10 mm, outside white farinose-puberulent, basally connate for 2–3 mm, apex rounded. Stamens ca. 1.1 cm, glabrous; outer filament whorl basally connate for 4–6 mm into a fleshy tube. Gynoecium 1.5–1.7 cm. Ovary densely white tomentose; style 1–1.3 cm, glabrous, apically 3-parted for 3–5 mm. Capsule globose, 1–1.5 cm in diam., 1-loculed and 1-seeded; pericarp ca. 1 mm thick, thinly leathery, splitting into 3 valves; columella abortive. Seed brown, globose, ca. 1 cm in diam. Fl. Feb, fr. Oct.

- Forest margins, thickets; (400–)1500–2700 m. W Sichuan.

51. *Camellia lawii* Sealy, Kew Bull. 6: 180. 1951.

四川毛蕊茶 si chuan mao rui cha

Shrubs 1–3 m tall. Young branches grayish brown; current year branchlets slender, densely white pubescent, glabrescent. Petiole 2–4 mm, densely pubescent; leaf blade elliptic or oblong-elliptic, 4–8 × (1.5–)2–3 cm, leathery, abaxially pale green and villous along midvein, adaxially dark green, shiny, and hirtellous along midvein, midvein abaxially elevated and adaxially slightly impressed, secondary veins ca. 6 on each side of midvein, abaxially obscure, and adaxially slightly impressed, base cuneate to broadly cuneate, margin shallowly and bluntly serrulate, apex bluntly acuminate to caudate. Flowers axillary, solitary. Pedicel 1–2 mm; bracteoles ca. 4, semiorbicular, 0.5–1 mm, outside apically pubescent, margin densely ciliolate. Calyx cupular, 3–3.5 mm; lobes 5, suborbicular, 2–3 mm, outside glabrous or sparsely pubescent near apex, margin ciliolate. Petals 5, white, obovate to broadly obovate, 1–1.6 × 0.8–1.2 cm, basally connate for 2–3 mm, apex rounded to emarginate. Stamens ca. 1.3 cm, glabrous; outer filament whorl basally connate for 5–6 mm into a cup. Ovary ovoid, white tomentose; style ca. 1.3 cm, glabrous, apically 3-parted for 4–5 mm. Fruit and seeds not seen. Fl. Feb–Mar.

- Forest margins, thickets; ca. 1000 m. W Guizhou, W Hubei, E and W Sichuan.

52. *Camellia villicarpa* S. S. Chien, Contr. Biol. Lab. Sci. Soc. China, Bot. Ser. 12: 99. 1939.

小果毛蕊茶 xiao guo mao rui cha

Camellia obscurinervis H. T. Tsai & K. M. Feng.

Shrubs 2–4 m tall. Young branches grayish brown, glabrous; year-old branchlets with indumentum ± persistent; current year branchlets densely grayish brown pubescent and spreading villous. Petiole 1–2 mm, densely pubescent and spreading villous; leaf blade elliptic to oblong-elliptic, 2–3.5 × 1–1.5 cm, thinly leathery, abaxially pale green and villous along midvein when young but soon glabrescent, adaxially dark green and hirtellous along midvein, midvein raised on both surfaces, secondary veins ca. 5 on each side of midvein and adaxially visible or obscure on both surfaces, base cuneate to broadly cuneate, margin serrulate, apex bluntly acute to shortly acuminate. Flowers solitary, 1–1.5 cm in diam. Pedicel 2–3 mm, thickened toward apex; bracteoles ca. 4, semiorbicular, 0.5–1

mm, outside puberulent, margin ciliolate. Sepals 5, semiorbicular, 1.5–2 mm, crustaceous, outside apically puberulent, margin membranous and ciliolate. Petals 5, white, broadly obovate, 8–10 × 4–6 mm, basally connate for ca. 2 mm. Stamens 8–9 mm, glabrous; outer filament whorl connate for basal 1/3 into a fleshy cup. Ovary white tomentose, 3-loculed; style 8–9 mm, glabrous, apically 3-parted. Capsule globose, 1–1.5 cm in diam., 1-loculed with 1 seed; pericarp thinly leathery, splitting into 3 valves; columella abortive. Seed brown, globose, ca. 1 cm in diam. Fl. Feb–Mar, fr. Oct.

- Thickets; (400–)900–1100 m. W Sichuan.

53. *Camellia assimiloides* Sealy, Kew Bull. 4: 215. 1949.

大萼毛蕊茶 da e mao rui cha

Camellia cratera Hung T. Chang; *C. trigonocarpa* Hung T. Chang.

Shrubs or trees, 3–8 m tall. Young branches grayish brown; year-old branchlets grayish white, glabrescent; current year branchlets slender, puberulent. Petiole 2–4 mm, puberulent; leaf blade oblong to oblong-lanceolate, 5–9 × 1.5–2.5 cm, thinly leathery, abaxially pale green and glabrous, adaxially olive green, shiny, and hirtellous along midvein, secondary veins 6 or 7 on each side of midvein and obscure on both surfaces, base cuneate to broadly cuneate, margin serrulate, apex long caudate. Flowers axillary, solitary or paired. Pedicel ca. 2 mm, elongating to 5 mm in fruit; bracteoles 4 or 5, ± covering pedicel, semiorbicular, 1–2.5 mm, both surfaces densely puberulent, margin ciliolate. Calyx cupular, 7–8 mm; lobes 5, obovate to suborbicular, 4–5 × ca. 5 mm, both surfaces densely gray puberulent. Petals 5–8, white or rarely purplish white in bud, farinose-puberulent; outer 2 or 3 petals distinct, suborbicular, 1–1.5 × 1–1.5 cm; inner 5 petals broadly obovate, ca. 2 cm, basally connate for ca. 6 mm. Stamens 1.5–1.8 cm; outer filament whorl basally connate for 1–1.8 cm, glabrous; inner filaments sparsely pubescent to subglabrous. Ovary densely white tomentose, 3-locular; style ca. 1.6 cm, base pubescent, apically 3-parted. Capsule subglobose, 1.5–1.8 cm in diam., 1-loculed with 1 seed; pericarp ca. 1 mm thick, thinly leathery, splitting into 2 valves. Seed brown, subglobose, 1–1.4 cm in diam. Fl. Dec, fr. Sep–Oct. $2n = 30^*$.

- Dense forests, thickets; ca. 800 m. E and N Guangdong, SE Hunan.

54. *Camellia candida* Hung T. Chang, Taxon. Gen. *Camellia*, 177. 1981.

白毛蕊茶 bai mao rui cha

Shrubs or trees, 1–5 m tall. Year-old branchlets glabrescent; current year branchlets slender, yellow pubescent. Petiole 3–5 mm, pubescent; leaf blade oblong to oblong-lanceolate, 10–12.5 × 2.5–3.8 cm, thinly leathery to papery, abaxially pale green and sparsely appressed pubescent when young or pubescent only along midvein, adaxially dark green and hirtellous along midvein, secondary veins 7–9 on each side of midvein and raised on both surfaces, base broadly cuneate, margin serrulate, apex caudate to long caudate. Flowers axillary, solitary. Pedicel 7–10 mm, elongating to 1.5 cm in fruit, slender; brac-

teoles 5 or 6, broadly ovate, 1–1.5 mm, outside puberulent, margin ciliolate, apex acute. Calyx shallowly cupular, ca. 4 mm; lobes 5, broadly ovate to suborbicular, 3–3.5 mm, outside puberulent, inside glabrous, margin ciliolate. Petals 5 or 6, white, obovate to obovate-elliptic, 10–13 × 6–8 mm, outside farinose-puberulent, basally connate for ca. 2 mm. Stamens 8–9 mm; outer filament whorl basally connate for ca. 4 mm, distinct part white villous. Ovary white tomentose, 3-loculed; style densely white pubescent, apically 3-parted. Capsule globose, 1.5–2 cm in diam., 1-loculed with 1 seed, apex apiculate; pericarp thinly leathery, ca. 1 mm thick. Seed brown, globose, ca. 1.5 cm in diam. Fl. Nov, fr. Sep.

- Mixed forests; 100–200 m. Yunnan (Malipo).

55. *Camellia caudata* Wallich, Pl. Asiat. Rar. 3: 36. 1832.

长尾毛蕊茶 chang wei mao rui cha

Shrubs or trees, 2–8 m tall. Young branches grayish brown; year-old branchlets straw colored, glabrous; current year branchlets pubescent and villous. Petiole 3–7 mm, villous or pubescent; leaf blade elliptic, oblong-elliptic, oblong, lanceolate, or narrowly lanceolate, 3.5–12 × 0.8–4(–5) cm, papery or thinly leathery, abaxially pale green, sparsely appressed pubescent but densely villous along midvein when young, soon glabrescent except along midvein, and becoming grayish white when dry, adaxially dark green, shiny, and hirtellous along midvein, secondary veins 8–10 on each side of midvein, abaxially raised, and adaxially obscure to slightly impressed, base cuneate to broadly cuneate, margin serrulate to crenulate-serrulate, apex long caudate to caudate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 2–4 mm, thickened toward apex; bracteoles 4 or 5, semiorbicular to broadly ovate, 1–2 mm, ± covering pedicel, outside pubescent, margin ciliolate. Calyx cupular, 3–3.5(–5) mm; lobes 5, broadly ovate to suborbicular, 2–3.5 mm, leathery, outside pubescent to densely villous, inside glabrous, margin membranous and ciliolate. Petals 5–7, white, broadly obovate to obovate, outside farinose-puberulent; outer 2 petals distinct, 8–10 mm; remaining petals 1.3–2 cm, basally connate for 2–3 mm, apex rounded to subtruncate. Stamens 1–1.5 cm; outer filament whorl basally connate for 6–8 mm, distinct part densely villous. Ovary densely white tomentose; style 0.9–1.3 cm, white tomentose, apically 3-parted for 1–2 mm. Capsule ellipsoid-globose, 1–1.7 × 1–2 cm, 1-loculed with 1 seed, apex apiculate; pericarp thinly leathery; columella abortive. Seed brown, globose. Fl. Oct–Jan, fr. Sep–Oct. $2n = 30, 60$.

Evergreen broad-leaved forests, thickets; (200–)400–1400(–2200) m. Fujian, Guangdong, Guangxi, Hainan, Hubei, Hunan, Taiwan, Xizang (Médog), SE Yunnan [NE India, N Myanmar, Nepal, N Vietnam].

The published occurrence of *Camellia caudata* var. *caudata* in Bhutan (Sealy, Rev. Gen. *Camellia*, 105. 1958; Ming, Monogr. Gen. *Camellia*, 202. 2000) is based on *T. J. Booth s.n.* 1 Nov and 20 Dec at K. However, Thomas Jonas Booth's collections referring to "Bootan" were made east of Bhutan, in SE Xizang or NE India, in 1850–1851 (Grierson & Long, Fl. Bhutan 1: 8. 1983).

- 1a. Leaf blade elliptic, oblong-elliptic, or oblong, 7–12 × 2.5–4(–5) cm, thinly leathery; petals to 2 cm; capsule 1.5–2 cm in diam. 55a. var. *caudata*

- 1b. Leaf blade lanceolate to narrowly lanceolate, 3.5–5 × 0.8–1.5 cm, papery; petals less than 1 cm; capsule ca. 1 cm in diam. 55b. var. *gracilis*

55a. *Camellia caudata* var. *caudata*

长尾毛蕊茶(原变种) chang wei mao rui cha (yuan bian zhong)

Camellia assimilis Champion; *C. axillaris* Griffith; *C. membranacea* Hung T. Chang; *C. parvilapidea* Hung T. Chang; *C. percuspidata* Hung T. Chang; *C. triantha* Hung T. Chang; *Camelliastrum assimile* (Champion) Nakai; *C. caudatum* (Wallich) Nakai; *Thea assimilis* (Champion) Seemann; *T. caudata* (Wallich) Seemann; *Theopsis caudata* (Wallich) Hu.

Leaf blade elliptic, oblong-elliptic, or oblong, 7–12 × 2.5–4(–5) cm, thinly leathery. Petals to 2 cm. Capsule 1.5–2 cm in diam. Fl. Dec–Jan, fr. Sep–Oct.

Evergreen broad-leaved forests, thickets; (200–)400–1200(–2200) m. Fujian, Guangdong, Guangxi, Hubei, Hunan, Xizang (Médog), SE Yunnan [NE India, N Myanmar, Nepal, N Vietnam].

55b. *Camellia caudata* var. *gracilis* (Hemsley) Yamamoto ex H. Keng, Taiwania 1: 234. 1950.

小长尾毛蕊茶 xiao chang wei mao rui cha

Camellia gracilis Hemsley, Ann. Bot. (London) 9: 146. 1895; *C. edentata* Hung T. Chang; *C. subglabra* Hung T. Chang; *C. tubiformis* Hung T. Chang & S. X. Ren; *Camelliastrum gracile* (Hemsley) Nakai; *Thea gracilis* (Hemsley) Hayata.

Leaf blade lanceolate to narrowly lanceolate, 3.5–5 × 0.8–1.5 cm, papery. Petals less than 1 cm. Capsule ca. 1 cm in diam. Fl. Oct–Dec, fr. Sep–Oct.

- Evergreen broad-leaved forests, thickets; 400–1400(–2000) m. Guangdong, Guangxi, Hainan, Taiwan.

56. *Camellia salicifolia* Champion, Hooker's J. Bot. Kew Gard. Misc. 3: 309. 1851.

柳叶毛蕊茶 liu ye mao rui cha

Camellia salicifolia var. *longisepala* H. Keng; *Camelliastrum salicifolium* (Champion) Nakai; *Thea salicifolia* (Champion) Seemann.

Shrubs or trees, 3–6 m tall. Young branches grayish brown; year-old branchlets with indumentum ± persistent; current year branchlets spreading villous. Petiole 2–3 mm, densely villous; leaf blade oblong-lanceolate to lanceolate, 4.5–10 × 1.5–3 cm, papery, abaxially pale green, sparsely appressed villous with indumentum more dense along midvein, and becoming grayish white when dry, adaxially dark green, and becoming grayish green when dry, hirtellous along midvein, midvein abaxially elevated and adaxially slightly impressed, secondary veins 7 or 8 on each side of midvein, abaxially raised, and adaxially obscure, base rounded, margin serrulate, apex long acuminate to caudate. Flowers axillary, solitary. Pedicel 4–5 mm, densely villous; bracteoles 4 or 5, outside white villous, inside glabrous, apex long acuminate; basal 2 bracteoles ovate, ca. 1.5

cm; apical 2 or 3 bracteoles lanceolate, 5–6 mm. Sepals 5, lanceolate to narrowly lanceolate, 8–10 mm, outside densely white villous, inside glabrous, apex long acuminate. Petals 5 or 6, white, obovate to obovate-elliptic, 1.5–2 × 0.8–1.6 cm, outside farinose-puberulent, basally connate for 2–4 mm. Stamens ca. 1.5 cm; outer filament whorl basally connate for ca. 1 cm, distinct part white villous. Ovary white tomentose, 3-loculed; style ca. 1.5 cm, densely pubescent, apically 3-parted for 1–2 mm. Capsule globose, 1.5–2.5 cm in diam., 1-loculed with 1 seed, apex shortly conic; pericarp ca. 1 mm thick. Seed brown, subglobose. Fl. Nov, fr. Sep–Oct. $2n = 30^*$.

• Forests, thickets; 300–800(–1400) m. Fujian, Guangdong, E Guangxi, S Jiangxi, Taiwan.

57. *Camellia melliana* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 59: 58. 1922.

广东毛蕊茶 guang dong mao rui cha

Thea melliana (Handel-Mazzetti) Merrill.

Shrubs 1–1.7 m tall. Young branches grayish brown; year-old branchlets with indumentum ± persistent; current year branchlets slender, densely spreading villous. Petiole 1–2 mm, densely villous; leaf blade oblong to oblong-lanceolate, 2.5–4.5(–6.5) × 1–1.5 cm, thinly leathery, abaxially pale green and sparsely villous with indumentum more dense along midvein, adaxially dark green and hirtellous along midvein, base rounded, margin undulate-denticulate, apex bluntly acuminate. Flowers axillary, solitary, ca. 1.5 cm in diam. Pedicel 2–3 mm; bracteoles 4, ovate, 0.5–1.5 mm, outside villous. Sepals 5, broadly ovate to suborbicular, 2–2.5 mm, outside villous, inside glabrous. Petals 5 or 6, white, obovate, 7–12 × 6–10 mm, outside farinose-puberulent, basally connate for 1–3 mm, apex rounded. Stamens 7–10 mm; outer filament whorl basally connate for 4–7 mm, distinct part densely white villous. Ovary yellow tomentose, 3-loculed; style 8–10 mm, densely pubescent, apically 3-parted for ca. 1 mm and glabrous. Capsule subglobose, 1–1.2 × 0.9–1 cm, 1-loculed with 1 seed, apex shortly conic; pericarp thin; columella abortive. Seed brown, subglobose. Fl. Mar–Apr, fr. Nov.

• Thickets; 400–700 m. C Guangdong.

58. *Camellia cordifolia* (F. P. Metcalf) Nakai, J. Jap. Bot. 16: 692. 1940.

心叶毛蕊茶 xin ye mao rui cha

Shrubs or trees, 1–8 m tall. Young branches grayish brown; year-old branchlets with indumentum ± persistent; current year branches densely pale yellow to brown spreading villous

and pubescent. Petiole 2–5 cm, villous; leaf blade oblong-lanceolate to oblong-ovate, 4–10 × 1.5–3.5 cm, thinly leathery, abaxially pale green, sparsely villous especially along midvein, and becoming pale brown to reddish brown when dry, adaxially dark green, shiny, and hirtellous along midvein, midvein raised on both surfaces, secondary veins 6–8 on each side of midvein and slightly raised to obscure on both surfaces, base shallowly cordate to subtruncate, margin serrulate, apex acuminate to caudate. Flowers axillary, solitary. Pedicel 2–3 mm; bracteoles 4 or 5, covering pedicel, semiorbicular to broadly ovate, 0.3–3 mm, outside appressed pubescent except margin or glabrous, inside glabrous. Sepals 5, ovate to suborbicular, (2–)4–5 mm, outside appressed pubescent except margin or glabrous, inside glabrous, margin ciliolate. Petals 5–7, white, obovate to broadly obovate, 1–2 × 0.6–1.2 cm, outside farinose-puberulent or glabrous, basally connate for 3–5 mm, apex rounded to emarginate. Stamens 1–1.7 cm; outer filament whorl basally connate for 1–1.4 cm, distinct part densely white villous. Ovary white tomentose, 3-loculed; style 1.3–1.9 cm, densely white villous, apically 3-parted for ca. 2 mm and glabrous. Capsule subglobose, 1–1.5 cm in diam., 1(or 2)-loculed with 1 seed per locule; pericarp thinly leathery, pubescent. Seed brown, globose, 8–10 mm in diam. Fl. Nov–Jan, fr. Sep–Oct. $2n = 30^*$.

• Forests, thickets; (200–)300–1700(–2000) m. SW Fujian, Guangdong, Guangxi, Guizhou, S and SW Hunan, S Jiangxi, SE Yunnan.

- 1a. Bracteoles and sepals villous, petals outside farinose-puberulent 58a. var. *cordifolia*
 1b. Bracteoles, sepals, and petals glabrous 58b. var. *glabrisepala*

58a. *Camellia cordifolia* var. *cordifolia*

心叶毛蕊茶(原变种) xin ye mao rui cha (yuan bian zhong)

Thea cordifolia F. P. Metcalf, Lingnan Sci. J. 11: 17. 1932; *Camellia wenshanensis* Hu.

Bracteoles and sepals outside villous. Petals outside farinose-puberulent. Fl. Dec–Jan, fr. Sep–Oct.

• Forests, thickets; (200–)300–900(–2000) m. SW Fujian, Guangdong, Guangxi, Guizhou, S Hunan, S Jiangxi, SE Yunnan.

58b. *Camellia cordifolia* var. *glabrisepala* T. L. Ming, Acta Bot. Yunnan. 19: 222. 1997.

光萼心叶毛蕊茶 guang e xin ye mao rui cha

Bracteoles, sepals, and petals glabrous. Fl. Nov.

• Forests, thickets; 500–1700 m. SW Guizhou, SW Hunan, SE Yunnan.

2. *Camellia* subg. *Camellia*

山茶亚属 shan cha ya shu

Flowers axillary, solitary or sometimes to 3 in a cluster, apparently sessile, actually with a short stout pedicel completely covered by bracteoles and sepals at anthesis. Bracteoles following closely by and undifferentiated from sepals, caducous. Sepals caducous or persistent in young fruit, crustaceous, margin membranous.

About 44 species: Bhutan, Cambodia, China, NE India, Indonesia, S Japan, S Korea, Laos, Malaysia, Myanmar, Nepal, Philippines, Thailand, Vietnam; 39 species (31 endemic) in China.

Camellia sect. *Calpandria* (Blume) Pierre (*Calpandria* Blume) is an additional section in *C.* subg. *Camellia*, with *C. lanceolata* (Blume) Seemann in Indonesia, Malaysia, and the Philippines and *C. connata* (Craib) Craib in Thailand (Ming, Monogr. Gen. *Camellia*, 1–352. 2000).

- 1a. Styles completely distinct.
 2a. Ovary and fruit surface not tuberculate (species nos. 59–71) 7. *C.* sect. *Heterogenea*
 2b. Ovary and fruit surface tuberculate (species nos. 74–79) 9. *C.* sect. *Tuberculatae*
 1b. Styles connivent or connate although sometimes only connate at very base.
 3a. Bracteoles and sepals ± persistent in young fruit; styles 3–5, connivent (species nos. 72–73) 8. *C.* sect. *Stereocarpus*
 3b. Bracteoles and sepals caducous or only sepals ± persistent; styles connate, although sometimes only connate at very base.
 4a. Petals basally connate; androecium and gynoecium subequal to petal length (species nos. 80–91) .. 10. *C.* sect. *Camellia*
 4b. Petals distinct or nearly so; androecium and gynoecium ca. 1/3 of petal length (species nos. 92–97) 11. *C.* sect. *Paracamellia*

7. *Camellia* sect. *Heterogenea* Sealy, Rev. Gen. *Camellia*, 152. 1958.

离蕊茶组 li rui cha zu

Camellia sect. *Furfuraceae* Hung T. Chang; *C.* subg. *Protocamellia* Hung T. Chang; *C.* sect. *Pseudocamellia* Sealy; *Glyptocarpa* Hu; *Kailosocarpus* Hu.

Flowers axillary or subterminal, solitary, sessile. Bracteoles and sepals 7–11(–17), imbricate; outer 2–5(or 6) bracteoles and sepals caducous after anthesis. Bracteoles small, lunate, semiorbicular, or broadly ovate; inner 5 or 6 bracteoles ± persistent on young fruit, sepaloid, suborbicular, margin membranous. Sepals ± persistent on young fruit. Petals 5–8(–12), white, basally connate. Stamens numerous; outer filament whorl basally connate. Ovary 3–5-loculed; styles 3–5, distinct. Capsules 3–5-loculed; pericarp surface smooth or furfuraceous.

Fourteen species: S and SW China, Laos, N Myanmar, Philippines, Vietnam; 13 species (ten endemic) in China.

- 1a. Leaf blade abaxially not punctate.
 2a. Current year branchlets glabrous 62. *C. szechuanensis*
 2b. Current year branchlets pubescent or villous.
 3a. Current year branchlets and petioles spreading villous; capsule pericarp furfuraceous 59. *C. pubifurfuracea*
 3b. Current year branchlets and petioles pubescent, villous, or hirtellous; capsule pericarp not furfuraceous.
 4a. Leaf blade 4–6.5(–11.5) cm, apex acute, shortly acuminate, or caudate; flowers 3–5 cm in diam.; capsule 4–6 cm in diam., 3–5-loculed 60. *C. yunnanensis*
 4b. Leaf blade 2.5–3.5 cm, apex obtuse to bluntly acute; flowers ca. 1.5 cm in diam.; capsule 1–1.2 cm in diam., 1- or 2-loculed 61. *C. tenii*
 1b. Leaf blade abaxially punctate or punctulate.
 5a. Outer filament whorl basally connate for 9–14 mm; capsule 1.2–1.5 cm in diam. 71. *C. mileensis*
 5b. Outer filament whorl basally connate for 2–6 mm; capsule 2–7 cm in diam.
 6a. Leaf blade apex rounded to obtuse.
 7a. Bracteoles and sepals outside glabrous, inside velutinous; ovary glabrous; capsule pericarp smooth 63. *C. paucipunctata*
 7b. Bracteoles and sepals outside velutinous, inside glabrous; ovary tomentose; capsule pericarp furfuraceous 64. *C. gaudichaudii*
 6b. Leaf blade apex variously acute, acuminate, caudate, or cuspidate.
 8a. Leaf blade veins adaxially deeply impressed, surface rugose; bracteoles and sepals 12–17, inside velutinous 65. *C. granthamiana*
 8b. Leaf blade veins adaxially raised or slightly impressed, surface not rugose; bracteoles and sepals fewer than 10 (7–13 in *C. crapnelliana*), inside glabrous or yellowish sericeous.
 9a. Leaf blade midvein and secondary veins adaxially slightly impressed (sometimes raised in *C. furfuracea*); capsule pericarp furfuraceous.
 10a. Young branches reddish brown; flowers 4–10 cm in diam.; capsule 5–7(–12) cm in diam., pericarp 5–10 mm thick 66. *C. crapnelliana*
 10b. Young branches grayish yellow to grayish brown; flowers 2–3.5 cm in diam.; capsule 2–4 cm in diam., pericarp 2–4 mm thick 67. *C. furfuracea*
 9b. Leaf blade midvein and secondary veins visible or raised on both surfaces; capsule pericarp smooth.
 11a. Bracteoles and sepals glabrous; fruit yellowish green; capsule pericarp ca. 1.5 mm thick 70. *C. pachyandra*

- 11b. Bracteoles and sepals densely pubescent; fruit reddish, purplish red, or brown; capsule pericarp 5–7 mm thick.
 12a. Petiole ca. 10 mm, leaf blade papery to thinly leathery, margin sharply pointed serrulate, apex caudate; petals 2–2.5 cm 68. *C. wardii*
 12b. Petiole 3–5 mm, leaf blade leathery, margin serrulate, apex acute; petals 0.9–1.1 cm 69. *C. szemaensis*

59. *Camellia pubifurfuracea* Y. C. Zhong, *Guihaia* 3: 203. 1983.

毛糙果茶 mao cao guo cha

Camellia furfuracea (Merrill) Cohen-Stuart var. *yaoshanica* S. Ye Liang & Y. C. Zhong.

Shrubs or trees, 2–5 m tall. Current year branchlets densely spreading villous, indumentum ± persistent to following year. Petiole 5–7 mm, densely spreading villous; leaf blade elliptic to oblong-elliptic, 8–15 × 3.5–6 cm, leathery, abaxially pale green and sparsely appressed pubescent and spreading villous along midvein, adaxially dark green and glabrous, midvein and secondary veins abaxially raised and adaxially impressed, base broadly cuneate to rounded, margin serrulate, apex caudate and with an obtuse tip. Flowers axillary or subterminal, solitary, subsessile. Bracteoles and sepals 8–10, caducous in fruit, semiorbicular to suborbicular, 4–12 × 4–15 mm, outside densely yellowish brown villous, inside glabrous. Petals 5–7(–10), white, obovate-oblong, 2–2.5 × 0.8–1.2(–1.5) cm, apex rounded; inner 5 petals basally connate for 2–3 mm. Stamens 1.2–1.5 cm, glabrous; outer filament whorl basally connate for ca. 3 mm. Ovary globose, ca. 3 mm in diam., tomentose, 5-loculed; styles 5, distinct, ca. 1.2 cm, densely pubescent. Capsule subglobose, 4–7 cm in diam., 5-loculed with 1 seed per locule; pericarp 6–10 mm thick, furfuraceous, splitting into 5 valves. Seeds brown, globose to subglobose, glabrous. Fl. Oct–Nov, fr. Sep.

- Forests; 600–800 m. Guangxi (Dayao Shan).

60. *Camellia yunnanensis* (Pitard ex Diels) Cohen-Stuart, *Meded. Proefstat. Thee* 40: 68. 1916.

猴子木 hou zi mu

Shrubs or trees, 1–5(–7.5) m tall. Young branches rusty to grayish brown; year-old branchlets purplish brown; current year branchlets pale brown, pubescent to villous. Petiole 2–5 mm, pubescent to villous; leaf blade ovate, ovate-elliptic, elliptic, long ovate, or ovate-lanceolate, 4–6.5(–11.5) × 1.5–3.5(–4.5) cm, thinly leathery, abaxially pale green and sparsely villous or only villous along midvein, adaxially dark green and hirtellous along midvein, midvein reddish, abaxially elevated, and adaxially slightly raised, secondary veins 5–9 on each side of midvein and raised on both surfaces or adaxially obscure, base broadly cuneate, rounded, or truncate, margin serrulate, apex acute, shortly acuminate, or caudate. Flowers axillary or subterminal, solitary, 3–5 cm in diam., subsessile. Bracteoles and sepals 9–11, ± persistent after anthesis, green to brown, ovate to suborbicular, 2–12 mm, concave, leathery, outside glabrous, inside white finely sericeous, margin broadly scarious. Petals 7–12, white, broadly obovate to elliptic, 2–4(–5.3) × 1.5–3 cm;

inner petals connate for 2–6 mm. Stamens 1.5–2.5 cm, glabrous; outer filament whorl basally connate for 2–5 mm. Ovary discoid, ca. 1 × 3–3.5 mm, glabrous or ± pilose to tomentose, (3–)5-loculed, apically slightly (3–)5-lobed; styles (3–)5, distinct, ca. 1.5 cm. Capsule purplish red but becoming purplish brown when dry, globose to oblate, 4–6 cm in diam., (3–)5-loculed with 2 or 3 seeds per locule, apex with 5 conic lobes, 5 valves dehiscent; pericarp ca. 1 cm thick and fleshy when fresh, 1–5 mm thick when dry. Seeds brown, globose to semiglobose, 1–1.6 cm in diam., rufous pilose or glabrescent. Fl. Nov–Mar, fr. Aug–Oct. $2n = 30^*$.

- Forests, thickets; (800–)1100–3200 m. SW Guizhou, SW Sichuan, Yunnan.

- 1a. Leaf blade ovate, elliptic-ovate, or long ovate, 2–3.5(–4) cm wide; ovary glabrous 60a. var. *yunnanensis*
 1b. Leaf blade ovate, long ovate, or ovate-lanceolate, 1.5–2.3 cm wide; ovary ± pilose to tomentose 60b. var. *camellioides*

60a. *Camellia yunnanensis* var. *yunnanensis*

猴子木(原变种) hou zi mu (yuan bian zhong)

Thea yunnanensis Pitard ex Diels, *Notes Roy. Bot. Gard. Edinburgh* 5: 284. 1912; *Camellia acutiserrata* Hung T. Chang; *C. henryana* Cohen-Stuart; *C. scariosisepala* Hung T. Chang; *Thea henryana* (Cohen-Stuart) Rehder.

Leaf blade usually ovate or broadly ovate, sometimes elliptic-ovate or long ovate, 2–3.5(–4) cm wide. Ovary and style glabrous. Fl. Nov–Dec, fr. Aug–Sep.

- Forests, thickets; 1100–3200 m. SW Guizhou, SW Sichuan, Yunnan.

60b. *Camellia yunnanensis* var. *camellioides* (Hu) T. L. Ming, *Acta Bot. Yunnan.* 21: 155. 1999.

毛果猴子木 mao guo hou zi mu

Pyrenaria camellioides Hu, *Bull. Fan Mem. Inst. Biol., Bot.* 8: 136. 1938; *Camellia henryana* var. *pilocarpa* T. L. Ming; *C. henryana* var. *trichocarpa* (Hung T. Chang) T. L. Ming; *C. liberistyla* Hung T. Chang; *C. liberistylodes* Hung T. Chang; *C. skogiana* C. X. Ye; *C. trichocarpa* Hung T. Chang; *C. yunnanensis* var. *trichocarpa* (Hung T. Chang) T. L. Ming; *Glyptocarpa camellioides* (Hu) Hu; *Kailoscarpus camellioides* (Hu) Hu.

Leaf blade very variable in shape, ovate, long ovate, or ovate-lanceolate, 1.5–2.3 cm wide. Ovary ± pilose to tomentose. Fl. Dec–Mar, fr. Sep–Oct.

- Forests, thickets; (800–)1200–2700 m. C, S, and W Yunnan.

61. *Camellia tenii* Sealy, Kew Bull. 4: 221. 1949.

小糙果茶 xiao cao guo cha

Shrubs 1–3 m tall. Young branches grayish brown; current year branchlets red, slender, pubescent, indumentum persisting to following year. Petiole 2–3 mm, pubescent; leaf blade ovate-elliptic, elliptic, or oblong-elliptic, 2.5–3.5(–4.2) × (1.2–)1.5–2.3 cm, thinly leathery, abaxially pale green and glabrous, adaxially dark green, shiny, and hirtellous along midvein, midvein abaxially elevated and adaxially slightly raised, secondary veins visible or slightly raised on both surfaces, base broadly cuneate, margin serrulate, apex obtuse to bluntly acute. Flowers axillary, solitary or paired, ca. 1.5 cm in diam., subsessile. Bracteoles and sepals 9 or 10, semiorbicular to suborbicular, leathery, outside ± pubescent, inside glabrous, margin broadly membranous. Petals 6 or 7, white, obovate to obovate-elliptic, 6–10 × 5–6 mm, basally connate for 1.5–3 mm, apex rounded. Stamens ca. 30, 6–9 mm, glabrous; outer filament whorl basally connate for ca. 3 mm. Gynoecium 8–9 mm. Ovary ovoid, white tomentose; styles 3, distinct, 5–7 mm, glabrous. Capsule oblate, 1–1.2 cm in diam., 1- or 2-loculed with 1 seed per locule; pericarp ca. 1 mm thick, leathery. Seeds pale brown, pubescent. Fl. Oct–Nov, fr. Aug–Sep.

- Thickets; 400–1500 m. Yunnan (Dayao).

62. *Camellia szechuanensis* C. W. Chi, Sunyatsenia 7: 17. 1948.

四川离蕊茶 si chuan li rui cha

Shrubs 1–4 m tall. Young branches grayish brown; current year branchlets grayish yellow, slender, glabrous. Petiole 0.6–1.5 cm, abaxially glabrous, adaxially hirtellous; leaf blade oblong to oblanceolate, 6–12.5 × 2–4 cm, thinly leathery, abaxially pale green, adaxially dark green, both surfaces glabrous, midvein raised on both surfaces, secondary veins 6 or 7 on each side of midvein, abaxially obscure, and adaxially visible to slightly raised, base cuneate, margin widely spinulose-denticulate, apex long acuminate to caudate. Flowers axillary, solitary or paired, 4–5 cm in diam., subsessile. Bracteoles and sepals 9 or 10, ± persistent after anthesis, crustaceous, outside white pubescent, inside glabrous, margin broadly membranous; outer 4 or 5 bracteoles and sepals lunate, 1.5–3 mm; inner 5 bracteoles and sepals suborbicular, 5–10 mm. Petals 6–8, white, obovate, 2.5–3.5 × 2–3 cm, outside apically white pubescent, basally connate for ca. 8 mm. Stamens numerous, ca. 2.5 mm; filaments glabrous; outer filament whorl basally connate for 5–10 mm. Ovary subglobose, ca. 2 mm, densely tawny tomentose; styles 3(or 4), distinct, 2–2.5 cm, basal 2/3 to 3/4 sparsely white pilose. Capsule dark brown, subglobose, 1.5–2 cm in diam., 3-loculed with 1 seed per locule; pericarp ca. 1 mm thick, white pilose. Seeds brown, reddish brown pubescent. Fl. Jan–Mar, fr. Sep.

- Forests; 1200–1800 m. Sichuan (Emei Shan).

63. *Camellia paucipunctata* (Merrill & Chun) Chun, Sunyatsenia 4: 187. 1940.

腺叶离蕊茶 xian ye li rui cha

Thea paucipunctata Merrill & Chun, Sunyatsenia 2: 285. 1935.

Trees 6–12 m tall. Young branches grayish yellow; current year branchlets brown, thick, glabrous. Petiole 4–7 mm, glabrous, becoming yellowish when dry; leaf blade elliptic to broadly elliptic-obovate, 5.5–10.5 × 3.5–5.5 cm, rigidly leathery, abaxially pale green and brown glandular punctate, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially yellowish and elevated and adaxially impressed, secondary veins ca. 6 on each side of midvein and raised on both surfaces, base broadly cuneate, margin widely and bluntly serrate, apex obtuse to rounded. Flowers axillary, solitary, subsessile. Bracteoles 2, persistent, green, lunate, 2–3 × 2.5–4 mm, leathery, outside glabrous, inside velutinous. Sepals 5, persistent, green, suborbicular, 6–8 × 8–10 mm, leathery, outside glabrous, inside yellow velutinous. Petals 6 or 7, white or slightly yellowish white, broadly obovate, 2–2.5 × 1.5–1.8 cm, basally connate for ca. 2 mm, apex rounded. Stamens ca. 1.5 cm; filaments glabrous; outer filament whorl basally connate for ca. 2 mm. Ovary ovoid, ca. 3 mm in diam., glabrous, 3-loculed; styles 3, distinct, to 1 cm. Capsule subglobose, ca. 3 cm in diam., 3-loculed with 1 or 2 seeds per locule; pericarp ca. 5 mm thick, woody. Seeds brown, semiglobose to subglobose, ca. 1.2 cm in diam. Fl. Dec–Jan, fr. Aug–Sep.

- Forests; ca. 300 m. S Hainan (Sanya).

64. *Camellia gaudichaudii* (Gagnepain) Sealy, Kew Bull. 4: 217. 1949.

硬叶糙果茶 ying ye cao guo cha

Thea gaudichaudii Gagnepain, Notul. Syst. (Paris) 10: 127. 1942.

Shrubs or trees, 3–5 m tall. Young branches grayish brown; current year branchlets straw colored, thick, glabrous. Petiole 6–7 mm, glabrous; leaf blade elliptic to ovate-elliptic, 5–7 × 2.5–3 cm, rigidly leathery, abaxially pale green and brown glandular punctate, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins abaxially raised and adaxially obscure, base broadly cuneate, margin widely and shallowly denticulate, apex obtuse to rounded. Flowers axillary or subterminal, solitary or paired, subsessile. Bracteoles and sepals nearly all caducous after anthesis, leathery, outside yellow velutinous, inside glabrous. Petals and stamens not seen. Ovary ovoid, ca. 3 mm in diam., densely tomentose, 3-loculed; styles 3, distinct, 7–9 mm, whitish woolly almost to apex. Capsule grayish, subglobose, ca. 3 cm in diam., 3-loculed; pericarp ca. 2.5 mm thick when dry, furfuraceous, splitting into 3 valves; columella persistent, stout. Seeds dark brown, semiglobose, ca. 1.5 cm in diam. Fl. Dec–Jan, fr. Aug–Sep.

- Forests. Guangxi (Fangcheng), Hainan (Wenchang) [N Vietnam].

65. *Camellia granthamiana* Sealy, J. Roy. Hort. Soc. 81: 182. 1956.

大苞白山茶 da bao bai shan cha

Camellia albogigas Hu.

Shrubs or trees, 3–9 m tall. Young branches grayish brown; current year branchlets brown, pubescent. Petiole 5–10 mm, pubescent; leaf blade oblong-elliptic, obovate-elliptic, or oblong, 7–11.5 × 3–4.5 cm, leathery and adaxially rugose, abaxially pale green, brown glandular punctate, and spreading villous along midvein and secondary veins, adaxially dark green, shiny, and glabrous, midvein and secondary veins abaxially elevated and adaxially deeply impressed, reticulate veins abaxially raised and adaxially deeply impressed, base rounded to obtuse, margin serrulate, apex bluntly acuminate to caudate-acuminate. Flowers axillary or subterminal, solitary, 10–14 cm in diam., sessile. Bracteoles and sepals 12–17, ± persistent, crustaceous, outside gray tomentose, inside velutinous, margin membranous; outer bracteoles and sepals semiorbicular, 4–8 × 8–14 mm; inner bracteoles and sepals suborbicular, 3.5–4 × 4–4.5 cm. Petals 8–10, white, broadly obovate, 4.5–7 × 3.8–5 cm, apex emarginate; inner 5 petals basally connate for 5–6 mm. Stamens numerous, 2.5–3 cm, glabrous; outer filament whorl basally connate for 5–6 mm. Gynoecium 2.5–3 cm, densely white tomentose to apex of styles. Ovary globose, 4–5 mm in diam., 5-loculed; styles 5, distinct but basally connivent, apically dividing into 5 recurved arms. Capsule subglobose, ca. 6 cm in diam., surrounded by persistent sepals, 5 valves dehiscent; pericarp 7–10 mm thick, furfuraceous. Seeds dark brown, semiglobose, ca. 1.3 × 1.3 cm. Fl. Dec–Jan, fr. Aug–Sep. $2n = 60^*$.

• Forests; 100–300 m. E Guangdong.

66. *Camellia crapnelliana* Tutcher, J. Linn. Soc., Bot. 37: 63. 1904.

红皮糙果茶 hong pi cao guo cha

Camellia gigantocarpa Hu & T. C. Huang; *C. latilimba* Hu; *C. multibracteata* Hung T. Chang; *C. octopetala* Hu; *Thea crapnelliana* (Tutcher) Rehder.

Shrubs or trees, 2–10 m tall. Year-old branchlets reddish brown; current year branchlets green, glabrous. Petiole 6–12 mm, glabrous, adaxially channeled; leaf blade elliptic to oblong-elliptic, 7–19 × 3–6 cm, rigidly leathery, abaxially pale green and brown glandular punctate, adaxially dark green, midvein abaxially elevated and adaxially impressed, secondary veins 7–9 on each side of midvein, abaxially raised, and adaxially obscure, base cuneate to broadly cuneate, margin widely and obscurely denticulate, apex bluntly cuspidate. Flowers axillary or subterminal, solitary or paired, 4–10 cm in diam., sessile. Bracteoles and sepals 7–13, ± persistent, semiorbicular to suborbicular, 0.3–2 cm, outside tawny tomentellate, inside glabrous. Petals 6–8, white, obovate to obovate-oblong, 3.5–6.5 × 2–4 cm, basally connate for 2–5 mm, apex rounded to emarginate. Stamens very numerous, 1.5–1.7 cm; filaments glabrous; outer filament whorl basally connate for ca. 5 mm. Ovary ca. 2 mm in diam., densely tomentose, 3–5-loculed; styles 3–5, distinct, ca. 1.5 cm, basally pubescent to tomentose. Capsule grayish brown, subglobose, 5–7(–12) cm in diam., 3(–5)-loculed with 3–5 seeds per locule; pericarp 5–10 mm thick, woody, furfuraceous, splitting into 3–5 valves; columella persistent, thick. Seeds brown, semiglobose, 1.5–2 cm in diam., glabrous. Fl. Dec–Jan, fr. Sep–Oct. $2n = 30^*$.

• Forests; 100–800 m. Fujian, Guangdong, S Guangxi, E Jiangxi, S Zhejiang.

67. *Camellia furfuracea* (Merrill) Cohen-Stuart, Bull. Jard. Bot. Buitenzorg, sér. 3, 1: 240. 1919.

糙果茶 cao guo cha

Shrubs or trees, 2–7 m tall. Year-old branchlets grayish yellow to grayish brown; current year branchlets stout, glabrous. Petiole 5–10 mm, thick, glabrous, adaxially canaliculate; leaf blade elliptic-ovate, elliptic, oblong-elliptic, or oblong, 8–15 × 3–5.5 cm, leathery to thickly leathery, abaxially pale green and brown glandular punctate, adaxially dark green and shiny, both surfaces glabrous, midvein and secondary veins abaxially raised and adaxially slightly impressed or raised, reticulate veins adaxially obscure or raised, base cuneate, broadly cuneate, rounded, or slightly cordate, margin serrulate to undulate-denticulate, apex acuminate, shortly acuminate, or falcately acuminate. Flowers axillary or subterminal, solitary or paired, 2–3.5 cm in diam., sessile. Bracteoles and sepals 9 or 10, lunate, semiorbicular, or orbicular, 2–10 mm, leathery, outside yellow tomentose in median part, inside glabrous, margin membranous and ciliolate. Petals 7–10, white, obovate, 1.5–2 × 1–1.5 cm, basally connate for 2–4 mm, apex rounded. Stamens ca. 1.5 cm; filaments glabrous; outer filament whorl basally connate for 4–6 mm. Ovary tomentose, 3-loculed; styles 3, distinct, ca. 1.3 cm, densely pubescent. Capsule globose to obovate, 2–4 cm in diam., 3-loculed with 2–5 seeds per locule; pericarp 2–4 mm thick when dry, furfuraceous, splitting into 3 valves; columella persistent. Seeds dark brown, semiglobose, 1.1–1.8 cm in diam. Fl. Nov–Dec, fr. Sep–Oct. $2n = 30$.

Forests, forests along streams; 100–1000 m. Fujian, Guangdong, Guangxi, Hainan, S Hunan, S Jiangxi, Taiwan [Laos, Vietnam].

- 1a. Leaf blade elliptic-ovate, thickly leathery, secondary and reticulate veins adaxially raised, apex falcately acuminate and with an apiculate tip 67c. var. *shanglinensis*
- 1b. Leaf blade elliptic to oblong-elliptic, leathery, secondary veins adaxially slightly impressed, reticulate veins obscure, apex acuminate or shortly acuminate and with an obtuse tip.
 - 2a. Petiole 6–10 mm, leaf blade base cuneate to broadly cuneate 67a. var. *furfuracea*
 - 2b. Petiole 5–6 mm, leaf blade base rounded to slightly cordate 67b. var. *latipetiolata*

67a. *Camellia furfuracea* var. *furfuracea*

糙果茶(原变种) cao guo cha (yuan bian zhong)

Thea furfuracea Merrill, Philipp. J. Sci. 13: 149. 1918; *Camellia furfuracea* var. *lutea* Hu; *C. oblata* Hung T. Chang; *C. parafurfuracea* Liang ex Hung T. Chang; *C. polypetala* Hung T. Chang; *C. pubisepala* D. Fang; *C. suaveolens* C. X. Ye et al.; *T. bolovenssis* Gagnepain; *Theopsis furfuracea* (Merrill) Nakai.

Petiole 6–10 mm; leaf blade elliptic to oblong-elliptic, base cuneate to broadly cuneate, apex acuminate to shortly acuminate and with an obtuse tip. Fl. Nov–Dec, fr. Sep–Oct.

Forests; 200–1000 m. Fujian, Guangdong, Guangxi, Hainan, S Hunan, S Jiangxi, Taiwan [Laos, Vietnam].

67b. *Camellia furfuracea* var. *latipetiolata* (C. W. Chi) T. L. Ming, Acta Bot. Yunnan. 21: 155. 1999.

阔柄糙果茶 *kuo bing cao guo cha*

Camellia latipetiolata C. W. Chi, Sunyatsenia 7: 18. 1948.

Petiole 5–6 mm; leaf blade elliptic to oblong-elliptic, leathery, base rounded to slightly cordate, apex acuminate to shortly acuminate and with an obtuse tip. Fl. Dec, fr. Sep–Oct.

• Forests along streams; 100–200 m. NW Guangdong, E Guangxi.

67c. *Camellia furfuracea* var. *shanglinensis* T. L. Ming, Acta Bot. Yunnan. 21: 159. 1999.

上林糙果茶 *shang lin cao guo cha*

Leaf blade elliptic-ovate, 7.5–11.5 × 3.5–5 cm, thickly leathery, abaxially glaucescent, secondary and reticulate veins adaxially raised, base broadly cuneate to subrounded, apex falcately acuminate and with an apiculate tip. Fl. Dec, fr. Sep–Oct.

• Forests along streams; 400–500 m. Guangxi (Shanglin).

68. *Camellia wardii* Kobuski, Brittonia 4: 114. 1941.

滇缅离蕊茶 *dian mian li rui cha*

Shrubs or trees, 2–6 m tall. Young branches grayish brown; current year branchlets purplish brown, glabrous or pubescent. Petiole yellowish, ca. 1 cm, glabrous or villous; leaf blade oblong-elliptic to oblong, 6–12 × 2–4.5 cm, papery to thinly leathery, abaxially pale green, red glandular punctate, and glabrous or villous along midvein, adaxially dark green and glabrous, midvein and secondary veins yellowish and visible or slightly raised on both surfaces, base broadly cuneate, margin sharply pointed serrulate, apex caudate. Flowers axillary or subterminal, solitary, 3.5–4.5 cm in diam., subsessile. Bracteoles and sepals 9 or 10; outer 4 or 5 bracteoles and sepals caducous after anthesis, bracteolate, semiobovate to broadly ovate, 1.5–5 mm; inner 5 bracteoles and sepals ± persistent, orbicular, 1–1.2 cm in diam., subleathery, both surfaces puberulent, margin broadly scarios. Petals 6–8, white, obovate-elliptic to broadly elliptic, 2–2.5 × 1.3–1.7 cm, basally connate for 2–3 mm, apex rounded to emarginate. Stamens ca. 1.3 cm; filaments glabrous; outer filament whorl basally connate for 4–5 mm. Ovary densely tomentose, 3-loculed; styles 3, distinct, 6–8 mm, glabrous or basal 1/2 pubescent. Capsule globose to subglobose, 3–4 × 3.5–4.5 cm, 3-loculed with 2 seeds per locule; pericarp 5–7 mm thick, surface brown glandular punctate, splitting into 3 valves; columella persistent. Seeds brown, semiglobose, 1–1.5 cm in diam. Fl. Nov–Dec, fr. Sep. $2n = 30$.

Forests, thickets; 400–2600 m. SW and W Yunnan [N Myanmar].

- 1a. Current year branchlets, abaxial surface of leaf blades, and petioles glabrous 68a. var. *wardii*
 1b. Current year branchlets, midvein of leaf blade abaxial surface, and petioles villous 68b. var. *muricatulata*

68a. *Camellia wardii* var. *wardii*

滇缅离蕊茶(原变种) *dian mian li rui cha (yuan bian zhong)*

Current year branchlets, abaxial surface of leaf blades, and petioles glabrous.

Forests, thickets; 1300–2600 m. W Yunnan [N Myanmar].

68b. *Camellia wardii* var. *muricatulata* (Hung T. Chang) T. L. Ming, Fl. Yunnan. 8: 292. 1997.

毛滇离蕊茶 *mao dian mian li rui cha*

Camellia muricatulata Hung T. Chang, Taxon. Gen. *Camellia*, 93. 1981.

Current year branchlets, midvein of leaf blade abaxial surface, and petioles villous.

Forests; 400–1700 m. SW Yunnan [N Myanmar].

69. *Camellia szemaensis* Hung T. Chang, Taxon. Gen. *Camellia*, 94. 1981.

斑叶离蕊茶 *ban ye li rui cha*

Shrubs or trees, 2–5 m tall. Young branches brown, glabrescent; current year branchlets grayish yellow pubescent. Petiole 3–5 mm, pubescent; leaf blade oblong-elliptic, elliptic, or ovate, 5–9 × 2–3.5 cm, leathery, abaxially pale green, brown glandular punctate, and sparsely appressed villous when young but later glabrescent, adaxially dark green and shiny but hirtellous along midvein, midvein abaxially elevated and adaxially raised, secondary veins ca. 7 on each side of midvein, abaxially raised, and adaxially slightly raised, base broadly cuneate to obtuse, margin serrulate, apex bluntly acute. Flowers axillary or subterminal, solitary, subsessile. Bracteoles and sepals ca. 9, leathery, margin membranous; outer 4 bracteoles and sepals bracteolate, semiobovate to broadly ovate, 2–2.5 mm, outside gray pubescent, inside yellowish sericeous; inner 5 bracteoles and sepals ± persistent, sepaloid, broadly elliptic, 6–7 mm, outside gray pubescent, inside yellowish sericeous. Petals ca. 7, white; outer 2 petals small; inner 5 petals obovate-elliptic, 9–11 × 6–7 mm, base slightly connate. Stamens ca. 8 mm; filaments glabrous; outer filament whorl basally connate for ca. 3 mm. Ovary globose, densely tomentose, 3-loculed; styles 3, distinct, glabrous. Capsule reddish when mature, oblate, ca. 2 × 3–3.5 cm, 3-loculed with 2 seeds per locule; pericarp 5–7 mm thick, splitting into 3 valves; columella persistent. Seeds brown, semiglobose, 1.2–1.5 cm in diam., pubescent. Fl. Feb–Mar, fr. Oct.

• Forests on mountain slopes or in valleys; 700–2000 m. SW Yunnan.

70. *Camellia pachyandra* Hu, Bull. Fan Mem. Inst. Biol., Bot. 8: 131. 1938.

滇南离蕊茶 *dian nan li rui cha*

Camellia taheishanensis F. C. Zhang.

Shrubs or trees, 5–12 m tall. Year-old branchlets grayish brown; current year branchlets green to yellowish green, glabrous. Petiole 5–7 mm, abaxially pubescent; leaf blade oblong-elliptic, elliptic, or oblong, 6.5–11 × 3–4.5 cm, thinly leathery,

abaxially pale green, ferruginous glandular punctulate, and sparsely villous along midvein, adaxially green and glabrous, midvein abaxially elevated and adaxially slightly raised, secondary and reticulate veins \pm raised on both surfaces, base cuneate to obtuse, margin serrulate, apex shortly caudate and with a blunt tip. Flowers axillary, solitary, subsessile. Bracteoles and sepals ca. 6; outer 2 bracteoles and sepals semi-orbicular to broadly ovate, 1.5–2.5 \times 2.5–3.5 mm; inner 4 bracteoles and sepals suborbicular, 4–6 mm in diam., subleathery, glabrous, margin membranous and ciliolate. Petals 5, white or pink, obovate, 8–9 \times 5–6 mm, basally connate for ca. 2 mm, apex rounded. Stamens ca. 6 mm; filaments glabrous; outer filament whorl connate for 2–3 mm. Ovary ovoid, ca. 2 mm, densely tomentose; styles 3 (or 4), distinct, glabrous. Capsule globose to subglobose, 3.5–5 \times 2.5–4 cm, 3-loculed with 2 seeds per locule, apex sunken; pericarp yellow and smooth, ca. 1.5 mm thick when dry. Seeds grayish brown, semiglobose, 1–2 cm in diam., smooth. Fl. Apr, fr. Oct–Nov.

- Forests; 1400–1900 m. S Yunnan.

71. *Camellia mileensis* T. L. Ming, Acta Bot. Yunnan. 19: 221. 1997.

弥勒糙果茶 mi le cao guo cha

Shrubs to 2 m tall. Year-old branchlets grayish brown, glabrescent; current year branchlets slender, hispidulous. Petiole 3–5 mm, hirtellous; leaf blade elliptic, oblong, or lanceolate, 3–6.5 \times 1–3 cm, leathery, abaxially pale green, brown glandular punctate, and sparsely villous along midvein, adaxially dark green and hirtellous along midvein, midvein abaxially elevated, secondary veins 6 or 7 on each side of midvein, abaxially slightly raised, and adaxially visible, base cuneate to broadly cuneate, margin serrulate, apex bluntly and shortly caudate. Flowers axillary or subterminal, solitary, 2–3 cm in diam., subsessile. Bracteoles and sepals 9 or 10, \pm persistent, green, semi-

orbicular to broadly ovate, 2–5 mm, leathery, outside gray pubescent, inside glabrous, margin membranous. Petals 7 or 8, white or pale pink, obovate, 2–2.5 \times 1.4–1.8 cm, apex rounded; inner 5 petals connate for 4–5 mm. Stamens ca. 1.8 cm; filaments glabrous; outer filament whorl basally connate for 0.9–1.4 cm. Ovary globose, white tomentose, 3-loculed; styles 3, distinct, ca. 1.7 cm, glabrous or basally pilose. Capsule globose, 1.2–1.5 cm in diam., 3-loculed; pericarp ca. 1.5 mm thick, furfureous, splitting into 3 valves. Seeds brown. Fl. Mar, fr. Nov.

- Thickets in river valleys; 1100–1300 m. Yunnan (Mile).

- 1a. Leaf blade elliptic, 6–6.5 \times 2.5–3 cm; flowers ca. 3 cm in diam.; outer filament whorl connate for basal ca. 3/4 71a. var. *mileensis*
- 1b. Leaf blade oblong to lanceolate, 3–4 \times 1–1.4 cm; flowers ca. 2 cm in diam.; outer filament whorl connate for basal ca. 1/2 71b. var. *microphylla*

71a. *Camellia mileensis* var. *mileensis*

弥勒糙过茶(原变种) mi le cao guo cha (yuan bian zhong)

Leaf blade elliptic, 6–6.5 \times 2.5–3 cm. Flowers ca. 3 cm in diam. Outer filament whorl connate for basal ca. 3/4. Fl. Mar, fr. Nov.

- Thickets in river valleys; 1100–1200 m. Yunnan (Mile).

71b. *Camellia mileensis* var. *microphylla* T. L. Ming, Acta Bot. Yunnan. 19: 222. 1997.

小叶弥勒糙果茶 xiao ye mi le cao guo cha

Leaf blade oblong to lanceolate, 3–4 \times 1–1.4 cm. Flowers ca. 2 cm in diam. Outer filament whorl connate for basal ca. 1/2. Fl. Mar.

- Thickets in river valleys; ca. 1300 m. Yunnan (Mile).

8. *Camellia* sect. *Stereocarpus* (Pierre) Sealy, Rev. Gen. *Camellia*, 45. 1958.

实果茶组 shi guo cha zu

Thea sect. *Stereocarpus* Pierre, Fl. Forest. Cochinch. t. 119. 1887; *Camellia* sect. *Luteoflorae* Hung T. Chang; *Stereocarpus* (Pierre) H. Hallier.

Flowers axillary or subterminal, solitary, subsessile. Bracteoles and sepals persistent. Petals yellow, basally \pm connate. Stamens in 3 or 4 whorls; outer filament whorl connate for basal ca. 1/3. Ovary 3–5-loculed; styles 3–5, \pm connate, longitudinally 3–5-grooved, 3–5-lobed or 3–5-parted to middle.

Three species: S China, Vietnam; two species (both endemic) in China.

- 1a. Current year branchlets spreading villous; flowers 5–6 cm in diam.; outside of bracteoles, sepals, and petals gray puberulent; filaments pilose; capsule ca. 3.5 cm in diam., 3-loculed 72. *C. pubipetala*
- 1b. Current year branchlets glabrous; flowers 1–1.8 cm in diam.; outside of bracteoles, sepals, and petals glabrous or white pubescent; filaments glabrous; capsule 1.8 \times 1.5 cm, 1 (or 2)-loculed 73. *C. luteoflora*

72. *Camellia pubipetala* Y. Wan & S. Z. Huang, Acta Phytotax. Sin. 20: 316. 1982.

毛瓣金华茶 mao ban jin hua cha

Shrubs or trees, 1.5–5.5 m tall. Second-year branches brown hirsute; current year branchlets gray spreading villous. Petiole 5–10 mm, yellowish brown villous to brown hirsute;

leaf blade elliptic-ovate, elliptic, or oblong-elliptic, 10–17 \times 5–8 cm, leathery, abaxially pale green, brown glandular punctate, appressed villous but densely spreading villous along midvein, and becoming yellowish brown to brown when dry, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, abaxially raised, and adaxially slightly impressed, base

rounded to subtruncate, margin serrulate, apex acuminate to caudate-acuminate. Flowers axillary or subterminal, solitary, 5–6 cm in diam., subsessile. Bracteoles (4–)6–8, lunate to semi-orbicular, 2.5–7 mm, crustaceous, outside gray puberulent, inside glabrous, margin scarious and ciliolate. Sepals 5 or 6, ± persistent, broadly ovate to suborbicular, 1.3–1.5 cm, crustaceous, outside gray puberulent, inside glabrous, margin scarious and ciliolate. Petals 9–13, lemon yellow; outer 4 or 5 petals broadly obovate, 2–2.5 cm; inner petals obovate-elliptic to long obovate, 3–4 cm, outside gray puberulent, basally connate for 3–5 mm. Stamens numerous, 2.5–3 cm; outer filament whorl connate for basal ca. 1/3, distinct part pilose. Ovary yellowish tomentose, 3(or 4)-loculed; style 3 or 4 grooved, apically 3(or 4)-lobed to -parted for 5–10 mm. Capsule oblate with 3 longitudinal grooves, ca. 3.5 cm in diam., 3-loculed with 1 or 2 seeds per locule. Seeds dark brown, semiglobose to globose. Fl. Jan–Feb, fr. Oct. $2n = 30^*$.

• Forests on calcareous hill; 200–400 m. Guangxi (Daxin, Long'an).

73. *Camellia luteoflora* Y. K. Li ex Hung T. Chang & F. A. Zeng, Acta Sci. Nat. Univ. Sunyatseni 21(3): 72. 1982.

小黄花茶 xiao huang hua cha

Shrubs or trees, 1.2–5.5 m tall. Young branches grayish

brown; current year branchlets yellowish brown, glabrous. Petiole ca. 1 cm, glabrous; leaf blade elliptic to oblong-elliptic, (6.5–)9–17 × (1.7–)3–5.4 cm, leathery, abaxially glaucescent, reddish brown glandular punctate, and sparsely gray appressed pubescent, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6–8 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially slightly impressed, base broadly cuneate to subrounded, margin undulate-serrate, apex bluntly acuminate to bluntly shortly caudate. Flowers axillary or subterminal, solitary, 1–1.8 cm in diam., subsessile. Bracteoles 4, semi-orbicular to orbicular, 1.5–2.5 mm, crustaceous, outside sparsely white pubescent, inside glabrous, margin scarious and ciliolate. Sepals 5, ± persistent, suborbicular, 5–6 mm, crustaceous, outside sparsely white pubescent, inside glabrous, margin scarious. Petals 7–9, pale yellow, obovate, 1–1.5 cm, inner petals basally connate for ca. 4 mm. Stamens ca. 1.2 cm; filaments glabrous; outer filament whorl basally connate for ca. 8 mm. Ovary densely tomentose, 3-loculed; style ca. 1.2 cm, basally tomentose, apically 3-parted to middle. Capsule ovoid, ca. 1.8 × 1.5 cm, 1(or 2)-loculed with 1 seed per locule; pericarp thin, splitting into 3 valves. Seed brown, ovoid, ca. 1.3 cm in diam., reddish brown pilose. Fl. Oct–Nov, fr. Aug. $2n = 30^*$.

• Thickets, rock slopes; 900–1100 m. Guizhou (Chishui).

9. *Camellia* sect. *Tuberculatae* Hung T. Chang, Taxon. Gen. *Camellia*, 47. 1981 [*“Tuberculata”*].

瘤果茶组 liu guo cha zu

Flowers subterminal, solitary, subsessile. Pedicel covered by bracteoles; bracteoles and sepals imbricate, ± caducous after anthesis, crustaceous, margin scarious. Petals white or rarely red. Stamens glabrous; outer filament whorl ± connate. Ovary tuberculate, 3–5-loculed; styles 3–5, distinct. Capsule tuberculate, 3–5-loculed, apex sunken. Seeds pilose.

• Six species: China.

- 1a. Leaf blade 4–8 × 1.5–2.5 cm, adaxially hirtellous along midvein; flowers ca. 3 cm in diam.; fruit ca. 1.5 cm in diam. 79. *C. parvimuricata*
- 1b. Leaf blade 4.5–15.5(–16) × 1.5–6 cm, adaxially glabrous; flowers 4–6 cm in diam.; fruit 1.8–3.5(–4) cm in diam.
- 2a. Ovary and style glabrous 77. *C. ilicifolia*
- 2b. Ovary and style tomentose or villous (sometimes glabrous in *C. tuberculata* and *C. anlungensis*).
- 3a. Leaf blades oblong to lanceolate, abaxially sparsely pilose along midvein 78. *C. rhytidocarpa*
- 3b. Leaf blades elliptic, obovate-elliptic, oblong-elliptic, or oblong, glabrous or hirtellous near base especially along midvein.
- 4a. Current year branchlets yellowish brown; leaf blade abaxially hirtellous near base especially along midvein but glabrescent, adaxially glabrous 74. *C. tuberculata*
- 4b. Current year branchlets reddish brown; leaf blade glabrous on both surfaces.
- 5a. Flowers 5–6 cm in diam.; sepals 1.5–2.5 cm; fruit ca. 3.5 cm in diam. 75. *C. pyxidiacea*
- 5b. Flowers 4–5 cm in diam.; sepals ca. 1 cm; fruit 2–3 cm in diam. 76. *C. anlungensis*

74. *Camellia tuberculata* S. S. Chien, Contr. Biol. Lab. Sci. Soc. China, Bot. Ser. 12: 94. 1939.

瘤国茶 liu guo cha

Shrubs or trees, 1–5 m tall. Year-old branchlets grayish brown; current year branchlets pale yellowish brown, glabrous. Petiole 0.8–1.2 cm, glabrous; leaf blade elliptic to oblong-elliptic, 7–12(–16) × 2.5–4.5(–5.5) cm, leathery, abaxially pale green, brown glandular punctate, hirtellous near base especially along midvein but glabrescent, and becoming yellowish brown

when dry, adaxially dark green, ± rugulose, and glabrous, midvein, secondary, and reticulate veins abaxially raised and adaxially impressed, secondary veins 8 or 9 on each side of midvein, base broadly cuneate to obtuse, margin bluntly denticulate, apex shortly acuminate to acuminate. Flowers subterminal, solitary, ca. 4 cm in diam., subsessile. Bracteoles 4–6, semi-orbicular to ovate, 2–6 mm, glabrous or subglabrous, margin ciliolate. Sepals 5 or 6, broadly ovate to suborbicular, 1–1.5 cm, outside gray pubescent near middle, inside brown and glabrous, margin ciliolate. Petals 7 or 8, white, obovate to long obovate,

2–3 × 1–1.8 cm, basally connate for 3–5 mm, apex rounded to truncate. Stamens 1.5–2 cm, glabrous; outer filament whorl basally connate for ca. 5 mm. Ovary flattened globose, minutely rugulose, glabrous or white erect bristlelike tomentose, 3–5-loculed; styles 3–5, distinct, 1.5–2 cm, glabrous or grayish white tomentose from base to middle or apical part. Capsule black, oblate, ca. 2 cm in diam., 3–5-loculed with 2 seeds per locule; pericarp tuberculate, splitting into 3–5 valves. Seeds brown, semiglobose, ca. 1 cm in diam., tawny villous. Fl. Nov–Dec, fr. Sep.

- Forests, thickets; 500–800 m. N Guizhou, S Sichuan.

- 1a. Ovary and styles bristlelike tomentose 74a. var. *tuberculata*
 1b. Ovary and styles glabrous 74b. var. *atuberculata*

74a. *Camellia tuberculata* var. *tuberculata*

瘤果茶(原变种) liu guo cha (yuan bian zhong)

Camellia chungkingensis Hung T. Chang; *C. rhytidophylla* Y. K. Li & M. Z. Yang.

Ovary white erect bristlelike tomentose; style grayish white bristlelike tomentose from base to middle or apical part. Fl. Nov–Dec, fr. Sep.

- Forests, thickets; 500–800 m. N Guizhou, S Sichuan.

74b. *Camellia tuberculata* var. *atuberculata* (Hung T. Chang) T. L. Ming, Acta Bot. Yunnan. 15: 128. 1993.

秃蕊瘤果茶 tu rui liu guo cha

Camellia atuberculata Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 30(4): 90. 1991.

Ovary and styles glabrous. Fl. Nov, fr. Sep.

- Forests, thickets; ca. 700 m. N Guizhou (Chishui).

75. *Camellia pyxidiacea* Z. R. Xu et al., Guihaia 7: 19. 1987.

三江瘤果茶 san jiang liu guo cha

Shrubs or trees, 2–5 m tall. Young branches brown; current year branchlets reddish brown, ribbed, glabrous. Petiole ca. 1.2 cm, glabrous; leaf blade elliptic, oblong-elliptic, or oblong, 9–15.5 × 3–5.5 cm, thinly leathery, abaxially pale green, brown glandular punctate, and becoming pale brown when dry, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially slightly raised, secondary veins 8–10 on each side of midvein and raised on both surfaces, base broadly cuneate to obtuse, margin sparsely denticulate, apex acute to acuminate. Flowers axillary or subterminal, solitary or paired, 5–6 cm in diam., subsessile. Bracteoles ca. 4, semiorbicular to broadly ovate, 3–8 mm, gray pubescent or glabrescent. Sepals 5 or 6, ± persistent, broadly ovate to suborbicular, 1.5–2.5 cm, densely gray sericeous. Petals 6–8, white flushed with red or red, broadly obovate, 3–4 × 2–3 cm, apex emarginate; inner 5 petals connate for ca. 3 mm. Stamens 2–3 cm; filaments glabrous; outer filament whorl basally connate for 0.8–1.2 cm. Ovary depressed globose, minutely rugulose, basally glabrous, apically white tomentose, 4- or 5-loculed; styles 4 or 5, distinct, 2–3 cm, grayish white villous. Capsule

globose to oblate, 2.7–3.3 × ca. 3.5 cm, usually 5-loculed with 1 or 2 seeds per locule; pericarp ca. 5 mm thick, tuberculate, splitting into 4 or 5 valves. Seeds brown, globose to semiglobose, 1–1.5 cm in diam., reddish brown villous. Fl. Nov–Dec, fr. Sep–Oct. $2n = 30^*$.

- Forests, forests along rivers; 700–1200 m. Guizhou (Qinglong, Xingyi), Yunnan (Luoping).

- 1a. Leaf blade elliptic to oblong-elliptic;
 petals white flushed with red 75a. var. *pyxidiacea*
 1b. Leaf blade oblong-elliptic to
 oblong; petals red 75b. var. *rubituberculata*

75a. *Camellia pyxidiacea* var. *pyxidiacea*

三江瘤果茶(原变种) san jiang liu guo cha (yuan bian zhong)

Leaf blade elliptic to oblong-elliptic. Petals white flushed with red.

- Forests along rivers; 700–800 m. Guizhou (Xingyi), Yunnan (Luoping).

75b. *Camellia pyxidiacea* var. *rubituberculata* (Hung T. Chang ex M. J. Lin & Q. M. Lu) T. L. Ming, Acta Bot. Yunnan. 15: 129. 1993.

红花三江瘤果茶 hong hua san jiang liu guo cha

Camellia rubituberculata Hung T. Chang ex M. J. Lin & Q. M. Lu, Acta Sci. Nat. Univ. Sunyatseni 23(2): 82. 1984.

Leaf blade oblong to oblong-elliptic. Petals red.

- Forests; 1000–1200 m. Guizhou (Qinglong).

76. *Camellia anlungensis* Hung T. Chang, Taxon. Gen. *Camellia*, 48. 1981.

安龙瘤果茶 an long liu guo cha

Shrubs or trees, 2–5 m tall. Young branches grayish brown; current year branchlets reddish brown, glabrous. Petiole 5–10 mm, glabrous; leaf blade elliptic to obovate-elliptic, 7–14.5 × 3–6 cm, thinly leathery, abaxially pale green, brown glandular punctate, and becoming pale brown when dry, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially raised, secondary veins 7–9 on each side of midvein and raised on both surfaces, reticulate veins visible, base broadly cuneate to obtuse, margin apiculate-serrulate, apex acute to acuminate. Flowers axillary or subterminal, solitary, 4–5 cm in diam., subsessile. Bracteoles 4, semiorbicular to broadly ovate, 2.5–5 mm, glabrous or subglabrous. Sepals 5 (or 6), ± persistent, ovate, broadly ovate, or suborbicular, ca. 1 cm, crustaceous, both surfaces gray sericeous, margin scarious, apex rounded to acute. Petals 9–10, white, obovate, 2.5–3 × 1.5–2 cm, apex emarginate; outer 4 or 5 petals nearly distinct; inner 5 petals basally connate for ca. 5 mm. Stamens ca. 2 cm, glabrous; outer filament whorl basally connate for ca. 7 mm. Ovary ovoid, minutely rugulose, glabrous or apically densely white villous, 3 (or 4)-loculed; styles 3 (or 4), distinct, glabrous or basally white villous. Capsule globose to oblate, 1.5–2 × 2–3 cm, 3 (or 4)-loculed with 1 or 2 seeds per locule; pericarp tuberculate. Seeds brown, globose to semiglobose, 1–1.3 cm in diam., reddish brown pilose. Fl. Nov–Dec, fr. Sep. $2n = 30^*$.

• Forests on mountain slopes or in valleys; 400–1300 m. NW Guangxi, SW Guizhou, SE Yunnan.

- 1a. Sepals broadly ovate to suborbicular, both surfaces densely gray sericeous, apex rounded; ovary and styles pilose 76a. var. *anlungensis*
 1b. Sepals ovate, glabrous, apex acute; ovary and styles glabrous 76b. var. *acutiperculata*

76a. *Camellia anlungensis* var. *anlungensis*

安龙瘤果茶(原变种) an long liu guo cha (yuan bian zhong)

Camellia leyeensis Hung T. Chang & Y. C. Zhong; *C. obovatifolia* Hung T. Chang.

Sepals broadly ovate to suborbicular, both surfaces densely gray sericeous, apex rounded. Ovary and styles pilose.

• Forests on mountain slopes or in valleys; 400–1300 m. NW Guangxi, SW Guizhou, SE Yunnan.

76b. *Camellia anlungensis* var. *acutiperculata* (Hung T. Chang & C. X. Ye) T. L. Ming, *Acta Bot. Yunnan.* 15: 127. 1993.

尖苞瘤果茶 jian bao liu guo cha

Camellia acutiperculata Hung T. Chang & C. X. Ye, *Acta Sci. Nat. Univ. Sunyatseni* 23(2): 79. 1984; *C. acuticalyx* Hung T. Chang; *C. acutisepala* Hung T. Chang (1991), not H. T. Tsai & K. M. Feng (1951).

Sepals ovate, glabrous, apex acute. Ovary and styles glabrous.

• Forests on mountain slopes; 900–1200 m Guangxi (Longlin).

Chang (FRPS 49(3): 44. 1998) used the name *Camellia acuticalyx*, giving the same author and place of publication as the later homonym, *C. acutisepala* Hung T. Chang (*Acta Sci. Nat. Univ. Sunyatseni* 30(4): 89. 1991). Although Chang did not actually indicate that he was proposing a new name, a nomen novum was nevertheless validly published under Art. 33.4 of the *Vienna Code*.

77. *Camellia ilicifolia* Y. K. Li & Hung T. Chang in Hung T. Chang, *Taxon. Gen. Camellia*, 46. 1981.

冬青叶瘤果茶 dong qing ye liu guo cha

Shrubs or trees, 2–10 m tall. Young branches brown to grayish brown; current year branchlets reddish brown, 4-ribbed, glabrous. Petiole 5–10 mm, glabrous; leaf blade oblong, oblong-elliptic, oblong-ovate, or narrowly lanceolate, 6–11 × 1.5–3.8 cm, leathery, abaxially pale green, with sparse appressed trichomes but especially dense along midvein, and becoming pale brown to reddish brown when dry, adaxially dark green, shiny, glabrous, and becoming pale brown when dry, secondary veins 6–8 on each side of midvein and visible or slightly raised on both surfaces, reticulate veins adaxially slightly impressed, base broadly cuneate to rounded, margin apiculate-serrulate or serrulate only at apex, apex acuminate. Flowers axillary or subterminal, solitary, subsessile. Bracteoles 4, caducous, semi-orbicular to suborbicular, 1.5–3.5 mm, crustaceous, outside glabrous or yellowish sericeous near apex, margin scarious and ciliolate. Sepals 5 or 6, ± persistent, orbicular, 0.8–1.2 cm, outside gray sericeous, inside glabrous. Petals 5 or 6, white or

rarely red, obovate to long obovate, 1.7–2.2 cm, basally connate for 4–5 mm, apex emarginate. Stamens 1–1.5 cm, glabrous; outer filament whorl basally connate for ca. 5 mm. Ovary minutely rugulose, glabrous, 3(or 4)-loculed; styles 3(or 4), distinct, 1–1.5 cm, glabrous. Capsule subglobose, 1.8–2 cm in diam., 3-loculed with usually 1 seed per locule; pericarp tuberculate, splitting into 3 valves. Seeds brown, globose to semiglobose, ca. 1.4 cm in diam., pale yellowish villous. Fl. Dec–Jan, fr. Sep.

• Forests, thickets; 700–1300 m. N and S Guizhou.

- 1a. Leaf blade oblong, oblong-elliptic, or oblong-ovate, 6–9.5 × 2.5–3.8 cm, margin apiculate-serrulate for most of length 77a. var. *ilicifolia*
 1b. Leaf blade narrowly lanceolate, 7–11 × 1.5–2.5 cm, margin serrulate only near apex 77b. var. *neriifolia*

77a. *Camellia ilicifolia* var. *ilicifolia*

冬青叶瘤果茶(原变种) dong qing ye liu guo cha (yuan bian zhong)

Camellia ilicifolia f. *rubimuricata* (Hung T. Chang & Z. R. Xu) T. L. Ming; *C. litchi* Hung T. Chang; *C. rubimuricata* Hung T. Chang & Z. R. Xu.

Leaf blade oblong, oblong-elliptic, or oblong-ovate, 6–9.5 × 2.5–3.8 cm, margin apiculate-serrulate for most of length. Fl. Dec–Jan, fr. Sep.

• Forests, thickets; 700–1300 m. N and S Guizhou.

77b. *Camellia ilicifolia* var. *neriifolia* (Hung T. Chang) T. L. Ming, *Acta Bot. Yunnan.* 15: 126. 1993.

狭叶瘤果茶 xia ye liu guo cha

Camellia neriifolia Hung T. Chang, *Acta Sci. Nat. Univ. Sunyatseni* 23(2): 79. 1984.

Leaf blade narrowly lanceolate, 7–11 × 1.5–2.5 cm, margin serrulate only near apex. Fl. Jan, fr. Sep. $2n = 30^*$.

• Forests; 900–1000 m. N and S Guizhou.

78. *Camellia rhytidocarpa* Hung T. Chang & S. Ye Liang in Hung T. Chang, *Taxon. Gen. Camellia*, 49. 1981.

皱果茶 zhou guo cha

Shrubs or trees, 3–10 m tall. Current year branchlets pale brown, ribbed, glabrous. Petiole 0.8–1.2 cm, glabrous; leaf blade oblong to lanceolate, 4.5–12 × 1.5–3.5 cm, leathery, abaxially pale green, sparsely pilose along midvein, and becoming pale brown when dry, adaxially dark green, shiny, and glabrous, secondary veins 7–9 on each side of midvein, midvein and secondary veins raised on both surfaces, reticulate veins adaxially ± impressed, base broadly cuneate to obtuse, margin apiculate-serrulate, apex long acuminate to caudate-acuminate. Flowers axillary or subterminal, solitary or paired, 2.5–4 cm in diam., subsessile. Bracteoles ca. 3, caducous, lunate to semi-orbicular, both surfaces gray sericeous. Sepals 5 or 6, ± caducous, broadly ovate to suborbicular, ca. 1.5 cm, both surfaces gray

sericeous. Petals 5 or 6, white, obovate to long obovate, 2.5–4 × ca. 1.5 cm, basally connate for 8–10 mm, apex emarginate. Stamens 2–3 cm, glabrous; outer filament whorl basally connate for 1–1.3 cm. Ovary minutely rugulose, apically white tomentose, 3-loculed; styles 3, distinct, 2–3 cm, white tomentose except apex. Capsule globose or 2-coccal, 2–2.5 cm in diam. or less, 1- or 2-loculed with 1 or 2 seeds per locule; pericarp tuberculate. Seeds brown, globose to semiglobose, 1–1.3 cm in diam., reddish brown villous. Fl. Nov, fr. Sep.

• Forests; 500–1500 m. N and NE Guangxi, SE Guizhou, SW Hunan.

- 1a. Leaf blade oblong, 7–12 × 2.5–3.5 cm; flowers 3.5–4 cm in diam.; capsule 2–2.5 cm in diam. 78a. var. *rhytidocarpa*
 1b. Leaf blade lanceolate, 4.5–6 × 1.5–1.8 cm; flowers ca. 2.5 cm in diam.; capsule less than 2 cm in diam. 78b. var. *microphylla*

78a. *Camellia rhytidocarpa* var. *rhytidocarpa*

皱果茶(原变种) zhou guo cha (yuan bian zhong)

Camellia lipingensis Hung T. Chang; *C. zengii* Hung T. Chang.

Leaf blade oblong, 7–12 × 2.5–3.5 cm. Flowers 3.5–4 cm in diam. Capsule 2–2.5 cm in diam.

• Forests; 500–1100 m. NE Guangxi, SE Guizhou, SW Hunan.

78b. *Camellia rhytidocarpa* var. *microphylla* Y. C. Zhong, Acta Bot. Yunnan. 15: 127. 1993.

小叶皱果茶 xiao ye zhou guo cha

Leaf blade lanceolate, 4.5–6 × 1.5–1.8 cm. Flowers ca. 2.5 cm in diam. Capsule less than 2 cm in diam.

• Forests; 1300–1500 m. N Guangxi (Leye).

79. *Camellia parvimuricata* Hung T. Chang, Taxon. Gen. *Camellia*, 51. 1981.

小瘤国茶 xiao liu guo cha

Shrubs 1.5–3 m tall. Young branches grayish brown; current year branchlets glabrous or densely yellowish pubescent with indumentum ± persistent to following year. Petiole 3–5 mm, pubescent; leaf blade ovate, long ovate, elliptic-ovate, or lanceolate, 4–8 × 1.5–2.5 cm, leathery, abaxially pale green or brown, sparsely pilose along midvein, and turning brown when dry, adaxially dark green and hirtellous along midvein, midvein raised on both surfaces, secondary veins 6 or 7 on each side of midvein, base broadly cuneate to rounded, margin serrulate, apex acuminate to caudate-acuminate. Flowers axillary or subterminal, solitary or paired, ca. 3 cm in diam., subsessile. Bracteoles 5 or 6, caducous, semiorbicular to suborbicular, 2–10 mm, outside pale yellow sericeous, inside glabrous, margin

ciliolate. Sepals 5, caducous, broadly ovate to suborbicular, 0.7–1.5 cm, crustaceous, outside pale yellow sericeous, inside glabrous, margin scarious and ciliolate. Petals 7, white, obovate, 2–2.5 cm, basally connate for ca. 5 mm, apex emarginate. Stamens ca. 1.5 cm, glabrous; outer filament whorl basally connate for ca. 1 cm. Ovary glabrous, 3(or 4)-loculed; styles 3(or 4), distinct, ca. 1.5 cm, glabrous. Capsule subglobose, ca. 1.5 cm in diam., 1- or 2-loculed with 1 seed per locule, apex sunken; pericarp tuberculate. Seeds brown, globose, ca. 1 cm in diam., sparsely yellow pilose. Fl. Dec–Feb, fr. Sep.

• Forests, thickets; 500–1100 m. Chongqing, NE Guizhou, W Hubei, SW Hunan.

- 1a. Bracteoles 5–10 mm; sepals 1–1.5 cm 79c. var. *hupehensis*
 1b. Bracteoles 2–4 mm; sepals 0.7–0.8 cm.
 2a. Current year branchlets densely pubescent; leaf blade ovate, long ovate, or elliptic-ovate, 4–6.5 × 1.5–2.5 cm 79a. var. *parvimuricata*
 2b. Current year branchlets glabrous; leaf blade lanceolate, 5.5–8 × 1.7–2.2 cm 79b. var. *songtaoensis*

79a. *Camellia parvimuricata* var. *parvimuricata*

小瘤果茶(原变种) xiao liu guo cha (yuan bian zhong)

Current year branchlets densely pubescent. Leaf blade ovate, long ovate, or elliptic-ovate, 4–6.5 × 1.5–2.5 cm. Bracteoles 2–4 mm. Sepals 7–8 mm. Fl. Jan–Feb, fr. Sep.

• Forests, thickets; 500–1100 m. Chongqing, NE Guizhou, W Hubei, SW Hunan.

79b. *Camellia parvimuricata* var. *songtaoensis* K. M. Lan & H. H. Zhang ex T. L. Ming, Acta Bot. Yunnan. 15: 125. 1993.

光枝小瘤果茶 guang zhi xiao liu guo cha

Current year branchlets glabrous. Leaf blade lanceolate, 5.5–8 × 1.7–2.2 cm. Bracteoles 2–4 mm. Sepals 7–8 mm. Fl. Jan–Feb, fr. Sep.

• Forests; ca. 700 m. NE Guizhou (Songtao).

79c. *Camellia parvimuricata* var. *hupehensis* (Hung T. Chang) T. L. Ming, Acta Bot. Yunnan. 21: 156. 1999.

大萼小瘤果茶 da e xiao liu guo cha

Camellia hupehensis Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 30(4): 90. 1991.

Current year branchlets pubescent. Leaf blade long ovate, 5–6.5 × 1.7–2.5 cm. Bracteoles 5–10 mm. Sepals 1–1.5 cm. Fl. Dec–Jan, fr. Sep.

• W Hubei.

10. *Camellia* sect. *Camellia*

山茶组 shan cha zu

Desmitus Rafinesque; *Kemelia* Rafinesque; *Tsubaki* Kaempfer ex Adanson; *Yunnanea* Hu.

Flowers axillary or subterminal, solitary or paired, large, subsessile. Bracteoles and sepals imbricate, caducous or sepals \pm persistent after anthesis. Petals red or white, basally connate and strongly adnate to androecium. Stamens numerous; outer filament whorl connate for basal 1/2–3/4. Styles basally connate, apically 3-parted, rarely distinct (only in *C. hongkongensis*).

Twelve species: China, S Japan, S Korea; 12 species (11 endemic) in China.

- 1a. Bracteoles and sepals caducous after anthesis (\pm persistent in young fruit in *C. polyodonta*).
- 2a. Leaf blade secondary veins adaxially strongly impressed; filaments densely villous.
- 3a. Leaf blade margin pectinately serrulate; bracteoles and sepals ca. 15, \pm persistent in young fruit 90. *C. polyodonta*
- 3b. Leaf blade margin densely apicately serrulate; bracteoles and sepals 8–10, caducous after anthesis 91. *C. mairei*
- 2b. Leaf blade secondary veins adaxially visible or raised, rarely slightly impressed, sometimes obscure; filaments glabrous or subglabrous.
- 4a. Leaf blade slightly inflexed, 2.5–5.5 \times 1–2.2 cm, apex acute to obtuse; flowers ca. 3 cm in diam.; fruit ca. 2.5 cm in diam. 87. *C. saluenensis*
- 4b. Leaf blade not inflexed, 6.5–14 \times 3–6 cm, apex acuminate, caudate, acute, or shortly acuminate and sometimes with an obtuse tip; flowers 4–10 cm in diam.; fruit 3–6 cm in diam.
- 5a. Current year branchlets glabrous; leaf blade abaxially glabrous, apex acuminate to caudate 88. *C. pitardii*
- 5b. Current year branchlets pubescent but glabrescent; leaf blade abaxially pubescent at least when young, apex acute to shortly acuminate and with an obtuse tip 89. *C. reticulata*
- 1b. Bracteoles and sepals \pm persistent in young fruit.
- 6a. Ovary tomentose.
- 7a. Current year branchlets spreading villous; leaf blade ovate, long ovate, or lanceolate, base rounded to cordate; sepal apices acuminate to long acuminate 86. *C. edithae*
- 7b. Current year branchlets pubescent or glabrous; leaf blade oblong, oblong-elliptic, elliptic, or oblong-lanceolate, base cuneate, broadly cuneate, or obtuse; sepal apices rounded.
- 8a. Leaf blade 6–12.5 \times 2–4 cm, margin entire or obscurely undulate-denticulate; styles 3, distinct; capsule pericarp furfuraceous 80. *C. hongkongensis*
- 8b. Leaf blade 9–15 \times 4–7(–9) cm, margin entire on basal 1/2 and serrate on apical 1/2; style basally connate and apically 3–5-parted; capsule pericarp smooth 85. *C. semiserrata*
- 6b. Ovary glabrous.
- 9a. Leaf blade margin entire, subentire, or sparsely denticulate near apex.
- 10a. Petiole 6–10(–15) mm; leaf blade apex rounded to emarginate; bracteoles and sepals outside glabrous; style 3(or 4)-parted 81. *C. azalea*
- 10b. Petiole 10–18 mm; leaf blade apex acuminate; bracteoles and sepals outside densely pubescent; style 3–5-lobed 82. *C. subintegra*
- 9b. Leaf blade margin serrulate.
- 11a. Petiole 1–1.5 cm; leaf blade abaxially not glandular punctate, adaxially green becoming yellowish green when dry; bracteoles and sepals brown at anthesis; outer filament whorl basally connate for 0.5–1 cm 83. *C. chekiangoleosa*
- 11b. Petiole 0.5–1 cm; leaf blade abaxially brown glandular punctate, adaxially dark green; bracteoles and sepals green at anthesis; outer filament whorl basally connate for 1.5–2.5 cm 84. *C. japonica*

80. *Camellia hongkongensis* Seemann, Trans. Linn. Soc. London 22: 342. 1859.

香港山茶 xiang gang shan cha

Camellia integerrima Hung T. Chang; *Thea hongkongensis* (Seemann) Pierre.

Shrubs or trees, 2–10 m tall. Year-old branchlets grayish brown; current year branchlets reddish brown, glabrous. Petiole 0.7–1.3 cm, glabrous, adaxially grooved; leaf blade oblong, oblong-elliptic, or oblong-lanceolate, 6–12.5 \times 2–4 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially raised and adaxially impressed, secondary veins 7–10 on each side of midvein, abaxially raised, and adaxially visible to slightly raised, base cuneate to obtuse, margin entire or obscurely undulate-denticulate, apex acuminate to shortly acuminate. Flowers subterminal, solitary, subsessile. Bracteoles and sepals 9–11, imbricate; outer 4–6 bracteoles and sepals caducous after anthesis, lunate to subor-

bicular, 3–10 mm, both surfaces gray velutinous; inner 5 bracteoles and sepals caducous or persistent in fruit, sepals, broadly obovate to obovate, ca. 2 cm, crustaceous, both surfaces gray velutinous. Petals 6 or 7, red, broadly obovate, 3–3.5 \times 1.5–2.3 cm, basally connate, apex emarginate. Stamens 2.5–3 cm, glabrous; outer filament whorl basally connate for 1.3–2 cm. Ovary globose, ca. 2 mm in diam., densely tomentose, 3-loculed; styles 3, distinct, 2.8–3.3 cm, glabrous. Capsule brown, globose to obovate, 2–2.5 \times 2.5–3.5 cm, 3-loculed with 1 or 2 seeds per locule; pericarp 2–3 mm thick when dry, furfuraceous, splitting into 3 valves. Seeds brown, semiglobose to globose, ca. 1.5 cm in diam., glabrous. Fl. Dec–Jan, fr. Aug–Sep. $2n = 30^*$.

• Forests; 200–300 m. Guangdong.

81. *Camellia azalea* C. F. Wei, Bull. Bot. Res., Harbin 6(4): 141. 1986.

杜鹃叶山茶 du juan ye shan cha

Camellia changii C. X. Ye.

Shrubs 1–2.5 m tall. Young branches grayish brown; current year branchlets reddish brown, glabrous. Petiole 6–10(–15) mm, glabrous; leaf blade obovate to long obovate, 5.5–12 × 2–4 cm, leathery, abaxially pale green or glaucescent, adaxially dark green, both surfaces glabrous, midvein thick and elevated on both surfaces, secondary veins 6–8 on each side of midvein, slender, and visible on both surfaces, base cuneate, margin entire and slightly revolute, apex broadly obtuse to rounded and sometimes emarginate. Flowers subterminal, solitary or to 5 in a cluster, 8–10 cm in diam., subsessile. Bracteoles and sepals 8–11; outer 3–6 bracteoles and sepals semiorbicular to broadly ovate, 3–8 mm; inner 5 bracteoles and sepals persistent, ovate, 1.5–2 cm, outside glabrous, inside silvery sericeous, margin ciliolate. Petals 6–9, roseate, nearly distinct, obovate to long obovate, 3–8.5 × 2–4.5 cm, basally attenuate, apex emarginate. Stamens 3.5–4 cm, in ca. 4 whorls, glabrous; outer filament whorl basally connate for 1.5–1.8 cm. Ovary ovoid, glabrous, 3(or 4)-loculed; style ca. 3.5 cm, glabrous, 3(or 4)-parted for ca. 1 cm. Capsule ovoid, 2–2.5 × ca. 2 cm, 3-loculed with 2 seeds per locule; pericarp ca. 2 mm thick when dry, smooth, glabrous, splitting into 3 valves. Seeds brown, semiglobose, 1.5–2 cm in diam., glabrous. Fl. Oct–Dec, fr. Aug–Sep.

• Forests in hilly areas, among boulders by rivers; 100–500 m. Guangdong (Yangchun).

82. *Camellia subintegra* T. C. Huang ex Hung T. Chang, *Taxon. Gen. Camellia*, 83. 1981.

全缘叶山茶 *quan yuan ye shan cha*

Camellia lienshanensis Hung T. Chang.

Shrubs or trees, 3–8 m tall. Young branches grayish white; current year branchlets reddish brown, glabrous. Petiole 1–1.8 cm, glabrous; leaf blade oblong-elliptic, obovate-oblong, or lanceolate, 5–10.5(–12) × 2–3.5 cm, leathery, abaxially pale green or glaucescent, adaxially dark green, shiny, and becoming yellowish green when dry, both surfaces glabrous, midvein thick and raised on both surfaces, secondary veins 6 or 7 on each side of midvein and visible on both surfaces or abaxially obscure, base cuneate, margin entire or sparsely denticulate near apex, apex acuminate. Flowers axillary or subterminal, solitary, 5–8 cm in diam., subsessile. Bracteoles and sepals ca. 10, leathery; outer 4 or 5 bracteoles and sepals lunate to semiorbicular, 1.5–7 mm; inner bracteoles and sepals orbicular to obovate, sepaloïd, 1–2 cm, outside densely pubescent, inside sericeous. Petals 5–7, roseate, obovate, 3.5–5.7 cm, apex emarginate; inner 5 petals basally connate for ca. 5 mm. Stamens ca. 2.8 cm, glabrous; outer filament whorl basally connate for ca. 3.5 mm. Ovary globose, glabrous, 3(or 4)-loculed; style ca. 2.6 cm, glabrous, apically 3–5-lobed. Capsule ovoid, 3–6 × 3–6 cm, 3(or 4)-loculed with 1–3 seeds per locule; pericarp yellowish green to brown, ca. 4 mm thick when dry, splitting into 3 or 4 valves. Seeds brown, globose to semiglobose, ca. 2 cm in diam., glabrous. Fl. Nov–Dec, fr. Sep.

• Forests; 700–1100 m. NW Guangdong, S Hunan, W Jiangxi.

83. *Camellia chekiangoleosa* Hu, *Acta Phytotax. Sin.* 10: 131. 1965.

浙江山茶 *zhe jiang shan cha*

Camellia chekiangoleosa f. *tanglii* P. L. Chiu; *C. crassissima* Hung T. Chang & W. J. Shi; *C. liberistamina* Hung T. Chang & J. S. Kiu; *C. lucidissima* Hung T. Chang.

Shrubs or trees, 3–8 m tall. Year-old branchlets grayish white; current year branchlets reddish brown, glabrous. Petiole 1–1.5 cm, glabrous; leaf blade elliptic to oblong-elliptic, 7–13 × 3–6 cm, leathery to thickly leathery, abaxially pale green to yellowish green when dry, both surfaces glabrous, midvein abaxially elevated and adaxially level or slightly raised, secondary veins 7 or 8 on each side of midvein and slightly raised on both surfaces, base cuneate to broadly cuneate, margin serrulate, apex acute to acuminate. Flowers solitary or paired, subterminal or axillary, 7–10 cm in diam., subsessile. Bracteoles and sepals 9–11, brown at anthesis; outer 4 bracteoles and sepals semiorbicular, 4–8 mm; inner 5 or 6 bracteoles and sepals ± persistent in young fruit, orbicular, 2–2.5 cm in diam., outside silvery gray villous, inside silvery sericeous, margin membranous. Petals 6–8, roseate or rarely white, broadly obovate, 4–6 × 3–4.5 cm, apex emarginate; inner petals basally connate for 5–8 mm. Stamens 2.5–3 cm, glabrous; outer filament whorl basally connate for 5–10 mm. Ovary ovoid, ca. 2 mm, glabrous, 3-loculed but sometimes to 5-loculed in cultivation; style ca. 2.5 cm, glabrous, apically 3-lobed. Capsule globose, 4–7.5 cm in diam., 3-loculed with 3–8 seeds per locule; pericarp to 1 cm thick, woody, splitting into 3 valves. Seeds brown, glabrous. Fl. Nov–Dec, fr. Oct. $2n = 30^*$, 90^* .

• Forests, thickets; 500–1300 m. Anhui, N Fujian, E Hunan, E and W Jiangxi, Zhejiang.

84. *Camellia japonica* Linnaeus, *Sp. Pl.* 2: 698. 1753.

山茶 *shan cha*

Shrubs or trees, 1.5–6(–11) m tall. Young branches grayish brown; current year branchlets purplish brown, glabrous. Petiole 5–10 mm, glabrous or adaxially pubescent; leaf blade broadly elliptic, elliptic, or oblong-elliptic, 5–10.5(–12) × 2.5–6(–7) cm, leathery, abaxially pale green and brown glandular punctate, adaxially dark green, both surfaces glabrous, midvein yellowish green, thick, and elevated on both surfaces, secondary veins 6–9 on each side of midvein, slender, and visible on both surfaces, base cuneate to broadly cuneate, margin serrulate, apex shortly acuminate and with an obtuse tip. Flowers axillary or subterminal, solitary or paired, 6–10 cm in diam., subsessile. Bracteoles and sepals ca. 9, green at anthesis; outer 4 bracteoles and sepals lunate to semiorbicular, 2–5 mm, glabrous, subglabrous, or grayish white velutinous; inner bracteoles and sepals green, persistent to young fruit, orbicular to broadly ovate, 1–2 cm, thinly leathery, both surfaces grayish white velutinous or subglabrous, margin membranous. Petals 6 or 7 but often more for cultivars, rose or white, obovate to broadly obovate, 3–4.5 × 1.5–2.5 cm, apex emarginate; inner 5 petals basally connate for 0.5–1.5 cm. Stamens 2.5–3.5 cm, glabrous; outer filament whorl basally connate for 1.5–2.5 cm. Gynoecium ca. 3 cm, glabrous. Ovary ovoid, 3-loculed; style ca. 2.8 cm, apically 3-lobed. Capsule globose, 2.5–4.5 cm in diam., 3-loculed with 1 or 2 seeds per locule; pericarp 5–8 mm

thick when dry, woody. Seeds brown, semiglobose to globose, 1–2 cm in diam., glabrous. Fl. Jan–Mar, fr. Sep–Oct. $2n = 30$, 45, 75.

Forests; 300–1100 m. Shandong, Taiwan, E Zhejiang [S Japan, S Korea].

- 1a. Petiole ca. 10 mm, glabrous; bracteoles and sepals grayish white velutinous 84a. var. *japonica*
 1b. Petiole ca. 5 mm, adaxially pubescent; bracteoles and sepals glabrous or subglabrous 84b. var. *rusticana*

84a. *Camellia japonica* var. *japonica*

山茶(原变种) shan cha (yuan bian zhong)

Camellia bonnardii Berlese; *C. florida* Salisbury; *C. hozanensis* (Hayata) Hayata; *C. japonica* var. *hozanensis* (Hayata) Yamamoto; *C. japonica* var. *macrocarpa* Masamune; *C. kaempferia* Rebol; *C. mutabilis* Paxton; *C. nakaii* (Hayata) Hayata; *C. planipetala* Lemaire; *C. sylvestris* Berlese; *C. tsu-bakki* Crantz; *Kemelia japonica* (Linnaeus) Rafinesque; *Thea camellia* Hoffmannseg; *T. hozanensis* Hayata; *T. japonica* (Linnaeus) Baillon; *T. japonica* var. *hortensis* Makino; *T. japonica* var. *spontanea* Makino; *T. nakaii* Hayata.

Petiole ca. 1 cm, glabrous. Bracteoles and sepals grayish white velutinous. Fl. Jan–Mar, fr. Sep–Oct.

Forests; 300–1100 m. Shandong, Taiwan, E Zhejiang [S Japan, S Korea].

This taxon is grown as a garden plant throughout S China with many named cultivars. The early introduction of *Camellia japonica* cultivars into Europe in the 18th and early 19th century were mostly from China.

84b. *Camellia japonica* var. *rusticana* (Honda) T. L. Ming, Acta Bot. Yunnan. 20: 132. 1998.

短柄山茶 duan bing shan cha

Camellia rusticana Honda, Biosphaera 1: 97. 1947.

Petiole ca. 5 mm, adaxially pubescent. Bracteoles and sepals outside glabrous or subglabrous. Fl. Jan–Mar, fr. Oct.

Forests; ca. 700 m. Zhejiang (Zhoushan Qundao) [S Japan].

85. *Camellia semiserrata* C. W. Chi, Sunyatsenia 7: 15. 1948.

南山茶 nan shan cha

Trees, 7–15 m tall. Young branches grayish brown; current year branchlets purplish brown, thick, glabrous. Petiole 1–1.5 cm, glabrous, adaxially grooved; leaf blade elliptic to oblong-elliptic, 9–15 × 4–7(–9) cm, rigidly leathery, abaxially pale green and becoming pale brown when dry, adaxially dark green, both surfaces glabrous, midvein yellow, thick, abaxially elevated, and adaxially level or slightly raised, secondary veins 6–9 on each side of midvein, abaxially raised, and adaxially slightly raised, base broadly cuneate to obtuse, margin entire on basal 1/2 and serrate on apical 1/2, apex shortly caudate to caudate and with an obtuse tip. Flowers axillary or subterminal, solitary or paired, 6–8 cm in diam., subsessile. Bracteoles and sepals 9–11 or more; outer 3–5 bracteoles and sepals ± per-

sistent, lunate to semiorbicular, 3–6 mm; inner bracteoles and sepals orbicular to broadly obovate, 1.5–2 cm, thickly leathery, glabrous or grayish white velutinous but glabrescent, margin membranous and ciliolate. Petals 6–8, rose or rarely white, broadly obovate, 4–6 × 3.5–4 cm, apex emarginate; outer 2 or 3 petals almost distinct; inner petals basally connate for 6–8 mm. Stamens 2.5–3.5 cm, glabrous; outer filament whorl basally connate for 1.5–2.5 cm. Ovary ovoid, 3–4 mm in diam., basally pale yellow tomentose or subglabrous, apically glabrous, 3–5-loculed; style 2.5–3 cm, glabrous, apically 3–5-parted. Capsule ovoid, 6–8(–12) × 5–6(–12) cm, 3–5-loculed with 1–3(–5) seeds per locule; pericarp 1–1.5 cm thick, woody. Seeds brown, 1.5–2 × 1.5–2 cm, yellow pilose. Fl. Jan–Mar, fr. Sep–Oct. $2n = 30^*$.

• Forests, forests along river valleys; 200–800 m. Guangdong, E and N Guangxi.

- 1a. Bracteoles and sepals velutinous but glabrescent; ovary tomentose but glabrous near apex; capsule 6–8 cm in diam. 85a. var. *semiserrata*
 1b. Bracteoles and sepals outside glabrous; ovary glabrous or pubescent only near base; capsule to 12 cm in diam. 85b. var. *magnocarpa*

85a. *Camellia semiserrata* var. *semiserrata*

南山茶(原变种) nan shan cha (yuan bian zhong)

Camellia multiperulata Hung T. Chang; *C. phellocapsa* Hung T. Chang & B. K. Lee; *C. semiserrata* f. *albiflora* (Hu & T. C. Huang) T. L. Ming; *C. semiserrata* var. *albiflora* Hu & T. C. Huang; *C. trichosperma* Hung T. Chang.

Bracteoles and sepals velutinous but glabrescent. Ovary tomentose or glabrous near apex. Capsule 6–8 cm in diam.

• Forests along river valleys; 200–800 m. Guangdong, E Guangxi.

85b. *Camellia semiserrata* var. *magnocarpa* Hu & T. C. Huang, Acta Phytotax. Sin. 10: 137. 1965.

大果南山茶 da guo nan shan cha

Camellia magnocarpa (Hu & T. C. Huang) Hung T. Chang; *C. mongshanica* Hung T. Chang & C. X. Ye.

Bracteoles and sepals glabrous. Ovary glabrous or pubescent only near base. Capsule ca. 12 cm in diam.

• Forests; 200–500 m. W Guangdong, E and N Guangxi.

86. *Camellia edithae* Hance, Ann. Sci. Nat., Bot., sér. 4, 15: 221. 1861.

东南山茶 dong nan shan cha

Thea edithae (Hance) Kuntze.

Shrubs or trees, 2–7 m tall. Young branches grayish brown, glabrous; current year branchlets densely yellow spreading villous, indumentum ± persistent. Petiole 2–5 mm, thick, spreading villous; leaf blade ovate, long ovate, or lanceolate, 6–12.5(–15.5) × 2.5–4.5 cm, leathery, abaxially pale green and appressed villous but spreading villous along midvein, adax-

ially dark green, shiny, yellow spreading villous along midvein, and becoming yellowish brown when dry, midvein abaxially raised and adaxially impressed, secondary veins 7–9 on each side of midvein, abaxially raised, and adaxially impressed, base rounded to cordate, margin serrulate, apex acuminate to long acuminate. Flowers subterminal, solitary, 5–6 cm in diam., subsessile. Bracteoles and sepals 9–11; outer 2 or 3 bracteoles and sepals suborbicular, 4–6 mm, apex acute; inner bracteoles and sepals ovate, 1.5–2.5 cm, crustaceous, outside grayish yellow villous, inside white velutinous, margin scarious and ciliolate, apex acuminate. Petals 5 or 6, red, obovate, 2.5–4 × 2–3 cm, basally connate for ca. 1.5 cm, apex emarginate. Stamens 2.5–3 cm, glabrous; outer filament whorl basally connate for 1.5–2 cm. Ovary tomentose, 3-loculed; style ca. 2.5 cm, glabrous, apically 3-lobed. Capsule brown, oblate to subglobose, 1.5–2 cm in diam., 3-loculed with 1 or 2 seeds per locule; pericarp 1–2 mm thick when dry. Seeds brown, globose to semiglobose, 1–1.5 cm in diam. Fl. Jan–Mar, fr. Oct. $2n = 30^*$.

- Forests; 200–1000 m. Fujian, NE Guangdong, SE Jiangxi.

87. *Camellia saluenensis* Stapf ex Bean, *Trees & Shrubs Brit. Isles* 3: 66. 1933.

怒江山茶 nu jiang shan cha

Camellia glabripiculata Hung T. Chang; *C. minor* Hung T. Chang; *C. phaeoclada* Hung T. Chang; *C. pitardii* var. *lucidissima* (H. Léveillé) Rehder; *C. saluenensis* f. *minor* Sealy; *C. tenuivalvis* Hung T. Chang; *C. weiningensis* Y. K. Li ex Hung T. Chang; *Thea camellia* Hoffmannsegg var. *lucidissima* H. Léveillé; *T. pitardii* (Cohen-Stuart) Rehder var. *lucidissima* (H. Léveillé) Rehder.

Shrubs 1–4 m tall, many branched, compact. Branches closely and densely leafy; young branches grayish brown; current year branchlets green, pubescent or glabrescent. Petiole ca. 5 mm, pubescent or glabrescent; leaf blade oblong to oblong-elliptic, 2.5–5.5 × 1–2.2 cm, rigidly leathery, abaxially pale green and villous along midvein or glabrescent, adaxially dark green, shiny, and glabrous, midvein elevated on both surfaces, secondary veins 5–7 on each side of midvein, abaxially raised, and adaxially impressed, base cuneate to rounded, margin serrulate, apex acute to obtuse. Flowers axillary or subterminal, solitary or paired, subsessile. Bracteoles and sepals 8–10, caducous after anthesis; outer bracteoles and sepals lunate to semiorbicular, 2–5 mm, increasing in size from outer to inner; inner bracteoles and sepals obovate to broadly obovate, 1.5–2 cm, outside usually glabrous or rarely puberulent, margin ciliate. Petals 5–7, rose, pink, or white, obovate to obovate-elliptic, 2.5–4 × 1.5–3 cm, basally connate for ca. 1.5 cm, apex emarginate. Stamens 1.5–2.5 cm, glabrous; outer filament whorl basally connate for 1–1.8 cm. Ovary white tomentose, 3-loculed; style 1.5–2.5 cm, glabrous or basally tomentose, apically 3-lobed. Capsule subglobose, ca. 2.5 cm in diam., 3-loculed with 1 or 2 seeds per locule; pericarp ca. 2 mm thick, splitting into 3 valves. Seeds brown, globose to semiglobose, ca. 1 cm in diam. Fl. Jan–Mar, fr. Oct. $2n = 30^*$, 60^* .

- Mixed forests on mountain slopes; 1200–2800(–3200) m. W Guizhou, SW Sichuan, C and W Yunnan.

88. *Camellia pitardii* Cohen-Stuart, *Meded. Proefstat. Thee* 40: 72. 1916.

西南山茶 xi nan shan cha

Shrubs or trees, 3–7(–9) m tall. Young branches grayish brown; current year branchlets purplish brown, glabrous. Petiole 7–12 mm, glabrous or sometimes adaxially pubescent; leaf blade elliptic, oblong-elliptic, or oblong-oblong-elliptic, 6–10(–14) × 2.5–3.5(–8.4) cm, thinly to thickly leathery, abaxially pale green, adaxially dark green, both surfaces glabrous, midvein raised on both surfaces, secondary veins 6–8 on each side of midvein, slender, and visible to slightly raised or sometimes obscure on both surfaces or rarely adaxially impressed, base cuneate to broadly cuneate, margin serrulate or apically serrulate, apex acuminate to caudate. Flowers subterminal, solitary, subsessile, 5–6(–10) cm in diam. Bracteoles and sepals 9–10, caducous, membranous, margin ciliate; outer 4 bracteoles and sepals lunate to semiorbicular, 2–5 mm, outside glabrous or glabrescent; inner bracteoles and sepals orbicular to broadly obovate, 1–2 cm, outside pubescent or glabrous, inside glabrous. Petals 5 or 6, rose, pink, or white, obovate to broadly obovate, 3–4.5(–8) × 2–3.5(–4.4) cm, basally connate for ca. 1 cm, apex emarginate. Stamens 2–3(–5.1) cm, glabrous; outer filament whorl basally connate for 1–1.5(–2.8) cm. Ovary globose, tomentose, 3-loculed; style 2–2.7 cm, glabrous or basally tomentose. Capsule oblate, 2.5–3.5(–7) × 3–5(–8) cm, 3-loculed; pericarp 2–3 mm thick when dry, splitting into 3 valves. Seeds brown, globose to semiglobose, 1–1.5 cm in diam., glabrous. Fl. Dec–Mar, fr. Aug–Oct.

- Forests, thickets; 500–2500(–2700) m. N and NE Guangxi, Guizhou, W Hubei, Hunan, Sichuan, NE and SE Yunnan.

- 1a. Leaf blade elliptic, 9–14 × 4–6.4 cm, thickly leathery; flowers 8–10 cm in diam.; capsule 6–7 × ca. 8 cm 88c. var. *compressa*
- 1b. Leaf blade oblong-elliptic or oblong-oblong-elliptic, 6–10(–12) × 2.5–3.5(–4) cm, leathery to thinly leathery; flowers 5–6 cm in diam.; capsule 2.5–3.5 × 3–5 cm.
 - 2a. Leaf blade oblong-elliptic, secondary veins visible on both surfaces, margin densely apiculate-serrulate 88a. var. *pitardii*
 - 2b. Leaf blade oblong-oblong-elliptic, secondary veins usually obscure, margin serrulate except for entire basal 1/4–1/3 88b. var. *cryptoneura*

88a. *Camellia pitardii* var. *pitardii*

西南山茶(原变种) xi nan shan cha (yuan bian zhong)

Camellia cavaleriana (H. Léveillé) Nakai; *C. huiliensis* Hung T. Chang; *C. hunanica* Hung T. Chang & L. L. Qi; *C. microdonta* Hung T. Chang; *C. pitardii* f. *alba* (Hung T. Chang) T. L. Ming; *C. pitardii* var. *alba* Hung T. Chang; *C. pitardii* f. *cavaleriana* (H. Léveillé) Sealy; *C. pitardii* var. *longistaminata* J. L. Liu & Q. Luo; *C. pitardii* var. *panxiensis* J. L. Liu; *C. rubroanthera* Hung T. Chang ex M. J. Lin & Q. M. Lu; *C. tunganica* Hung T. Chang & B. K. Lee; *C. xifongensis* Y. K. Li ex X. C. Chen & F. Z. Zheng; *Thea cavaleriana* H. Léveillé; *T. pitardii* (Cohen-Stuart) Rehder.

Leaf blade oblong-elliptic to elliptic, (4.5–)6–10 × 2.5–3.5 cm, thinly leathery, secondary veins visible on both surfaces, margin densely apiculate-serrulate, apex caudate-acuminate. Flowers 5–6 cm in diam. Petals rose, pink, or white. Capsule obovate, 2.5–3.5 × 3–5 cm. Fl. Dec–Mar, fr. Aug–Oct. $2n = 30^*$.

• Forests, thickets; (700–)1500–2500(–2700) m. N Guangxi, Guizhou, W Hubei, S and W Hunan, Sichuan, NE and SE Yunnan.

88b. *Camellia pitardii* var. *cryptoneura* (Hung T. Chang) T. L. Ming, *Acta Bot. Yunnan.* 21: 157. 1999.

隐脉西南山茶 yin mai xi nan shan cha

Camellia cryptoneura Hung T. Chang, *Taxon. Gen. Camellia*, 75. 1981; *C. lungshenensis* Hung T. Chang; *C. setiperulata* Hung T. Chang.

Leaf blade oblong-obovate to oblong, 8–12 × 3–4 cm, leathery to thinly leathery, secondary veins usually obscure, margin serrulate except for entire basal 1/4–1/3. Flowers 5–6 cm in diam. Petals red to pink. Capsule globose, ca. 4 cm in diam. Fl. Jan–Mar, fr. Sep–Oct. $2n = 90^*$.

• Forests; 500–1400 m. NE Guangxi, S Hunan.

88c. *Camellia pitardii* var. *compressa* (Hung T. Chang & X. K. Wen) T. L. Ming, **comb. nov.**

多变西南山茶 duo bian xi nan shan cha

Basionym: *Camellia compressa* Hung T. Chang & X. K. Wen in Hung T. Chang, *Taxon. Gen. Camellia*, 76. 1981; *C. compressa* var. *variabilis* Hung T. Chang & X. K. Wen; *C. longituba* Hung T. Chang; *C. magniflora* Hung T. Chang; *C. pitardii* var. *variabilis* (Hung T. Chang & X. K. Wen) T. L. Ming, nom. superfl.

Leaf blade elliptic, 9–14 × 4–6.4 cm, thickly leathery, margin serrate, apex acuminate. Flowers 8–10 cm in diam. Petals red to rose. Capsule obovate, 6–7 × ca. 8 cm. Fl. Jan–Mar, fr. Sep–Oct. $2n = 90^*$, 120^* .

• Forests; 700–1100 m. N Guizhou, W Hubei, NW Hunan.

When Chang and Wen published *Camellia compressa* var. *variabilis* (*Acta Phytotax. Sin.* 20: 227. 1982) they simultaneously created the autonym *C. compressa* var. *compressa* (*Vienna Code*, Art. 26.3). When Ming later made the new combination *C. pitardii* var. *variabilis* (*Acta Bot. Yunnan.* 20: 137. 1998) he included *C. compressa* in synonymy, and the same taxonomy is used here. Under the rules, the combination *C. pitardii* var. *compressa* should be used because the autonym *C. compressa* var. *compressa* (which has the same type as *C. compressa*) has priority over the name that created it: *C. compressa* var. *variabilis* (Art. 11.6). Ming's combination was therefore nomenclaturally superfluous when published (Art. 52.1). Although incorrect, it is not illegitimate because it has a basionym (Art. 52.3), hence “nom. superfl.” rather than “nom. illeg. superfl.”

89. *Camellia reticulata* Lindley, *Bot. Reg.* 13: t. 1078. 1827.

滇山茶 dian shan cha

Camellia albescens Hung T. Chang; *C. albosericea* Hung T. Chang; *C. albobovillosa* Hung T. Chang; *C. bailinshanica* Hung T. Chang et al.; *C. bambusifolia* Hung T. Chang et al.; *C. borealiyunnanica* Hung T. Chang; *C. brevicolumna* Hung T. Chang et al.; *C. brevignyana* Hung T. Chang; *C. brevipetiolata* Hung T. Chang; *C. chunii* Hung T. Chang; *C. chunii* var. *penta-*

phylax (Hung T. Chang) Hung T. Chang; *C. heterophylla* Hu; *C. jinshajiangica* Hung T. Chang; *C. kangdianica* Hung T. Chang et al.; *C. kweichowensis* Hung T. Chang; *C. oligophlebia* Hung T. Chang; *C. paucipetala* Hung T. Chang; *C. pentapetala* Hung T. Chang; *C. pentaphylacoides* Hung T. Chang; *C. pentaphylax* Hung T. Chang; *C. pitardii* Cohen-Stuart var. *yunnanica* Sealy; *C. reticulata* f. *albescens* (Hung T. Chang) T. L. Ming; *C. reticulata* f. *simplex* Sealy; *C. stichoclada* Hung T. Chang; *C. subliberopetala* Hung T. Chang; *C. xichangensis* Hung T. Chang; *C. xylocarpa* (Hu) Hung T. Chang; *Desmitis reticulata* (Lindley) Rafinesque; *Thea reticulata* (Lindley) Pierre (1887), not Elmer (1915); *Yunnanea xylocarpa* Hu.

Trees or shrubs, (2–)4–15 m tall. Young branches grayish brown; current year branchlets green to pale brown, thick, pubescent but glabrescent. Petiole 6–13 mm, pubescent or glabrescent; leaf blade oblong to oblong-elliptic, rarely elliptic to broadly elliptic, (4–)6–10(–14) × (2.5–)3–5(–6.3) cm, leathery, abaxially pale green and sparsely appressed pubescent or glabrescent, adaxially dark green, shiny, and glabrous, midvein yellowish green, abaxially elevated, and adaxially level, secondary veins 6–8 on each side of midvein and raised on both surfaces, reticulate veins visible to slightly raised on both surfaces or adaxially impressed, base cuneate, broadly cuneate, or rarely rounded, margin serrulate, apex acute to shortly acuminate and with an obtuse tip. Flowers axillary or subterminal, solitary or to 3 in a cluster, 7–10 cm in diam. (to more than 20 cm in diam. for some cultivars), subsessile. Bracteoles and sepals 9–11, caducous after anthesis, green, imbricate, increasing in size from outer to inner, thinly leathery, both surfaces velutinous, margin narrowly membranous; outer bracteoles and sepals orbicular, 3–5 mm; inner bracteoles and sepals broadly ovate, to 2 cm. Petals 5–7 (often more for some cultivars), rose to pink, rarely almost white, obovate to broadly obovate, 4–6 × 3–4.5 cm (larger for some cultivars), apex emarginate; inner petals connate for ca. 1 cm. Stamens 3–4 cm, glabrous; outer filament whorl basally connate for 1–2 cm. Ovary globose, 3–4 mm in diam., tomentose, 3(–5)-loculed; style 2.5–3.5 cm, glabrous or basally with pubescence, apically 3(–5)-lobed or parted. Capsule green turning pale brown, globose to obovate, 3.5–4 × 4–5 cm, 3(–5)-loculed with 1 or 2 seeds per locule; pericarp ca. 1 cm thick and firmly fleshy when fresh but 5–6 mm and stiffly leathery to woody when dry. Seeds brown, semiglobose to globose, 1–1.5 cm in diam. Fl. Jan–Mar, fr. Sep–Oct. $2n = 30^*$, 60^* , 90^* .

• Forests; 1000–3200 m. W Guizhou, SW Sichuan, Yunnan.

This species is cultivated or semicultivated in W Yunnan as a seed oil crop. Selected forms, particularly with large, double or semidouble flowers, have been propagated for hundreds of years as garden plants in Dali, Kunming, Lijiang, Tengchong, and adjacent areas. Some extant cultivars date back to at least the Ming Dynasty (1368–1644 C.E.).

“*Camellia brachygyna*” as given in FRPS (49(3): 74. 1998) was a typographical error for *C. brevignyana* included in synonymy here.

90. *Camellia polyodonta* F. C. How ex Hu, *Acta Phytotax. Sin.* 10: 135. 1965.

多齿山茶 duo chi shan cha

Shrubs or trees, 3–8 m tall. Young branches grayish

brown; current year branchlets purplish brown, gray pubescent. Petiole 6–13 mm, abaxially pubescent; leaf blade elliptic, oblong-elliptic, narrowly oblong, or lanceolate, 8–14 × (1.5–)2–5(–6) cm, leathery to thickly leathery, abaxially pale green and appressed pubescent, adaxially dark green, shiny, rugulose, and glabrous, midvein abaxially elevated and adaxially level or slightly raised, secondary veins 7–9 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially strongly impressed, base broadly cuneate to rounded, margin pectinately serrulate, apex abruptly shortly caudate to long caudate. Flowers subterminal, solitary, 5–6(–8) cm in diam., subsessile. Bracteoles and sepals ca. 15, ± persistent in young fruit, leathery, margin membranous; outer 4–6 bracteoles and sepals semiorbicular, 2.5–6 mm, outside glabrous or glabrescent; inner bracteoles and sepals orbicular to broadly obovate, 1.2–2(–2.5) cm, outside white or grayish yellow velutinous, inside glabrous. Petals 6 or 7, rose or rarely white; outer 1 or 2 petals distinct, obovate, ca. 2 × 1.5 cm; inner 5 petals broadly obovate, 3–4 × 2.5–3.5 cm, basally connate for 5–8 mm, apex emarginate. Stamens 2.5–3 cm; filaments white villous; outer filament whorl basally connate for 1.5–2 cm. Ovary globose, white velutinous or basally glabrous and apically with pubescence, 3-loculed; style 2–2.5 cm, glabrous or basally white velutinous, apically 3-lobed. Capsule globose, 6–8(–10) cm in diam., 3-loculed with 2 or 3 seeds per locule, apex convex; pericarp ca. 1 cm when dry, woody, furfuraceous. Seeds brown, semiglobose, 1–1.5 cm in diam. Fl. Jan–Feb, fr. Sep–Oct. *2n* = 30*.

• Forests; (100–)500–1000 m. W Guangdong, E and NE Guangxi, SW Hunan.

- 1a. Leaf blade elliptic to oblong-elliptic, 3.5–5(–6) cm wide, apex shortly caudate or caudate; ovary velutinous, style basal 1/2 velutinous 90a. var. *polyodonta*
 1b. Leaf blade narrowly oblong to lanceolate, (1.5–)2–3 cm wide, apex long caudate; ovary glabrous or only apex velutinous, style glabrous 90b. var. *longicaudata*

90a. *Camellia polyodonta* var. *polyodonta*

多齿山茶(原变种) duo chi shan cha (yuan bian zhong)

Camellia oviformis Hung T. Chang; *C. polyodonta* f. *alba* T. L. Ming; *C. villosa* Hung T. Chang.

Leaf blade elliptic to oblong-elliptic, 8–14 × 3.5–5(–6) cm, apex shortly caudate to caudate. Ovary white velutinous; style basal 1/2 velutinous.

• Forests; (100–)500–1000 m. NE Guangxi, SW Hunan.

90b. *Camellia polyodonta* var. *longicaudata* (Hung T. Chang & S. Ye Liang) T. L. Ming, Acta Bot. Yunnan. 20: 144. 1998.

长尾多齿山茶 chang wei duo chi shan cha

Camellia longicaudata Hung T. Chang & S. Ye Liang in Hung T. Chang, Taxon. Gen. *Camellia*, 83. 1981; *C. apolyodonta* Hung T. Chang & Q. M. Chen.

Leaf blade narrowly oblong to lanceolate, 7–12 × (1.5–)2–3 cm, apex long caudate. Ovary glabrous or only apex velutinous; style glabrous.

• Forests; 700–900 m. W Guangdong, E Guangxi.

91. *Camellia mairei* (H. Léveillé) Melchior in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 21: 129. 1925.

毛蕊山茶 mao rui shan cha

Shrubs or trees, 2–8 m tall. Young branches grayish brown; year-old branchlets with pubescence becoming black and glabrescent; current year branchlets reddish brown, sparsely gray pubescent to subglabrous or yellowish villous. Petiole ca. 1 cm, pubescent or glabrescent; leaf blade elliptic, oblong-elliptic, or oblong-lanceolate, 6–15 × 2.5–6 cm, leathery, abaxially pale green, sparsely appressed villous when young or later glabrescent except densely villous along midvein, and becoming reddish brown when dry, adaxially dark green and glabrous, midvein abaxially elevated and adaxially slightly raised, secondary veins 6–8 on each side of midvein, abaxially raised, and adaxially strongly impressed, base cuneate, broadly cuneate, or obtuse, margin densely apiculate-serrulate, apex acuminate to long caudate. Flowers axillary or subterminal, solitary or paired, 4–6 cm in diam., subsessile. Bracteoles and sepals 8–10, caducous after anthesis, leathery, both surfaces grayish yellow velutinous or inside glabrous, margin membranous; outer 2–4 bracteoles and sepals semiorbicular, 2–6 mm; inner bracteoles and sepals orbicular to broadly obovate, 1–1.5 cm. Petals 7–9, dark red; outer petals 2–4, nearly distinct, orbicular to broadly obovate, 3–3.5 cm, both surfaces white farinose-velutinous; inner 5 petals broadly obovate to ovate, 4–5 cm, glabrous, basally connate for ca. 1 cm, apex emarginate. Stamens ca. 3 cm; filaments villous, slightly pilose, or glabrous; outer filament whorl basally connate for ca. 2 cm. Ovary globose, ca. 2 mm in diam., yellow tomentose, 3-loculed; style ca. 2.5 cm, yellow velutinous, apically 3-lobed. Capsule ovoid with a mucronate apex, 4–5.5 cm in diam., 3-loculed with 2 seeds per locule; pericarp to 1 cm thick and fleshy when fresh but ca. 5 mm and stiffly leathery when dry. Seeds brown, semiorbicular, 1.5–2 cm in diam., glabrous. Fl. Dec–Feb, fr. Sep–Oct.

• Forests, thickets; 400–1800(–2900) m. NW Guangdong, Guangxi, Guizhou, S Hunan, S Sichuan, Yunnan.

- 1a. Current year branchlets densely yellowish villous; year-old branchlets with persistent trichomes becoming black; filaments slightly pilose or glabrous 91c. var. *velutina*
 1b. Current year branchlets sparsely gray pubescent to subglabrous; year-old branchlets glabrous; filaments villous.
 2a. Leaf blade elliptic to oblong-elliptic, 6–12.5 × 2.5–5.5 cm, apex acuminate; bracteoles and sepals velutinous on both surfaces 91a. var. *mairei*
 2b. Leaf blade oblong to oblong-lanceolate, 11–15 × 3–4.5 cm, apex long caudate; bracteoles and sepals inside glabrous 91b. var. *lapidea*

91a. *Camellia mairei* var. *mairei*

毛蕊山茶(原变种) mao rui shan cha (yuan bian zhong)

Thea mairei H. Léveillé, Sert. Yunnan. 2. 1916; *Camellia*

mairei f. *alba* (Hung T. Chang) T. L. Ming; *C. mairei* var. *alba* Hung T. Chang; *C. omeiensis* Hung T. Chang; *Camelliastrum mairei* (H. Léveillé) Nakai.

Year-old branchlets glabrous; current year branchlets sparsely gray pubescent to subglabrous. Leaf blade elliptic to oblong-elliptic, 6–12.5 × 2.5–5.5 cm, apex acuminate. Bracteoles and sepals velutinous on both surfaces. Fl. Jan–Feb, fr. Sep–Oct.

• Forests, thickets; 500–1500(–1800) m. NW Guizhou, S Sichuan, NE Yunnan.

91b. *Camellia mairei* var. *lapidea* (Y. C. Wu) Sealy, Rev. Gen. *Camellia*, 174. 1958.

石果毛蕊山茶 shi guo mao rui shan cha

Camellia lapidea Y. C. Wu, Bot. Jahrb. Syst. 71: 190. 1940; *C. connatistyla* S. L. Mo & Y. C. Zhong; *C. delicata* Y. K. Li; *C. lanosituba* Hung T. Chang; *C. longigyra* Hung T. Chang, nom. illeg. superfl.; *C. longistyla* Hung T. Chang ex F. A. Zeng & H. Zhou; *C. phellooderma* Hung T. Chang et al.

Year-old branchlets glabrous; current year branchlets sparsely gray pubescent to subglabrous. Leaf blade oblong to oblong-lanceolate, 11–15 × 3–4.5 cm, apex long caudate. Bracteoles and sepals inside glabrous. Fl. Jan–Feb, fr. Sep–Oct. $2n = 60^*$, 90^* .

• Forests, thickets; 400–1800(–2300) m. NW Guangdong, Guangxi, Guizhou, S Hunan, S Sichuan, SE Yunnan.

91c. *Camellia mairei* var. *velutina* Sealy, Rev. Gen. *Camellia*, 174. 1958.

滇南毛蕊山茶 dian nan mao rui shan cha

Year-old branchlets with pubescence becoming black; current year branchlets yellowish villous. Leaf blade larger, elliptic to oblong-elliptic, to 15 × 6 cm, secondary veins abaxially visible to rarely slightly raised or impressed. Bracteoles and sepals velutinous on both surfaces. Filaments glabrous or inner ones sparsely pilose. Fl. Dec–Jan, fr. Sep–Oct. $2n = 90^*$.

• Forests; 1500–2900 m. C Yunnan (Jingdong).

11. *Camellia* sect. *Paracamellia* Sealy, Rev. Gen. *Camellia*, 192. 1958.

油茶组 you cha zu

Camellia sect. *Oleiferae* Hung T. Chang; *Drupifera* Rafinesque; *Sasanqua* Nees.

Flowers axillary, solitary or paired, subsessile. Bracteoles and sepals caducous. Petals white, rarely pink, distinct or near so, apex emarginate or 2-lobed. Stamens short, 1/3–1/2 as long as petals, distinct or only basally connate. Ovary 3-loculed; style short, apically ± parted.

Seven species: Bhutan, Cambodia, S China, NE India, S Japan, Laos, N Myanmar, Nepal, Thailand, Vietnam; six species (two endemic) in China.

- 1a. Leaf blade abaxially reddish punctate; outer filament whorl connate for ± basal 1/2 92. *C. grijsii*
 1b. Leaf blade not abaxially punctate; outer filament whorl basally slightly connate or nearly distinct.
 2a. Leaf blade lanceolate to narrowly lanceolate 93. *C. fluviatilis*
 2b. Leaf blade elliptic, obovate, or oblong.
 3a. Flowers more than 3.5 cm in diam.; fruit more than 2 cm in diam.
 4a. Current year branchlets, bracteoles, and outside of sepals glabrous; styles 3–5, distinct nearly to base 94. *C. drupifera*
 4b. Current year branchlets pubescent, bracteoles and sepals pubescent to tomentose but outer ones glabrous or subglabrous; style basally connate and apically 3-lobed to 3-parted 95. *C. oleifera*
 3b. Flowers 1.5–3 cm in diam.; fruit 1–2.5 cm in diam.
 5a. Leaf blade oblong, oblong-elliptic, elliptic, or broadly elliptic, 5–13.5 cm, secondary veins adaxially slightly impressed, apex acute, acuminate, or caudate and with a blunt tip; flowers 2–3 cm in diam.; capsule 1.5–2 cm in diam. 96. *C. kissii*
 5b. Leaf blade elliptic, obovate-elliptic, obovate-oblong, or obovate, 1.5–5.5 cm, secondary veins adaxially obscure but sometimes visible to slightly impressed, apex blunt to rounded; flowers 1.5–2.5 cm in diam.; capsule 1–1.8 cm in diam. 97. *C. brevistyla*

92. *Camellia grijsii* Hance, J. Bot. 17: 9. 1897.

长瓣短柱茶 chang ban duan zhu cha

Shrubs 1–4 m tall. Year-old branchlets grayish brown, glabrescent; current year branchlets grayish white pubescent. Petiole 5–10 mm, pubescent or glabrous; leaf blade elliptic to oblong-elliptic, 3.5–9 × 2–4.5 cm, thickly leathery, abaxially pale green, reddish punctate, sparsely appressed pubescent when young but glabrescent except villous along midvein, and becoming yellowish brown when dry, adaxially dark green, shiny, and glabrous, secondary veins 6 or 7 on each side of midvein,

secondary and reticulate veins abaxially raised and adaxially very impressed, base broadly cuneate to obtuse, margin serrulate to sharply serrulate, apex bluntly acute to shortly acuminate. Flowers axillary or subterminal, solitary, fragrant, 3–5 cm in diam., subsessile. Bracteoles and sepals 7 or 8, caducous, brown, thinly leathery, outside white pubescent near apex, inside glabrous, margin ciliolate; outer 2 or 3 bracteoles and sepals lunate to semiorbicular, 2–4 mm; inner 5 bracteoles and sepals sepeloid, suborbicular, 6–10(–12) mm. Petals 5 or 6, white, obovate, 1.5–3.5 × (1–)1.5–2.5 cm, distinct, apically 2-parted for 5–10 mm. Stamens 7–10 mm, glabrous; outer fila-

ment whorl basally unequally connate for 5–7 mm. Ovary globose, yellowish tomentose; style 3–4 mm, glabrous, 3-parted to near base or middle. Capsule obovate, 1.5–2.5 cm in diam., 1–3-loculed with 1 or 2 seeds per locule. Seeds brown, semiobovate to globose. Fl. Jan–Mar, fr. Sep–Oct.

• Forests, thickets; 100–1500 m. Fujian, NW Guangdong, N Guangxi, Guizhou, W Hubei, Hunan, E Jiangxi, S Shaanxi, Sichuan, Zhejiang.

- 1a. Leaf blade 6–9 × 3–4.5 cm; petals 2–3.5 cm; capsule ca. 2.5 cm in diam. 92a. var. *grijsii*
 1b. Leaf blade 3.5–5 × 2–3 cm; petals ca. 1.5 cm; capsule ca. 1.5 cm in diam. ... 92b. var. *shensiensis*

92a. *Camellia grijsii* var. *grijsii*

长瓣短柱茶(原变种) chang ban duan zhu cha (yuan bian zhong)

Camellia odorata L. S. Xie & Zhan Y. Zhang; *C. yuhsienensis* Hu.

Leaf blade 6–9 × 3–4.5 cm. Petals 2–3.5 cm. Capsule ca. 2.5 cm in diam. Fl. Jan–Mar, fr. Sep–Oct. $2n = 30^*$, 90^* .

• Forests; 100–1500 m. Fujian, NW Guangdong, N Guangxi, Guizhou, W Hubei, Hunan, E Jiangxi, Zhejiang.

92b. *Camellia grijsii* var. *shensiensis* (Hung T. Chang) T. L. Ming, Monogr. Gen. *Camellia*, 291. 2000.

小叶短柱茶 xiao ye duan zhu cha

Camellia shensiensis Hung T. Chang in Hung T. Chang & B. M. Bartholomew, *Camellias*, 56. 1984.

Leaf blade 3.5–5 × 2–3 cm. Petals ca. 1.5 cm. Capsule ca. 1.5 cm in diam. Fl. Jan–Feb, fr. Sep–Oct.

• Thickets; 100–700 m. W Hubei, S Shaanxi, Sichuan.

93. *Camellia fluviatilis* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 59: 57. 1922.

窄叶油茶 zhai ye you cha

Shrubs 1.5–3.5 m tall. Young branches grayish brown; current year branchlets purplish red, puberulent, soon glabrescent. Petiole puberulent; leaf blade lanceolate to narrowly lanceolate, 5–8.5 × 1–2.2 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein raised on both surfaces, secondary veins 6 or 7 on each side of midvein, secondary and reticulate veins abaxially obscure and adaxially impressed, base cuneate, margin serrulate, apex long acuminate. Flowers axillary or subterminal, solitary, 1.5–6 cm in diam., subsessile. Bracteoles and sepals 8 or 9, caducous; outer 3 or 4 bracteoles and sepals semiobovate, 1.5–2 mm; inner bracteoles and sepals ovate, 4–6 mm, outside apically pubescent, inside glabrous, margin ciliolate. Petals 5 or 6, white, almost distinct, oblong-elliptic to oblanceolate, 0.8–3 × 0.4–2 cm, apex rounded to slightly emarginate. Stamens 5–7 mm, glabrous; outer filament whorl basally connate for 1.5–2 mm. Ovary globose, yellow tomentose, 3-loculed; styles 3, ca. 4 mm, glabrous, distinct nearly to base. Capsule ovoid, 1.5–1.7 cm, 1- or 2-loculed with 1 seed per locule; pericarp splitting into

3 valves. Seeds brown, globose, ca. 1 cm in diam. Fl. Oct–Feb, fr. Sep–Oct. $2n = 30$.

Forests, thickets along valleys; below 100–500 m. Guangdong, Guangxi, Hainan [NE India, N Myanmar].

- 1a. Flowers 1.5–2 cm in diam. 93a. var. *fluviatilis*
 1b. Flowers 5–6 cm in diam. 93b. var. *megalantha*

93a. *Camellia fluviatilis* var. *fluviatilis*

窄叶油茶(原变种) zhai ye you cha (yuan bian zhong)

Camellia kissii Wallich var. *stenophylla* (Kobuski) Sealy; *C. stenophylla* Kobuski; *Thea fluviatilis* (Handel-Mazzetti) Merrill.

Leaf blade narrowly lanceolate, 1–1.8 cm wide. Flowers 1.5–2 cm in diam. Fl. Dec–Feb, fr. Sep.

Thickets along valleys; below 100–300 m. Guangdong, Guangxi, Hainan [NE India, N Myanmar].

93b. *Camellia fluviatilis* var. *megalantha* (Hung T. Chang) T. L. Ming, Acta Bot. Yunnan. 21: 157. 1999.

大花窄叶油茶 da hua zhai ye you cha

Camellia kissii var. *megalantha* Hung T. Chang, Taxon. Gen. *Camellia*, 35. 1981; *C. lanceoleosa* Hung T. Chang.

Leaf blade lanceolate to narrowly lanceolate, 1.5–2.2 cm wide. Flowers 5–6 cm in diam. Fl. Oct–Dec, fr. Sep–Oct.

• Forests, thickets along valleys; 100–500 m. E Guangxi.

94. *Camellia drupifera* Loureiro, Fl. Cochinch. 2: 411. 1790.

越南油茶 yue nan you cha

Camellia gauchowensis Hung T. Chang; *C. vietnamensis* T. C. Huang ex Hu; *Drupifera oleosa* Rafinesque; *Thea drupifera* (Loureiro) Pierre.

Shrubs or trees, 2–8 m tall, 9–30 cm d.b.h. Young branches grayish brown; current year branchlets reddish brown, glabrous. Petiole 5–7 mm, glabrous; leaf blade elliptic to broadly elliptic, 5–12 × 3–5 cm, leathery, abaxially pale green and glabrous, adaxially dark green, shiny, and hirtellous along midvein or glabrescent, midvein raised on both surfaces, secondary veins 7–9 on each side of midvein, abaxially slightly raised, and adaxially visible, base rounded to obtuse, margin serrulate, apex acute to shortly acuminate and with an obtuse tip. Flowers solitary, axillary, fragrant, 6–7.5 cm in diam., subsessile. Bracteoles and sepals 10–12 or more, caducous, glabrous, margin ciliolate; outer bracteoles and sepals semiobovate, 1–2 mm; inner bracteoles and sepals sepeloid, ovate to suborbicular, to 1 cm. Petals 5–8, white, nearly distinct, obovate, 3–6 × 1.5–3.5 cm, apically 2-parted for 7–10 mm. Stamens 1.2–1.7 cm, glabrous; outer filament whorl basally connate for 1–2 mm to nearly distinct. Ovary tomentose, 3–5-loculed; styles 3–5, 1–1.5 cm, glabrous, distinct nearly to base. Capsule globose to ovoid, 4–7 cm in diam., 3–5-loculed with 1–4 seeds per locule; pericarp 6–8 mm thick, woody, splitting into 3–5 valves. Seeds brown. Fl. Dec–Jan, fr. Oct. $2n = 30, 105, 120$.

Forests, thickets; 100–700 m. SW Guangdong, S Guangxi, Hainan [Vietnam].

This species is grown as a seed oil crop. It is often uncertain if particular collections are wild, cultivated, or escaped. As is the case with several other *Camellia* species that are cultivated, the original distribution is uncertain.

The identity of *Camellia drupifera* has long been uncertain. It is an older name than either *C. oleifera* (1818) or *C. kissii* (1820) and has been considered to possibly be conspecific with one or the other of these species. Loureiro stated that for *C. drupifera* the capsule ("*Drupa*") is 4-loculed and the style 4-parted, which features do not agree with either *C. oleifera* or *C. kissii*. All of the characters described by Loureiro as well as its being grown as a seed oil plant are consistent with it being conspecific with *C. gauchowensis* (probably the wild ancestor with $2n = 30$) and *C. vietnamensis* (cultivated plants with $2n = 105, 120$). Although there is no extant type, the Loureiro plant was collected from a cultivated plant in Cochinchina (S Vietnam). To stabilize the nomenclature we are neotypifying the species name here: ***Camellia drupifera*** Loureiro, Fl. Cochinch. 2: 411. 1790. TYPE: China. Guangxi: Liucheng Xian, Satang Forest Station in cultivation, Jul 1956, Huang Tso-Chieh [*Huang Zuo-Jie*] 2042 (**neotype designated here**, PE) based on the holotype of *C. vietnamensis* T. C. Huang ex Hu (Acta Phytotax. Sin. 10: 138. 1965).

95. *Camellia oleifera* C. Abel, Narr. Journey China, 174. 1818.

油茶 you cha

Camellia oleifera var. *monosperma* Hung T. Chang; *C. drupifera* Loureiro f. *biflora* (Hayata) S. S. Ying; *Thea biflora* Hayata; *T. oleifera* (C. Abel) Rehder & E. H. Wilson; *T. podogyna* H. Léveillé; *T. sasanqua* (Thunberg) Cels var. *loureiroides* Pierre.

Shrubs or trees, 1–5(–8) m tall. Young branches grayish brown; current year branchlets reddish brown, pubescent. Petiole 5–10 mm, pubescent; leaf blade elliptic, oblong-elliptic, or obovate, 3–10(–12) × 2–4(–5) cm, leathery to rigidly leathery, abaxially pale green, sparsely pilose along midvein or glabrous, and becoming yellowish green when dry, adaxially dark green, shiny, and hirtellous along midvein, midvein raised on both surfaces, secondary veins 5–8 on each side of midvein, abaxially obscure, and adaxially raised, base broadly cuneate to cuneate, margin serrate to serrulate, apex acute to acuminate and with an obtuse tip. Flowers axillary or subterminal, solitary or paired, 4–6 cm in diam., subsessile. Bracteoles and sepals 8–11, caducous; outer bracteoles and sepals lunate to semiorbicular, scalelike, 1–3 mm, glabrous or subglabrous; inner bracteoles and sepals obovate to suborbicular, 0.9–1.2 cm, outside yellow tomentose, inside glabrous, margin membranous and ciliate. Petals 5–7, white, nearly distinct, obovate, oblong-obovate, or oblanceolate, 2.5–3.5(–4.5) × 1.5–2.5(–3) cm, apically 2-parted. Stamens ca. 1.5 cm, glabrous; outer filament whorl basally connate for ca. 5 mm. Ovary globose, 2–3 mm in diam., white tomentose, 3-loculed; style 0.8–1.2 cm, glabrous or base tomentose, apically 3-lobed to 3-parted. Capsule globose to ellipsoid, 2–4 cm in diam., 1–3-loculed with 1 or 2 seeds per locule; pericarp 3–6 mm thick, villous, splitting into 2 or 3 valves. Seeds brown to reddish brown, globose to semiglobose, 1.5–2 cm in diam. Fl. Dec–Jan, fr. Sep–Oct. $2n = 30, 45, 60, 90$.

Forests, thickets; (200–)500–1800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang [N Laos, N Myanmar, N Vietnam].

This species is extensively cultivated as an oil seed. Because of its long cultivation in China, it is often difficult to know if particular collections are wild, cultivated, or escaped. For this reason the original wild distribution is uncertain although it is possibly in the region of S Qin Ling to the Huai He valley. *Camellia oleifera* is the hardiest species in the genus and has the farthest north distribution.

96. *Camellia kissii* Wallich, Asiat. Res. 13: 429. 1820.

落瓣油茶 luo ban you cha

Shrubs or trees, 1.5–5(–9) m tall. Young branches grayish brown, glabrous; current year branchlets densely gray pubescent to villous. Petiole 3–7 mm, densely pubescent to villous; leaf blade oblong, oblong-elliptic, elliptic, or broadly elliptic, 5–13.5 × 1.5–5(–6) cm, thinly leathery, leathery, or rigidly leathery, abaxially pale green and sparsely villous or glabrescent, adaxially dark green and hirtellous along midvein, midvein raised on both surfaces, secondary veins 6–8 on each side of midvein, secondary and reticulate veins abaxially raised, adaxially slightly impressed, or slightly raised on both surfaces, base cuneate, broadly cuneate, or obtuse, margin serrulate, apex acute, acuminate, or caudate and with a blunt tip. Flowers axillary, solitary or paired, subsessile. Bracteoles and sepals 7–9, caducous; outer bracteoles and sepals lunate, 1–2 mm; inner bracteoles and sepals broadly elliptic to suborbicular, to 7 mm, outside velutinous to subglabrous, inside glabrous. Petals 5–8, white, nearly distinct, obovate to ovate, 0.8–3 × 0.6–2 cm, apex emarginate. Stamens 0.6–1.5 cm, glabrous; outer filament whorl basally connate for 1–3 mm. Ovary white tomentose, 3-loculed; styles 3, 3–7 mm, glabrous or basally tomentose, distinct to near base or basally connate and apically 3-parted to 3-lobed. Capsule subglobose to globose-pyriform, 1.4–2.5 × 1.5–2 cm, usually 1–3-loculed with 1 seed per locule; pericarp ca. 1.5 mm thick, splitting into 2 or 3 valves. Seeds brown, globose, 1–1.5 cm in diam. Fl. Nov–Dec, fr. Sep–Oct. $2n = 30$.

Forests, thickets; 300–2000(–3100) m. Guangdong, Guangxi, Hainan, Yunnan [Bhutan, Cambodia, NE India, Laos, Myanmar, Nepal, Thailand, Vietnam].

- 1a. Leaf blade oblong, oblong-elliptic, or elliptic, 5–7 × 1.5–3.5 cm; petals 0.8–1.5 × 0.6–0.8 cm; stamens 0.6–1 cm; capsule usually 1-loculed 96a. var. *kissii*
- 1b. Leaf blade elliptic to broadly elliptic, 8–13.5 × 3.5–5(–6) cm; petals 2–3 × 0.8–2 cm; stamens 1.3–1.5 cm; capsule 3-loculed 96b. var. *confusa*

96a. *Camellia kissii* var. *kissii*

落瓣油茶(原变种) luo ban you cha (yuan bian zhong)

Camellia keina Buchanan-Hamilton ex D. Don; *C. lutescens* Dyer; *C. mastersii* Griffith; *C. simplicifolia* Griffith; *C. symplocifolia* Griffith; *Thea bachmaensis* Gagnepain; *T. brachystemon* Gagnepain; *T. sasanqua* (Thunberg) Cels var. *kissii* (Wallich) Pierre; *Theopsis euonymifolia* Hu.

Leaf blade oblong, oblong-elliptic, or elliptic, 5–7 × 1.5–3.5 cm. Petals 8–15 × 6–8 mm. Stamens 6–10 mm. Capsule usually 1-loculed. Fl. Nov–Dec, fr. Sep.

Forests, thickets; 300–2000(–3100) m. Guangdong, Guangxi, Hai-

nan, Yunnan [Bhutan, Cambodia, NE India, Laos, Myanmar, Nepal, Thailand, Vietnam].

96b. *Camellia kissii* var. *confusa* (Craib) T. L. Ming, Fl. Yunnan. 8: 300. 1997.

大叶落瓣油茶 da ye luo ban you cha

Thea confusa Craib, Bull. Misc. Inform. Kew 1914: 5. 1914; *Camellia oleifera* C. Abel var. *confusa* (Craib) Sealy; *T. oxyanthera* Gagnepain.

Leaf blade elliptic to broadly elliptic, 8–13.5 × 3.5–5(–6) cm. Petals 2–3 × 0.8–2 cm. Stamens 1.3–1.5 cm. Capsule 3-loculed. Fl. Nov–Dec, fr. Sep–Oct.

Forests, thickets; 600–2000 m. SW Guangxi, S Yunnan [NE India, Laos, Myanmar, Thailand].

97. *Camellia brevistyla* (Hayata) Cohen-Stuart, Meded. Proefstat. Thee 40: 67. 1916.

短柱油茶 duan zhu you cha

Shrubs 1–3.5 m tall, rarely trees 5–8 m tall. Young branches grayish brown; current year branchlets purplish brown, gray pubescent to hirtellous. Petiole 3–5 mm, pubescent; leaf blade elliptic, obovate-elliptic, obovate-oblong, or obovate, 1.5–5.5 × 0.7–3 cm, thinly leathery, abaxially pale green and sparsely villous along midvein, adaxially dark green and puberulent along midvein, epidermis verruculose, midvein raised on both surfaces, secondary veins 5 or 6 on each side of midvein and obscure on both surfaces but adaxially sometimes visible to slightly impressed, base cuneate to broadly cuneate, margin crenulate-denticulate, apex blunt to rounded. Flowers axillary, solitary, 1.5–2.5(–3) cm in diam., subsessile. Bracteoles and sepals 7–8(–10), caducous, outside gray pubescent along median portion, inside glabrous, margin ciliolate; outer bracteoles and sepals lunate to semiorbicular, 1–2 mm; inner bracteoles and sepals obovate to suborbicular, 5–9 mm. Petals 5–7, white or pink, nearly distinct, obovate to obovate-spatulate, 1–2.5(–3) × 0.4–1(–1.5) cm, apex retuse to deeply emarginate. Stamens 5–10 mm, glabrous; outer filament whorl basally connate for 2–4 mm. Ovary globose, 1.5–2 mm in diam., yellowish tomentose; styles 3, 2–7 mm, glabrous, distinct near base or basally connate and only apically 3-parted. Capsule subglobose, 1–1.8 cm in diam., usually 1-loculed with 1 seed; pericarp ca. 1 mm thick. Seed brown, globose, 1–1.5 cm in diam. Fl. Oct–Dec, fr. Sep–Oct. $2n = 30^*$.

• Forests, thickets; 200–1100 m. S Anhui, Fujian, NW Guangdong, NE Guangxi, Guizhou, S Hubei, Hunan, Jiangxi, Taiwan, Zhejiang.

- 1a. Leaf blade 3–5.5 × 1.5–3 cm; petals 1.5–2.5(–3) cm; styles 4–7 mm; capsule 1.5–1.8 cm in diam. 97a. var. *brevistyla*
 1b. Leaf blade 1.5–2.5 × 0.7–1.3 cm; petals ca. 1 cm; styles 2–3 mm; capsule 1–1.5 cm in diam. 97b. var. *microphylla*

97a. *Camellia brevistyla* var. *brevistyla*

短柱油茶(原变种) duan zhu you cha (yuan bian zhong)

Thea brevistyla Hayata, J. Coll. Sci. Imp. Univ. Tokyo 25(19): 63. 1908; *Camellia brevissima* Hung T. Chang; *C. brevistyla* f. *rubida* P. L. Chiu; *C. hengchunensis* C. E. Chang; *C. lungyaiensis* (Hu) T. Tuyama; *C. obtusifolia* Hung T. Chang; *C. puniceiflora* Hung T. Chang; *C. tenuiflora* (Hayata) Cohen-Stuart; *C. tuboleifera* Hung T. Chang & S. X. Ren; *T. gnaphalocarpa* Hayata; *T. tenuiflora* Hayata; *Theopsis lungyaiensis* Hu.

Leaf blade elliptic, obovate-elliptic, or obovate-oblong, 3–5.5 × 1.5–3 cm. Flowers 2–2.5(–3) cm in diam. Petals 1.5–2.5(–3) cm. Styles 4–7 mm. Capsule 1.5–1.8 cm in diam. Fl. Nov–Dec, fr. Sep–Oct.

• Forests, thickets; 200–1100 m. S Anhui, Fujian, NW Guangdong, NE Guangxi, Guizhou, S Hubei, Hunan, Jiangxi, Taiwan, Zhejiang.

97b. *Camellia brevistyla* var. *microphylla* (Merrill) T. L. Ming, Acta Bot. Yunnan. 21: 158. 1999.

细叶短柱油茶 xi ye duan zhu you cha

Thea microphylla Merrill, J. Arnold Arbor. 8: 9. 1927; *Camellia microphylla* (Merrill) S. S. Chien; *Theopsis microphylla* (Merrill) Nakai.

Leaf blade obovate, 1.5–2.5 × 0.7–1.3 cm. Flowers ca. 1.5 cm in diam. Petals ca. 1 cm. Styles 2–3 mm. Capsule 1–1.5 cm in diam. Fl. Oct–Dec, fr. Sep.

• Thickets; 300–900 m. S Anhui, Guizhou, Hunan, Jiangxi, Zhejiang.

2. PYRENARIA Blume, Bijdr. 1119. 1826–1827.

核果茶属 he guo cha shu

Parapyrenaria Hung T. Chang; *Sinopyrenaria* Hu; *Tutcheria* Dunn.

Shrubs or trees, evergreen. Leaves petiolate; leaf blade margin serrate. Flowers axillary, solitary, pedicellate or subsessile. Bracteoles 2 or rarely more, caducous or persistent, sometimes clearly differentiated from sepals. Sepals 5(or 6), imbricate, persistent or caducous, unequal in size, outside pubescent to velutinous, inside brown and glabrous. Petals 5 or rarely more, white or rarely pale yellow, basally slightly connate and adnate to stamens. Stamens numerous, glabrous; outer filament whorl basally slightly connate; anthers dorsifixed, 2-loculed, longitudinally cleft. Ovary superior, (2 or) 3–5(or 6)-loculed with 2–5 ovules per locule, placentation axile, tomentose; styles 3–5, distinct or basally connate. Fruit a loculicidal capsule dehiscent from base or drupaceous and indehiscent, usually 2 seeds per locule; pericarp woody or fleshy; columella persistent. Seeds longitudinally compressed, wingless; testa bony, smooth, shiny; hilum linear; endosperm absent; embryo large; cotyledons thin.

About 26 species: China, NE India, Indonesia, Japan (Ryukyu Islands), Malaysia, Myanmar, Philippines, Thailand, Vietnam; 13 species (seven endemic) in China.

- 1a. Ovary 5-loculed; styles 5, distinct; fruit drupaceous, indehiscent, apically 5-lobed.
- 2a. Flowers subsessile; bracteoles and sepals more than 40, not clearly differentiated 4. *P. oblongicarpa*
- 2b. Flowers pedicellate; bracteoles 2 and sepals 5 or 6, clearly differentiated.
- 3a. Leaf blade 15–33 × 7–14 cm, base rounded; bracteoles and sepals not leaflike; flowers ca. 7 cm in diam.; fruit globose, 5–8 cm in diam. 1. *P. menglaensis*
- 3b. Leaf blade 8–16 × 3–6 cm, base cuneate; bracteoles and sepals leaflike; flowers 2–4 cm in diam.; fruit oblate, subglobose, or long obovoid, less than 4 cm in diam.
- 4a. Leaf blade oblong to obovate-oblong, papery, yellowish green when dry, secondary veins raised on both surfaces; fruit long obovoid 2. *P. diospyricarpa*
- 4b. Leaf blade oblanceolate to oblong-lanceolate, leathery, adaxially yellowish brown when dry, secondary veins adaxially slightly impressed; fruit oblate to subglobose 3. *P. khasiana*
- 1b. Ovary 3–5(or 6)-loculed; styles connate; fruit a capsule or drupaceous and indehiscent, apically unlobed.
- 5a. Flowers subsessile (pedicel 3–6 mm in *P. kwangsiensis*); bracteoles and sepals not clearly differentiated; fruit indehiscent and drupaceous.
- 6a. Sepals 5; petals 5; ovary and fruit (4 or 5)-loculed 12. *P. kwangsiensis*
- 6b. Sepals 8–10; petals 8–10; ovary and fruit 3-loculed 13. *P. jonquieriana*
- 5b. Flowers distinctly pedicellate; bracteoles and sepals clearly differentiated; fruit a dehiscent capsule.
- 7a. Fruit 1–2 cm in diam.
- 8a. Flowers 5–6 cm in diam.; pedicel 10–15 mm 6. *P. wuana*
- 8b. Flowers 2–4 cm in diam.; pedicel 1–4(–8) mm.
- 9a. Flowers ca. 4 cm in diam.; year-old branchlets hirsute; leaf blade adaxially hirtellous along midvein; sepals outside hirsute, apex acute; stamens ca. 10 mm; style hirsute 9. *P. hirta*
- 9b. Flowers 2–2.5 cm in diam.; year-old branchlets glabrescent; leaf blade adaxially glabrous; sepals outside sericeous, apex rounded; stamens 6–8 mm; style glabrous 10. *P. microcarpa*
- 7b. Fruit 2–8 cm in diam.
- 10a. Current year branchlets pubescent or villous.
- 11a. Leaf blade 7–12.5 cm; bracteoles alternate, leaflike, oblong, ca. 2.5 cm; sepals 5, broadly ovate, 1–1.5 cm 5. *P. sophiae*
- 11b. Leaf blade 16–18 cm; bracteoles opposite, not leaflike, ovate to broadly ovate, 1–1.5 cm; sepals 9–11, suborbicular, 2–3(–4) cm 7. *P. spectabilis*
- 10b. Current year branchlets glabrous.
- 12a. Current year branchlets rust colored, not maculate; capsule apex convex 8. *P. pingpienensis*
- 12b. Current year branchlets grayish white and dark purplish brown maculate; capsule apex abruptly pointed 11. *P. maculatoclada*

1. *Pyrenaria menglaensis* G. D. Tao, Acta Bot. Yunnan. 5: 183. 1983.

勐腊核果茶 meng la he guo cha

Trees to 15 m tall, to 30 cm d.b.h. Bark grayish white, ex-foliating. Current year branchlets densely yellow villous, indumentum persistent. Petiole 0.5–1.5 cm, densely villous; leaf blade ovate to oblong-ovate, 15–33 × 7–14 cm, thinly leathery, abaxially pale green and appressed pubescent but spreading villous along midvein, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 15–24 on each side of midvein, slender, and raised on both surfaces, base rounded, margin serrulate, apex bluntly acute. Flowers axillary, solitary or to 3 in a cluster, ca. 7 cm in diam. Pedicel ca. 5 mm, yellow sericeous; bracteoles 2, ovate, 5–10 mm, outside yellow sericeous, inside glabrous. Sepals 5(or 6), persistent, broadly ovate to suborbicular, 1–2 cm, outside yellow sericeous, inside glabrous and brown. Petals 5–7(–9), white, broadly ovate to suborbicular, 2.5–3.5 cm, outside velutinous, basally connate. Stamens numerous, ca. 1 cm, glabrous; outer filament whorl basally slightly connate and adnate to petals. Ovary globose, ca. 5 mm in diam., yellow velutinous, 5-loculed, apically 5-lobed from carpels being incompletely connate; styles 5(or 6), distinct, ca. 1 cm, base yellow velutinous. Fruit

drupaceous, globose, 5–8 cm in diam., 5-loculed with 2 or 3 seeds per locule, indehiscent, pale green becoming brown when dry, apex with a sunken hole with 5 protuberances; pericarp woody, 8–10 mm thick. Seeds brown, laterally compressed, shiny. Fl. May, fr. Oct–Nov.

• Tropical evergreen broad-leaved forests on limestone in valleys; 600–700 m. Yunnan (Mengla).

2. *Pyrenaria diospyricarpa* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 42: 60. 1873.

叶萼核果茶 ye e he guo cha

Pyrenaria brevisepala Hung T. Chang; *P. burmanica* T. K. Paul & Nayar; *P. cheliensis* Hu; *P. garrettiana* Craib; *P. yunnanensis* Hu; *Sinopyrenaria cheliensis* (Hu) Hu; *S. garrettiana* (Craib) Hu; *S. yunnanensis* (Hu) Hu; *Stewartia longibracteata* Hung T. Chang; *S. yunnanensis* Hung T. Chang.

Trees 5–15 m tall. Year-old branchlets with ± persistent indumentum; current year branchlets densely grayish yellow pubescent and spreading villous. Petiole 0.6–1 cm, densely pubescent; leaf blade oblong to oblong-ovate, 7–15(–17) × 2.5–5.5 cm, papery, abaxially pale green, sparsely appressed pubescent, and densely spreading villous along midvein, adaxially

dark green, sparsely pubescent when young but glabrescent, and gray pubescent along midvein, both surfaces yellowish when dry, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein and raised on both surfaces, base cuneate to broadly cuneate, margin undulate-serrulate, apex shortly acuminate to acuminate. Flowers axillary, solitary, 2–2.5 cm in diam. Pedicel 3–5 mm, densely yellow spreading villous; bracteoles 2, green, leaflike, oblong or lanceolate, 1–2.5 × 0.3–0.7 cm. Sepals 5, persistent, green, leaflike, ovate, 0.5–1.5 cm, outside grayish yellow sericeous, inside glabrous. Petals 5 or 6, white, obovate, 1–1.4 cm, outside yellow sericeous, inside glabrous, basally connate for 2–3 mm. Stamens numerous, 6–8 mm, glabrous; outer filament whorl basally connate and adnate to petals. Ovary globose, ca. 3 mm in diam., densely flavescent velutinous, 5-loculed, apex slightly 5-lobed from carpels being incompletely connate; styles 5, distinct, ca. 5 mm, basally velutinous. Fruit drupaceous, indehiscent, long obovoid, 4–5 × 2.5–3 cm, 5-loculed with 2 seeds per locule, apex with a sunken hole with 5 protuberances; pericarp ca. 5 mm thick and fleshy when fresh, becoming brown, 1–2 mm thick, and leathery when dry. Seeds brown, laterally compressed, oblong, ca. 2 × 1 × 0.4 cm, shiny. Fl. May, fr. Sep–Nov. $2n = 30$.

Forests on hills, slopes, or in valleys; 1000–2000 m. S Yunnan [Myanmar, Thailand, Vietnam].

Only *Pyrenaria diospyricarpa* var. *diospyricarpa* occurs in China; *P. diospyricarpa* var. *camelliiflora* (Kurz) S. X. Yang occurs in Myanmar, Thailand, and Vietnam.

3. *Pyrenaria khasiana* R. N. Paul, Bull. Bot. Soc. Bengal 33: 115. 1979.

印藏核果茶 yin zang he guo cha

Pyrenaria tibetana Hung T. Chang.

Trees 13–40 m tall. Young branches thick; current year branchlets appressed pubescent when young, soon glabrescent. Petiole 6–10 mm, puberulent or glabrescent; leaf blade broadly oblanceolate to oblong-lanceolate, 7–20 × 3–8 cm, leathery, abaxially pale green, sparsely appressed pubescent or glabrescent, and becoming brown when dry, adaxially dark green, glabrous, and becoming yellowish brown when dry, midvein abaxially elevated and adaxially impressed, secondary veins 12–17 on each side of midvein, abaxially raised, and adaxially slightly impressed, base cuneate and decurrent, margin serrate, apex acute to acuminate. Flowers axillary, solitary. Pedicel 4–6 mm, glabrous; bracteoles leaflike, leathery, ovate and 2–3 mm when young, later lanceolate and 8–10 mm. Sepals suborbicular, 8–9 mm, outside densely sericeous. Petals white, obovate to suborbicular, ca. 1.2 cm, outside densely sericeous. Stamens numerous, ca. 6 mm; filaments distinct, glabrous. Ovary tomentose, 5-loculed; styles 5, distinct. Fruit drupaceous, indehiscent, obovate to subglobose, 3–4 cm in diam. when fresh but 1.5–2 × 2–2.5 cm when dry, 5-loculed, fleshy, apex with a sunken hole with 5 protuberances; pericarp 4–6 mm thick, fleshy when fresh but becoming spongy when dry. Seeds laterally compressed, oblong, 6–8 × 5–6 mm. Fl. Jun, fr. Aug–Sep.

Evergreen broad-leaved forests; 600–2100 m. SE Xizang [NE India].

4. *Pyrenaria oblongicarpa* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(3): 62. 1983.

长核果茶 chang he guo cha

Trees to 10 m tall. Young branches stout; current year branchlets pubescent, later glabrescent. Petiole ca. 5 mm, pubescent; leaf blade oblong-ovate, 14–30(–40) × (5–)7–11 cm, thinly leathery, abaxially pale green and sparsely appressed pubescent but densely spreading villous along midvein, adaxially dark green, glabrous, and becoming yellowish green when dry, midvein abaxially elevated and adaxially impressed, secondary veins 10–15 on each side of midvein, abaxially raised and adaxially visible, base rounded to subcordate, margin serrate, apex acuminate to shortly caudate. Flowers axillary, solitary, subsessile, 4–5 cm in diam. Bracteoles and sepals ca. 15, persistent, ovate to semiorbicular, 2–10 × 2–15 mm, leathery, outside gray sericeous, inside glabrous, margin scarios and ciliate. Petals 5, pale yellow, obovate to oblong-obovate, 2–2.5 × 1.5–2 cm, outside sericeous. Stamens numerous, ca. 1.5 cm, glabrous; outer filament whorl basally slightly connate and adnate to petals. Ovary ovoid, ca. 3 mm, densely flavescent tomentose; styles 5, distinct, ca. 1 cm, basally pubescent. Fruit drupaceous, indehiscent, ovoid to long ovoid, 4.5–7 × 4–5.5 cm, 5-loculed with 2–4 seeds per locule, with 5 longitudinal grooves, apex truncate to slightly sunken; pericarp ca. 5 mm thick and fleshy when fresh, ca. 3 mm thick and spongy when dry. Seeds brown, laterally compressed, oblong, 2–3.5 × 1–1.5 cm, shiny. Fl. Apr–May, fr. Oct–Nov. $2n = 30^*$.

• Evergreen broad-leaved forests; 700–900 m. Yunnan (Hekou, Maguan).

5. *Pyrenaria sophiae* (Hu) S. X. Yang & T. L. Ming, Chin. J. Appl. Environ. Biol. 3: 283. 1997.

云南核果茶 yun nan he guo cha

Camellia sophiae Hu, Bull. Fan Mem. Inst. Biol., Bot. 8: 134. 1938; *Tutcheria acutiserrata* Hung T. Chang; *T. pubicostata* Hung T. Chang; *T. sophiae* (Hu) Hung T. Chang.

Shrubs or trees, 3–8 m tall. Year-old branchlets reddish brown, glabrous; current year branchlets densely flavescent appressed pubescent and spreading villous. Petiole 3–6(–10) mm, pubescent; leaf blade oblong to oblong-lanceolate, 7–12.5 × 2.5–3.5(–5) cm, leathery, abaxially yellowish green to pale brown when dry, sparsely pubescent when young, and glabrescent, adaxially yellowish green when dry, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein and raised on both surfaces, base broadly cuneate to subrounded, margin sharply serrate, apex acuminate to acute. Flowers axillary, solitary, 7–8 cm in diam. Pedicel 0.7–1.3 cm, densely yellow pubescent; bracteoles 2, caducous, yellowish green, leaflike, oblong, ca. 2.5 × 1.2 cm, outside sparsely pubescent, inside glabrous, veins raised, margin serrate. Sepals 5, broadly ovate, 1–1.5 × 1–1.5 cm, apex acute to obtuse, outside yellowish tomentose. Petals 5–7(–9), white, broadly obovate, 3.5–4 × 2.5–3.5 cm, outside white pubescent, basally connate for 3–4 mm, apex emarginate. Stamens numerous, ca. 1.5 cm, glabrous; outer filament whorl basally slightly connate and adnate to petals. Ovary densely yellow to

mentose; style 1.2–1.5 cm, basally tomentose, apically 3(or 4)-parted for ca. 5 mm. Capsule globose, 2.5–3.5 cm in diam., 3-loculed with 2 seeds per locule, dehiscent from base, apex obtuse to convex; pericarp 2–3 mm thick when dry, woody. Seeds brown, ellipsoid to oblong, laterally compressed, ca. 2 × 1 cm, shiny. Fl. May, fr. Sep–Oct.

- Forests; 1500–2400 m. SE Yunnan.

6. *Pyrenaria wuana* (Hung T. Chang) S. X. Yang, *Novon* 15: 381. 2005 [*“wuiana”*].

长萼核果茶 *chang e he guo cha*

Tutcheria wuana Hung T. Chang, *Acta Sci. Nat. Univ. Sunyatseni* 6(1): 29. 1960 [*“wuiana”*].

Shrubs or trees, 2–8 m tall. Year-old branchlets with indumentum ± persistent; current year branchlets densely spreading villous. Petiole 5–8 mm, densely villous; leaf blade oblong-lanceolate, 10–18 × 2.5–4.5 cm, leathery, abaxially pale green, densely villous, and becoming yellowish brown when dry, adaxially olive green, shiny, and pubescent along midvein, midvein abaxially elevated and adaxially impressed, secondary veins 10–15 on each side of midvein, secondary and reticulate veins visible on both surfaces, base broadly cuneate to nearly rounded, margin serrulate, apex acuminate to caudate. Flowers axillary, solitary, 5–6 cm in diam. Pedicel 1–1.5 cm, densely villous; bracteoles 2(–4), green, leaflike, ovate to elliptic-ovate, 1–3(–4) × 0.6–1.5 cm, sericeous-tomentose, apex obtuse. Sepals 6–9, leaflike, ovate-elliptic to elliptic-lanceolate, 2–4 × 1.5–1.8 cm, leathery, outside sericeous-tomentose, inside sericeous apically and along margin or glabrous. Petals white, long obovate, 2.5–3.5 × 1–1.5 cm, outside sericeous. Stamens ca. 1.5 cm; filaments glabrous; outer filament whorl basally slightly connate and adnate to petals. Ovary tomentose, 3-loculed; style 1–1.6 cm, basally half tomentose. Capsule long ovoid, 3–4.5 × 1–1.5 cm, 3-loculed with 2 or 3 seeds per locule, dehiscent from base, apex acuminate to long acuminate; pericarp woody, yellowish brown tomentose. Seeds brown, laterally compressed, shiny. Fl. Jun–Jul, fr. Sep–Nov. $2n = 30^*$.

- Forests; 800–900 m. Guangdong (Luoding), Guangxi (Cangwu).

7. *Pyrenaria spectabilis* (Champion) C. Y. Wu & S. X. Yang, *Novon* 15: 381. 2005.

大果核果茶 *da guo he guo cha*

Trees 5–15 m tall. Young branches yellowish brown to grayish brown; current year branchlets puberulent when young, soon glabrescent. Petiole 5–10 mm; leaf blade oblong, 16–18 × 4–7 cm, leathery, abaxially pale green, sparsely pubescent when young but soon glabrescent, and becoming yellowish brown when dry, adaxially green becoming yellowish green when dry, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 12–16 on each side of midvein and raised on both surfaces, base cuneate, margin undulate-serrate, apex acuminate to bluntly acuminate. Flowers axillary or subterminal, solitary, 4–10 cm in diam. Pedicel 2–10 mm, pubescent; bracteoles 2, ovate to broadly ovate, 1–1.5 × 1.5–2 cm, outside densely yellow sericeous. Sepals 9–11, suborbicular, 2–

3(–4) cm in diam., thickly leathery, outside yellowish sericeous, margin membranous, apex rounded to retuse. Petals 5 or 6, white, broadly obovate, 4–5 × 2–3 cm, outside yellowish sericeous, inside glabrous, margin membranous, apex emarginate. Stamens numerous, ca. 1.5 cm, glabrous; outer filament whorl basally slightly connate and adnate to petals. Ovary densely yellowish tomentose, 3–6-loculed with 2–5 ovules per locule; style 3–6, pubescent basally to middle, connate to near apex. Capsule globose to oblate, 2–8 cm in diam., 3–6-loculed with 2–5 seeds per locule, dehiscent from base; pericarp 1–5 mm thick when dry, woody, yellow tomentose; columella persistent. Seeds brown, oblong, laterally compressed, ca. 2.5 cm, shiny. Fl. May–Jun, fr. Aug–Oct. $2n = 30$.

Evergreen broad-leaved forests; 300–1500 m. S Fujian, Guangdong, Guangxi, S Hunan, S Jiangxi [N Vietnam].

- 1a. Pedicel 2–6 mm; flowers 6–10 cm in diam.; capsule 4–8 cm in diam., pericarp more than 5 mm thick 7a. var. *spectabilis*
- 1b. Pedicel ca. 10 mm; flowers 4–5 cm in diam.; capsule 2–3.5 cm in diam., pericarp 1–2 mm thick 7b. var. *greeniae*

7a. *Pyrenaria spectabilis* var. *spectabilis*

大果核果茶(原变种) *da guo he guo cha* (yuan bian zhong)

Camellia spectabilis Champion, *Hooker’s J. Bot. Kew Gard. Misc.* 3: 310. 1851; *Pyrenaria championii* H. Keng, nom. illeg. superfl.; *Thea spectabilis* (Champion) Kochs; *Tutcheria brachycarpa* Hung T. Chang; *T. championii* Nakai, nom. illeg. superfl.; *T. hexalocularia* Hu & S. Ye Liang ex Hung T. Chang; *T. spectabilis* (Champion) Dunn.

Flowers 6–10 cm in diam. Pedicel 2–6 mm, usually less than 1 cm. Capsule 4–8 cm in diam.; pericarp ca. 5 mm thick when dry. Fl. May–Jun, fr. Aug–Oct.

Evergreen broad-leaved forests; 300–1500 m. S Fujian, Guangdong, Guangxi [N Vietnam].

7b. *Pyrenaria spectabilis* var. *greeniae* (Chun) S. X. Yang, *Novon* 15: 381. 2005.

长柱核果茶 *chang zhu he guo cha*

Tutcheria greeniae Chun, *J. Arnold Arbor.* 9: 129. 1928; *Pyrenaria greeniae* (Chun) H. Keng; *P. rostrata* S. X. Yang & T. L. Ming; *P. turbinata* S. X. Yang; *T. austrosinica* Hung T. Chang; *T. rostrata* Hung T. Chang.

Flowers 4–5 cm in diam. Pedicel ca. 1 cm. Capsule 2–3.5 cm in diam.; pericarp 1–2 mm thick when dry. Fl. Jun, fr. Sep–Oct.

• Evergreen broad-leaved forests; 300–1200 m. S Fujian, Guangdong, Guangxi, S Hunan, S Jiangxi.

8. *Pyrenaria pingpienensis* (Hung T. Chang) S. X. Yang & T. L. Ming, *Chin. J. Appl. Environ. Biol.* 3: 283. 1997.

屏边核果茶 *ping bian he guo cha*

Tutcheria pingpienensis Hung T. Chang, *Acta Sci. Nat. Univ. Sunyatseni* 22(2): 107. 1983; *T. kweichowensis* Hung T. Chang & Y. K. Li.

Trees 10–30 m tall. Young branches brown; current year branchlets rust colored, glabrous. Petiole (0.5–)1–1.5 cm; leaf blade oblong to narrowly oblong, 8–14 × 2.5–5 cm, leathery, abaxially pale green becoming brown when dry, adaxially yellowish green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–12 on each side of midvein, secondary and reticulate veins visible on both surfaces, base cuneate, broadly cuneate, or obtuse, margin undulate serrate, apex acuminate to long acuminate. Flowers axillary, solitary, 4–5 cm in diam. Pedicel 2–3(–5) mm, sparsely pubescent; bracteoles 2, caducous, ovate to suborbicular, 4–5 mm, outside densely yellow sericeous, inside glabrous. Sepals 5, suborbicular, ca. 1 cm, outside densely yellow sericeous, inside glabrous. Petals 5, white, obovate, ca. 2.5 × 2 cm, outside yellow sericeous, basally slightly connate, apex emarginate. Stamens ca. 1.5 cm; outer filament whorl basally slightly connate and adnate to petals. Ovary globose, ca. 3 mm in diam., densely tomentose; style ca. 1.3 cm, basally tomentose, apically 3–5-parted for 4.3–6.5 mm. Capsule globose, 2–4 cm in diam., 3–5-loculed with 2–5 seeds per locule, dehiscent from base, apex convex; pericarp 2–5 mm thick when dry, woody, densely yellow sericeous. Seeds brown, ellipsoid, laterally compressed, ca. 2 × 1 cm, shiny. Fl. May–Jun, fr. Oct–Nov. $2n = 30^*$.

- Forests; 800–2300 m. Guizhou, SE Yunnan.

9. *Pyrenaria hirta* (Handel-Mazzetti) H. Keng, Gard. Bull. Singapore 26: 134. 1972.

粗毛核果茶 *cu mao he guo cha*

Shrubs or trees, 2–10 m tall. Year-old branchlets grayish white hirsute; current year branchlets pale brown densely spreading hirsute. Petiole 6–10 mm, hirsute; leaf blade oblong, 6–12 × 2.5–4.5 cm, leathery to thin leathery, abaxially yellowish green, densely hirsute especially along midvein, and becoming brown when dry, adaxially olive green to yellowish green and hirtellous along midvein, midvein abaxially elevated and adaxially impressed, secondary veins 10–15 on each side of midvein and slender, secondary and reticulate veins abaxially raised and adaxially visible, base cuneate to slightly cordate, margin sparsely serrate, apex acuminate to rarely long acuminate. Flowers axillary, solitary, ca. 4 cm in diam. Pedicel 2–4(–7) mm, hirsute; bracteoles 2, caducous, ovate to semiorbicular, 2–4 × 4–6 mm, outside densely yellow hirsute, inside glabrous, apex acute. Sepals 6–10, caducous, thickly leathery, outside densely hirsute, inside glabrous, margin membranous and ciliate, apex acute; outer sepals reniform, 4–7 × 6–9 mm; inner sepals suborbicular, 1–1.2 cm in diam. Petals 5–7, white, oblong-ovate to ovate, 1.5–2 × ca. 1 cm, outside densely yellow hirsute, apex rounded to emarginate. Stamens numerous, ca. 1 cm, glabrous; outer filament whorl basally slightly connate and adnate to petals. Ovary ovoid, ca. 3 mm, densely hirsute, 3-loculed with 2–5 ovules per locule; style 6–8 mm, hirsute, apically 3-lobed. Capsule triangular-ovoid, 2–3 × 1.5–2 cm, dehiscent from base, apical beak acute; pericarp ca. 1 mm thick, leathery to woody, densely hirsute. Seeds brown, compressed, shiny. Fl. Jun–Jul, fr. Sep–Nov. $2n = 30$.

Forests in ravines; 100–1600 m. Guangdong, Guangxi, Guizhou, W Hubei, Hunan, W Jiangxi, SE Yunnan [N Vietnam].

- 1a. Leaf blade base cuneate 9a. var. *hirta*
 1b. Leaf blade base slightly cordate 9b. var. *cordatula*

9a. *Pyrenaria hirta* var. *hirta*

粗毛核果茶(原变种) *cu mao he guo cha* (yuan bian zhong)

Gordonia hirta Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 58: 180. 1921; *Pyrenaria grandiflora* (Y. C. Wu) T. L. Ming & S. X. Yang; *Tutcheria hirta* (Handel-Mazzetti) H. L. Li; *T. hirta* var. *grandiflora* (Y. C. Wu) H. L. Li; *T. pubifolia* Merrill ex Hung T. Chang; *T. subsessiliflora* Hung T. Chang; *T. villosa* Y. C. Wu; *T. villosa* var. *grandiflora* Y. C. Wu.

Leaf blade base cuneate.

- Forests in ravines; 100–1600 m. Guangdong, Guangxi, SE Guizhou, W Hubei, Hunan, W Jiangxi, SE Yunnan.

9b. *Pyrenaria hirta* var. *cordatula* (H. L. Li) S. X. Yang & T. L. Ming, Chin. J. Appl. Environ. Biol. 3: 286. 1997.

心叶核果茶 *xin ye he guo cha*

Tutcheria hirta var. *cordatula* H. L. Li, J. Arnold Arbor. 26(1): 65. 1945; *T. vietnamensis* Hung T. Chang.

Leaf blade base rounded to slightly cordate.

Forests in ravines; 300–400 m. Guangdong, Guangxi, Guizhou, Hunan [N Vietnam].

10. *Pyrenaria microcarpa* (Dunn) H. Keng, Gard. Bull. Singapore 26: 134. 1972.

小果核果茶 *xiao guo he guo cha*

Shrubs or trees, 1–15 m tall. Young branches grayish brown; current year branchlets yellowish brown, pubescent, soon glabrescent. Petiole 4–13 mm, sparsely pubescent or glabrous; leaf blade elliptic, oblong-elliptic, oblanceolate, or obovate, (4–)8.5–13 × (1.5–)2.5–4.5 cm, leathery, abaxially sparsely appressed pubescent, adaxially glabrous, both surfaces yellow-green when dry, midvein abaxially elevated and adaxially impressed, secondary veins 8–12 on each side of midvein, secondary and reticulate veins visible on both surfaces, base cuneate, margin serrate, apex acuminate, acute, obtuse, or rounded. Flowers axillary, solitary, 2–2.5 cm in diam. Pedicel 1–2(–8) mm, pubescent; bracteoles 2, caducous, broadly ovate to lunate, ca. 2 × 3 mm, leathery, outside densely yellow sericeous, inside glabrous. Sepals 5–7, caducous, semiorbicular to reniform, unequal in size, 3–8 × 5–10 mm, leathery, outside densely yellow sericeous, inside glabrous, apex rounded. Petals 5–7, white or pale yellow, obovate, 1–1.5 × 1–1.3 cm, outside sericeous, basally slightly connate. Stamens numerous, 6–8 mm, glabrous; outer filament whorl basally adnate to petals. Ovary conic, densely sericeous; style 5–7 mm, glabrous. Capsule triangular-globose, ovoid, ellipsoid, or obovoid, 1.5–2 × 1–1.5 cm, 3-loculed with 3 seeds per locule, dehiscent from base; pericarp 1–1.5 mm thick when dry, sparsely sericeous. Seeds chestnut brown, compressed, oblong-ovate, 6–8 mm, shiny. Fl. Apr–Jul, fr. Aug–Nov. $2n = 30$.

Forests; 100–1000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Jiangxi, Taiwan, Zhejiang [Japan (Ryukyu Islands), Vietnam].

- 1a. Leaf blade elliptic, oblong-elliptic, or oblanceolate, apex acuminate to acute 10a. var. *microcarpa*
 1b. Leaf blade obovate to elliptic, apex obtuse to rounded 10b. var. *ovalifolia*

10a. *Pyrenaria microcarpa* var. *microcarpa*

小果核果茶(原变种) xiao guo he guo cha (yuan bian zhong)

Tutcheria microcarpa Dunn, J. Bot. 47: 197. 1909; *Camellia shinkoensis* (Hayata) Makino; *C. virgata* (Koidzumi) Makino & Nemoto; *Pyrenaria microcarpa* var. *shinkoensis* (Hayata) T. L. Ming & S. X. Yang; *P. microcarpa* var. *tenuifolia* (Hung T. Chang) T. L. Ming & S. X. Yang; *P. shinkoensis* (Hayata) H. Keng; *P. virgata* H. Keng; *Thea shinkoensis* Hayata; *T. virgata* Koidzumi; *Tutcheria shinkoensis* (Hayata) Nakai; *T. tenuifolia* Hung T. Chang; *T. virgata* (Koidzumi) Nakai.

Leaf blade elliptic, oblong-elliptic, or oblanceolate, apex acuminate to acute. Fl. Apr–Jul, fr. Aug–Nov.

Forests in mountain valleys or along streams; 300–1000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Jiangxi, Taiwan, Zhejiang [Japan (Ryukyu Islands), Vietnam].

10b. *Pyrenaria microcarpa* var. *ovalifolia* (H. L. Li) T. L. Ming & S. X. Yang, Chin. J. Appl. Environ. Biol. 3: 287. 1997.

卵叶核果茶 luan ye he guo cha

Tutcheria ovalifolia H. L. Li, J. Arnold Arbor. 25: 209. 1944; *Camellia buisanensis* Sasaki; *C. sinensis* (Linnaeus) Kuntze subsp. *buisanensis* (Sasaki) S. Y. Lu & Y. P. Yang; *Camelliastrum buisanense* (Sasaki) Nakai; *Pyrenaria buisanensis* (Sasaki) C. F. Hsieh et al.; *P. ovalifolia* (H. L. Li) H. Keng; *P. symplocifolia* (Merrill & F. P. Metcalf) H. Keng; *Thea buisanensis* (Sasaki) F. P. Metcalf; *Tutcheria symplocifolia* Merrill & F. P. Metcalf; *T. taiwanica* Hung T. Chang & S. X. Ren.

Leaf blade obovate to elliptic, apex obtuse to rounded. Fr. Oct–Nov.

• Forests; below 100–1000 m. Fujian, Guangdong, Hainan, N Taiwan.

11. *Pyrenaria maculatoclada* (Y. K. Li) S. X. Yang, Novon 15: 380. 2005.

斑支核果茶 ban zhi he guo cha

Tutcheria maculatoclada Y. K. Li, Guihaia 4: 35. 1984.

Trees 4–6 m tall. Current year branchlets grayish white and dark purplish brown maculate, glabrous. Petiole 1–1.8 cm, glabrous; leaf blade oblong-lanceolate to lanceolate, 11–14 × 3–4 cm, leathery, abaxially yellowish green, adaxially yellowish brown when dry, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8 or 9 on each side of midvein and slightly raised on both surfaces, base cuneate, margin sparsely serrate, apex acuminate. Flowers unknown. Capsule elliptic-globose, 3–4 × 2–3 cm, 3-loculed with 2 seeds per locule, dehiscent from base, longitudinally 3-ribbed, apex abruptly pointed; pericarp ca. 1 mm thick, fleshy becoming subleathery when dry, pubescent; pedicel 2–4 mm. Seeds

chestnut brown, 1.5–2.5 × ca. 1 cm, shiny. Fl. May, fr. Sep–Oct.

• Forests; 700–1000 m. N Guangxi, S Guizhou.

12. *Pyrenaria kwangsiensis* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(3): 63. 1983.

广西核果茶 guang xi he guo cha

Tutcheria kwangsiensis (Hung T. Chang) Hung T. Chang & C. X. Ye.

Trees 9–15(–20) m tall. Current year branchlets glabrous. Petiole 1–1.5(–2) cm, glabrous; leaf blade oblong to oblong-obovate, 10–17 × 3–5(–6) cm, leathery, glabrous, secondary veins 9–13 on each side of midvein and evident on both surfaces, base cuneate, margin serrulate, apex acuminate. Flowers axillary, solitary, 5–6 cm in diam. Pedicel 3–6 mm, thick, pubescent; bracteoles 2, broadly ovate to semiorbicular, 2–6 × 5–8 mm, leathery, outside densely brown sericeous. Sepals 5, unequal in size, reniform to orbicular, outside densely brown sericeous, inside glabrous; outer 2 sepals 5–8 × 8–12 mm; inner 3 sepals 1–1.3 × 1.5–2 cm. Petals 5, white, obovate, 2–2.5 × ca. 2 cm, outside sericeous. Stamens numerous; filaments glabrous; outer filament whorl basally slightly connate and adnate to petals. Ovary ovoid, densely sericeous, (4 or)5-loculed; style 5–7 mm, apex (4 or)5-lobed. Fruit drupaceous, globose to obovate, longitudinally 5-grooved, 2 seeds per locule, indehiscent; when fresh green, 4–8 cm in diam., pericarp ca. 1 cm thick and fleshy; when dry brown, 3–4 cm in diam., pericarp 2–4 mm thick and slightly woody to spongy. Seeds reniform, 1–2 cm, shiny. Fl. Jun–Jul, fr. Oct–Nov.

• Dense forests; 800–1400 m. NE Guangxi.

13. *Pyrenaria jonquieriana* Pierre ex Lanessan subsp. *multisepala* (Merrill & Chun) S. X. Yang, Novon 15: 380. 2005.

多萼核果茶 duo e he guo cha

Tutcheria multisepala Merrill & Chun, Sunyatsenia 2: 41. 1934; *Parapyrenaria hainanensis* Hung T. Chang; *P. multisepala* (Merrill & Chun) Hung T. Chang; *Pyrenaria multisepala* (Merrill & Chun) H. Keng.

Trees 7–12 m tall. Petiole 6–8 mm; leaf blade oblong to oblanceolate, 9–14 × 2.5–4.5 cm, leathery, abaxially silvery gray sericeous when young but glabrescent, adaxially yellowish green when dry, shiny, and glabrous, secondary veins 9–11 on each side of midvein, abaxially raised, and adaxially visible, base cuneate, margin undulate-serrate, apex acute and with an obtuse tip. Flowers axillary, solitary, 3.5–4.5 cm in diam., sessile. Bracteole 2, reniform, ca. 2 × 3.5 mm, outside appressed pubescent, inside glabrous. Sepals 8–10, outside sericeous; outer sepals reniform, 5–7 × 6–8 mm; inner sepals broadly ovate, 0.8–1 × 1–1.2 cm. Petals 8–10, yellow, broadly ovate to obovate, 1.2–2 cm, apex emarginate. Stamens numerous, ca. 1 cm. Ovary tomentose, 3-loculed; style 0.9–1.2 cm, sericeous, apically 3-lobed. Fruit drupaceous, ovoid, 3–3.5 × 2–2.5 cm, 3-loculed with 1–3 seeds per locule, indehiscent; pericarp 5–6 mm thick, sericeous. Seeds compressed, oblong, shiny. Fl. May–Jun, fr. Oct–Dec. $2n = 30^*$.

• Forests; 800–1000 m. Hainan.

Pyrenaria jonquieriana subsp. *jonquieriana* occurs in Laos.

3. POLYSPORA Sweet, News Lit. Fashion 2: 205. 1825.

大头茶属 da tou cha shu

Shrubs or trees, evergreen. Leaves alternate but often clustered apically on branchlets, petiolate; leaf blade leathery, pinnately veined, margin entire or serrate. Flowers axillary, solitary or in a short raceme. Pedicel short; bracteoles 2–7, caducous. Sepals 5, caducous after anthesis. Petals 5 (or 6), basally ± connate. Stamens numerous; outer filament whorl adnate to petals; anthers dorsifixed. Ovary placentation axile. Capsule oblong-cylindric or cylindric, 5 (or 6–8)-loculed, loculicidal; columella persistent to apex of locules. Seeds flat, apically with an oblong membranous wing; endosperm thin.

About 40 species: E and SE Asia; six species (two endemic) in China.

Molecular evidence has shown that *Polyspora* is not closely related to *Gordonia* J. Ellis, which is now considered to be strictly a New World genus (Prance & Park, Amer. J. Bot. 88: 2309–2320. 2001; Yang et al., Pl. Syst. Evol. 248: 45–55. 2004).

- 1a. Capsule 6–8-loculed 5. *P. tiantangensis*
 1b. Capsule 5-loculed.
 2a. Leaf blade apex rounded, obtuse, or emarginate.
 3a. Petiole 10–15 mm, glabrous; leaf blade margin entire or apically remotely crenate 1. *P. axillaris*
 3b. Petiole 3–5 mm, appressed pubescent; leaf blade margin serrate 2. *P. chrysandra*
 2b. Leaf blade apex bluntly acute, acuminate, or shortly acuminate.
 4a. Current year branchlets, petioles, abaxial surface of leaf blades, and basal part of filaments with pubescence; capsule 4–5 cm 4. *P. longicarpa*
 4b. Current year branchlets, petioles, abaxial surface of leaf blades, and basal part of filaments glabrous; capsule 1–3.5 cm.
 5a. Young branches slender; leaf blade narrowly oblong to oblanceolate, 8–13 × 2–3 cm; flowers ca. 4 cm in diam. 3. *P. hainanensis*
 5b. Young branches stout; leaf blade elliptic to oblong-elliptic, (9–)10–18 × 3–6(–7) cm; flowers 5 cm or more in diam. 6. *P. speciosa*

1. *Polyspora axillaris* (Roxburgh ex Ker Gawler) Sweet, News Lit. Fashion 2: 205. 1825.

大头茶 da tou cha

Camellia axillaris Roxburgh ex Ker Gawler, Bot. Reg. 4: t. 349. 1818; *Castanopsis camelliifolia* H. Léveillé; *Gordonia anomala* Sprengel; *G. axillaris* (Roxburgh ex Ker Gawler) D. Dietrich; *G. axillaris* var. *nantoensis* H. Keng; *G. shimadae* Ohwi; *G. tagawae* Ohwi; *G. tonkinensis* Pitard; *Polyspora axillaris* var. *nantoensis* (H. Keng) S. S. Ying; *P. shimadae* (Ohwi) Ohwi; *P. tagawae* (Ohwi) S. S. Ying; *P. tonkinensis* (Pitard) B. M. Bartholomew & T. L. Ming.

Shrubs or trees, to 9 m tall. Current year branchlets stout, glabrous; terminal buds pubescent. Petiole 1–1.5 cm, glabrous; leaf blade obovate-oblong to oblanceolate, 6–14 × 2.5–4 cm, thickly leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially slightly impressed, secondary veins obscure on both surfaces, base cuneate and decurrent, margin entire or apically remotely crenate, apex rounded to obtuse and usually retuse. Flowers axillary, solitary or paired, 7–10 cm in diam. Pedicel 2–3 mm, glabrous; bracteoles 6 or 7, caducous. Sepals 5, persistent in young fruit, ovate, 1–1.5 cm, outside white villous, inside glabrous. Petals 5, white, broadly obovate, 3.5–5 cm, apex emarginate. Stamens 1.5–2 cm, glabrous, basally adnate with petals. Ovary tomentose, 5-loculed; style ca. 2 cm, densely velutinous. Capsule cylindric, 2–3.5(–4) × 1.5–2.5 cm. Seeds together with wing 1.5–2 cm. Fl. Sep–Oct, fr. Nov–Dec. $2n = 30$.

Forests, thickets; 100–800(–2300) m. Guangdong, Guangxi, Hainan, Taiwan [Vietnam].

2. *Polyspora chrysandra* (Cowan) Hu ex B. M. Bartholomew & T. L. Ming, Novon 15: 264. 2005.

黄药大头茶 huang yao da tou cha

Gordonia chrysandra Cowan, Notes Roy. Bot. Gard. Edinburgh 16: 184. 1931.

Shrubs or small trees, 3–6 m tall. Young branches grayish brown; current year branchlets slender, appressed pubescent; terminal buds small, yellow sericeous. Petiole 3–5 mm, appressed pubescent; leaf blade obovate-elliptic to long obovate, 6–11 × 2.5–4.5 cm, thinly leathery, adaxially dark green and shiny, abaxially pale green and glabrous or basally sparsely pubescent, midvein abaxially elevated and adaxially impressed, secondary veins obscure on both surfaces, base cuneate and decurrent, margin serrate, apex obtuse and emarginate. Flowers axillary, solitary or 3–5 in a short raceme, 4–5 cm in diam. Pedicel 2–3 mm; bracteoles 6 or 7, caducous. Sepals 5, suborbicular, ca. 1 cm in diam., leathery, outside basally white farinose-sericeous but apically purplish brown and glabrous, inside glabrous, margin membranous. Petals 5, white, suborbicular, ca. 3 cm in diam., basally connate for ca. 3 mm, apex emarginate. Stamens ca. 1.5 cm; filaments glabrous, basally adnate to petals. Ovary ovoid, white tomentose, 5-loculed; style ca. 1.2 cm, basally white tomentose. Capsule oblong-cylindric, 3–3.5 × ca. 1.5 cm, apex acute; pericarp woody; pedicel to 1 cm. Seeds together with wing ca. 2 × 0.5 mm. Fl. Nov–Dec, fr. Aug–Sep.

Forests or thickets; 1100–2400 m. N Guizhou, SE Sichuan, Yunnan [N Myanmar].

3. *Polyspora hainanensis* (Hung T. Chang) C. X. Ye ex B. M. Bartholomew & T. L. Ming, Novon 15: 264. 2005.

海南大头茶 hai nan da tou cha

Gordonia hainanensis Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(2): 111. 1983.

Trees to 12 m tall. Current year branchlets slender, glabrous. Petiole 5–10 mm, glabrous; leaf blade narrowly oblong to oblanceolate, 8–13 × 2–3 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, secondary veins obscure on both surfaces, base cuneate and decurrent, margin undulate-serrate, apex bluntly acute. Flowers solitary, ca. 4 cm in diam. Pedicel ca. 5 mm, pubescent; bracteoles 3, caducous. Sepals 5, orbicular to broadly ovate, 6–7 mm, outside velutinous. Petals 5, white, 2–2.5 cm, basally connate for ca. 3 mm. Stamens 8–10; filaments distinct, glabrous. Ovary tomentose, 5-loculed; style 8–10 mm, velutinous; stigma 5, slightly furcate. Capsule oblong-cylindric, 1.5–2.5 × 0.9–1.4 cm; columella 1.5–1.8 cm. Seeds together with wing ca. 1 cm, wing ca. 7 mm. Fl. Nov–Dec, fr. Oct.

- Forests; 300–1500 m. Hainan.

4. *Polyspora longicarpa* (Hung T. Chang) C. X. Ye ex B. M. Bartholomew & T. L. Ming, Novon 15: 265. 2005.

长果大头茶 chang guo da tou cha

Gordonia longicarpa Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(2): 111. 1983.

Trees 8–15(–25) m tall. Current year branchlets stout, pubescent; terminal buds large, densely white sericeous. Petiole ca. 1 cm, pubescent or glabrescent; leaf blade oblong-elliptic to oblong, 10–15(–21) × 3–5.5(–7) cm, leathery, abaxially pale green, sparsely appressed pubescent or glabrescent, and becoming pale brown when dry, adaxially dark green, shiny, and glabrous, secondary veins obscure, base cuneate, margin basally entire and apically serrate, apex bluntly acute to shortly acuminate. Flowers solitary, 8–12 cm in diam. Pedicel 6–8 mm, stout, grayish yellow velutinous; bracteoles 5, caducous. Sepals broadly ovate, 1.5–2 cm, outside densely yellow velutinous, inside puberulent to subglabrous. Petals 5, white, broadly ovate, 5–6.5 cm, basally connate for 3–5 mm, apex emarginate. Stamens 2–2.5 cm; filaments basally pubescent and adnate to petals. Ovary ovoid, ca. 4 mm, white tomentose; style ca. 2 cm, white velutinous; stigma 5, capitate. Capsule oblong-cylindric, 4–5 × 1.8–2.5 cm, with ca. 5 seeds per locule. Seeds together with wing ca. 2 × 0.6 cm. Fl. Oct–Nov, fr. Sep–Oct.

Forests; (1000–)1700–2500 m. SE and SW Yunnan [N Myanmar, NE Thailand, N Vietnam].

5. *Polyspora tiantangensis* (L. L. Deng & G. S. Fan) S. X. Yang, J. Trop. Subtrop. Bot. 13: 365. 2005.

天棠大头茶 tian tang da tou cha

Gordonia tiantangensis L. L. Deng & G. S. Fan, J. Trop. Subtrop. Bot. 7: 193. 1999.

Trees 12–15 m tall. Current year branchlets tomentose; terminal buds sericeous pubescent. Petiole 1–1.5 cm, stout, pubescent or glabrescent; leaf blade oblong-elliptic, 10–14 × 3.5–4 cm, thickly leathery, abaxially pale green, adaxially dark

green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins obscure on both surfaces, base cuneate, margin entire but apically remotely crenate, apex usually retuse. Flowers not seen. Capsule obovate-cylindric, ca. 4.5 × 2–2.8 cm, 6–8-sided, 6–8-loculed, with 6–9 seeds per locule; columella 3–3.8 cm; pedicel 5–8 mm in fruit. Seeds 2–2.5 cm including wing. Fr. Sep.

- Evergreen broad-leaved forests; 1800–2200 m. Yunnan (Changning).

This species is very close to *Polyspora longicarpa*. Whether or not plants with an ovary and capsule having more than 5 locules should be maintained as a distinct species needs additional study.

6. *Polyspora speciosa* (Kochs) B. M. Bartholomew & T. L. Ming, Novon 15: 265. 2005.

四川大头茶 si chuan da tou cha

Thea speciosa Kochs, Bot. Jahrb. Syst. 27: 597. 1900; *Camellia speciosa* (Kochs) Cohen-Stuart; *Gordonia acuminata* Hung T. Chang (1983), not Zollinger (1854), nor S. Vidal (1886); *G. axillaris* (Roxburgh ex Ker Gawler) D. Dietrich var. *acuminata* E. Pritzel; *G. kwangsiensis* Hung T. Chang; *Polyspora acuminata* S. X. Yang; *P. kwangsiensis* (Hung T. Chang) C. X. Ye ex S. X. Yang.

Trees 5–15 m tall. Current year branchlets stout, glabrous or subglabrous; terminal buds purplish red, 1–1.5 cm, glabrous or white sericeous. Petiole purplish, (0.8–)1.5–2 cm, glabrous; leaf blade elliptic to oblong-elliptic, (9–)10–18(–22) × 3–6(–7) cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins obscure or slightly visible on both surfaces, base cuneate and decurrent, margin apically serrate to sometimes crenate-serrate, apex acuminate to sometimes bluntly acute. Flowers axillary and solitary, (5–)8–10 cm in diam. Pedicel ca. 3 mm, gray velutinous; bracteoles 5, caducous. Sepals 5, broadly ovate to suborbicular, 8–10 mm in diam., outside purplish brown but basally yellowish velutinous. Petals 5, white, broadly obovate, 3–5 cm, basally connate for ca. 3 mm, apex emarginate. Stamens 2–2.5 cm; filaments glabrous, basally adnate to petals. Ovary ovoid, white tomentose, 5-loculed; style 1.5–2 cm, white velutinous; stigma 5, slightly furcate. Capsule oblong-cylindric, (2.5–)3–3.5 × 1–1.5 cm, with ca. 5 seeds per locule; pedicel to 1 cm in fruit. Seeds together with wing 2–2.5 × ca. 0.5 cm. Fl. Aug–Nov, fr. Sep–Dec.

Forests, thickets; 1200–2100 m. Chongqing, Guangxi, Guizhou, Hunan (Jianghua), S and SW Sichuan, NE, SE, and SW Yunnan [Vietnam].

This species was described from collections in Chongqing Municipality where the plants have larger, more deeply serrate leaf blades. Plants from farther south, particularly in SE Yunnan and S Guangxi, have smaller leaf blades that are more shallowly serrate as well as smaller flowers, and the name *Polyspora tonkinensis* (Pitard) B. M. Bartholomew & T. L. Ming (*Gordonia tonkinensis* Pitard) has been misapplied to them (Ming, Fl. Yunnan. 8: 316. 1997; Bartholomew & Ming, Novon 15: 266. 2005; Yang, J. Trop. Subtrop. Bot. 14: 365. 2005).

4. APTEROSPERMA Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 15(2): 90. 1976.

圆籽荷属 yuan zi he shu

Shrubs or small trees, evergreen. Leaves petiolate; leaf blade margin serrate. Flowers bisexual, small, pedicellate. Bracteoles 2, caducous. Sepals 5, imbricate, persistent. Petals 5, imbricate, pale yellow. Stamens numerous; filaments compressed, distinct; anthers basifixed, 2-loculed, longitudinally dehiscent. Ovary superior, 5-loculed with 3 or 4 ovules per locule, placentation axile; ovules inserted at middle of axis; style very short; stigma 5-lobed. Capsule oblate-globose, 2 or 3 seeds per locule, loculicidal; columella persistent and extending to apex of locules. Seeds reniform, wingless or very narrowly winged; hilum short; endosperm absent.

- One species: China.

1. *Apterosperma oblata* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 15(2): 91. 1976.

圆籽荷 yuan zi he

Shrubs or trees, 3–10 m tall. Young branches brown, glabrous; current year branchlets pubescent. Leaves congregated at branchlet apices; petiole 3.3–6 mm, pubescent; leaf blade oblong-elliptic to oblong, 5–10 × 1.5–3 cm, leathery, abaxially pale green and pubescent when young but glabrescent, adaxially dark green and glabrous, secondary veins 7–9 on each side of midvein and raised on both surfaces, base narrowly cuneate to attenuate, margin basal 1/3 entire and apical 2/3 crenately serrulate, apex acuminate. Flowers alternate, solitary, ca. 1.5 cm

in diam. Pedicel 4–5 mm, pubescent; bracteoles close to sepals, caducous, small. Sepals 5, persistent, ovate-orbicular, ca. 4 mm, outside puberulent, apex rounded. Petals 5, pale yellow, broadly obovate, ca. 7 × 6 mm, outside farinose-puberulent, basally slightly connate. Stamens 22–24, in 2 whorls, outer whorl slightly longer, 4–5 mm, glabrous; anthers ellipsoid. Ovary conic, basally pubescent, 5-loculed; style short, apically 5-lobed. Capsule oblate, 5–6 × 8–10 mm; pericarp splitting into 5 valves; columella persistent, ca. 5 mm. Seeds brown, reniform, ca. 4 × 1.5 mm, wingless or with a very narrow apical wing. Fl. May–Jun, fr. Sep. $2n = 30^*$.

- Forests; 800–1300 m. Guangdong (Yangchun), Guangxi (Guiping, Pingnan).

5. *SCHIMA* Reinwardt ex Blume, Catalogus, 80. 1823.

木荷属 mu he shu

Trees, evergreen. Branchlets with white lenticels; terminal buds sericeous. Leaves petiolate; leaf blade margin entire or serrate. Flowers bisexual, axillary, solitary or rarely 3–5 in a short raceme. Pedicel ± slender, apically thickened and recurved; bracteoles usually 2(or more), apically on pedicel, caducous. Sepals 5, imbricate, persistent, basally slightly connate. Petals 5, white, basally connate and adnate with distinct filaments. Stamens numerous; anther dorsifixed. Ovary densely tomentose, 5-loculed with 2 or 3 ovules per locule, placentation axile; style stout, glabrous; stigma capitate, 5-lobed. Capsule globose or depressed globose; pericarp woody, splitting for 1/2 length into 5 valves; columella persistent, stout, extending for 2/3 or more of locule length. Seeds small, reniform, flat, with a marginal membranous wing; endosperm thin; cotyledons leaflike.

About 20 species: Bhutan, Cambodia, China, NE India, Indonesia, Japan (Ryukyu Islands), Laos, Malaysia, Myanmar, Nepal, Thailand, Vietnam; 13 species (six endemic) in China.

1a. Leaf blade margin entire.

2a. Bracteoles 4 or 5, 1.2–1.6 cm 5. *S. multibracteata*

2b. Bracteoles 2, 0.5–0.8 cm.

3a. Pedicel 3–6 cm.

4a. Current year branchlets velutinous; leaf blade abaxially glaucous and appressed pubescent along midvein; petioles and pedicels velutinous; sepals 10–12 mm, outside velutinous 1. *S. villosa*

4b. Current year branchlets sparsely pubescent; leaf blade abaxially glabrous and not glaucous; petioles and pedicels glabrous; sepals ca. 5 mm in diam., outside glabrescent 2. *S. noronhae*

3b. Pedicel 1–2.5 cm.

5a. Sepals 4.5–5.5 × 5–6 mm; stamens ca. 1.5 cm; style ca. 1.5 cm 3. *S. brevipedicellata*

5b. Sepals 1.5–3 × 2–3.5 mm; stamens 0.8–1 cm; style ca. 0.7 cm.

6a. Current year branchlets and pedicels appressed silvery pubescent; leaf blade thinly oblong to lanceolate, abaxially glaucous, apex acuminate to long acuminate; sepals orbicular, 2–3 × 2–3 mm, outside glabrous except basally sericeous 4. *S. argentea*

6b. Current year branchlets yellowish pubescent and pedicels gray pubescent; leaf blade elliptic to broadly elliptic, abaxially pale green, apex bluntly acute; sepals lunate to semiorbicular, 1.5–2 × 3–3.5 mm, outside basally puberulent 6. *S. wallichii*

1b. Leaf blade margin variously crenulate, crenate, or serrate at least for part of length.

7a. Leaf blade margin entire on ± basal 1/2 and variously crenate, crenulate, or serrate only on ± apical 1/2.

8a. Leaf blade 7–12 cm, secondary veins 6 or 7 on each side of midvein, margin apically undulate crenate 8. *S. crenata*

8b. Leaf blade 12–16 cm, secondary veins 9–12 on each side of midvein, margin apically sparsely serrate or sparsely obtusely serrate.

9a. Leaf blade thickly leathery, abaxially glabrous; petiole 2–4 cm; sepals ca. 6 mm 9. *S. remotiserrata*

9b. Leaf blade thinly leathery, abaxially sparsely prostrate pilose; petiole 1–1.5 cm; sepals 3.5–4 mm 12. *S. sericans*

7b. Leaf margin variously crenate, crenulate, or serrate ± for entire length.

10a. Leaf blade secondary veins 7–9 on each side of midvein; flowers 4–8 in a raceme.

11a. Leaf blade undulately crenate; sepals outside glabrous 10. *S. superba*

11b. Leaf blade margin crenulate; sepals outside pubescent 13. *S. parviflora*

10b. Leaf blade secondary veins 10–14 on each side of midvein; flowers solitary.

12a. Terminal bud yellow sericeous; sepals outside glabrous 7. *S. sinensis*

12b. Terminal bud white sericeous; sepals outside gray velutinous 11. *S. khasiana*

1. *Schima villosa* Hu, Bull. Fan Mem. Inst. Biol., Bot. 8: 141. 1938.

毛木荷 mao mu he

Schima macrosepala Hung T. Chang.

Trees (7–)15–25 m tall. Young branches stout, with white lenticels; current year branchlets gray velutinous; terminal buds ovate, densely gray sericeous. Petiole 1.5–2.5 cm, gray velutinous; leaf blade oblong-elliptic to elliptic, (10–)16–26 × 4.5–8.5 cm, leathery, abaxially glaucous and appressed pubescent along midvein, adaxially dark green, glabrous, and becoming yellowish brown when dry, midvein abaxially raised, secondary veins 12–15 on each side of midvein, abaxially raised, and adaxially visible or slightly impressed, base cuneate to broadly cuneate, margin entire, apex bluntly acute to acuminate. Flowers solitary, ca. 3 cm in diam. Pedicel ca. 3 cm, stout, gray velutinous, with white lenticels; bracteoles 2, caducous, ovate, ca. 7 mm, gray sericeous. Sepals broadly ovate to suborbicular, (0.7–)1–1.2 cm, leathery, outside yellow velutinous, inside sericeous. Petals white, suborbicular, ca. 2.5 cm, outside basally sericeous. Stamens numerous, 8–10 mm; filaments basally adnate with petals. Ovary yellowish tomentose; style ca. 8 mm, glabrous; stigma 5, capitate. Capsule depressed globose, 1.5–2 × 2–2.5 cm; pericarp woody, splitting into 5 valves. Seeds together with wing ca. 10 × 6 mm. Fl. Jul, fr. Nov.

• Forests; 1300–1600 m. Yunnan (Hekou, Jinping, Pingbian).

2. *Schima noronhae* Reinwardt ex Blume, Catalogus, 80. 1823.

南洋木荷 nan yang mu he

Gordonia javanica Rollison ex Hooker.

Trees to 20 m tall. Current year branchlets sparsely pubescent to subglabrous; terminal buds white sericeous. Petiole 1–1.5 cm, glabrous; leaf blade oblong, 10–15 × 3–5 cm, leathery, abaxially pale green becoming brown when dry, adaxially green, both surfaces glabrous, secondary veins 10–12 on each side of midvein and raised on both surfaces, base cuneate to broadly cuneate, margin entire, apex acuminate. Flowers in a corymbose raceme or sometimes solitary. Pedicel 3–6 cm, ± slender, recurved, glabrous; bracteoles 2, inserted at middle part of pedicel, caducous. Sepals persistent, suborbicular, ca. 5 mm in diam., outside glabrescent, margin ciliolate. Petals pale pink, broadly obovate, ca. 1.5 cm, outside basally yellowish velutinous, apex rounded. Stamens ca. 8 mm; filaments basally adnate with petals. Ovary tomentose; style ca. 8 mm, glabrous; stigma 5, capitate. Capsule globose, 2–2.5 cm in diam.; pericarp woody, splitting into 5 valves. Seeds together with wing ca. 12 × 9 mm. Fl. Jul, fr. Oct–Nov.

Forests; 2000–2500 m. S Yunnan [Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam].

3. *Schima brevipedicellata* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(3): 58. 1983.

短梗木荷 duan geng mu he

Schima polyneura Hung T. Chang.

Trees 7–25 m tall. Young branches purplish brown with white lenticels; current year branchlets gray pubescent, soon glabrescent; terminal buds gray sericeous. Petiole 1.5–2.5 cm, stout, erect, sparsely pubescent, white lenticellate, apically thickened; bracteoles 2, caducous, elliptic, 6–7.5 × 4–5.5 mm, pubescent. Sepals persistent, suborbicular, 4.5–5.5 × 5–6 mm, both surfaces yellowish velutinous. Petals white, obovate, 2–2.5 × ca. 1.5 cm, basally puberulent. Stamens ca. 1.5 cm, glabrous, basally adnate with petals. Ovary tomentose, 5-loculed; style ca. 1.5 cm, glabrous; stigma 5, capitate. Capsule compressed globose, 1.5–2 cm in diam.; pericarp woody, splitting into 5 valves. Seeds together with wing ca. 9 × 6 mm. Fl. Jul, fr. Oct–Nov.

Evergreen broad-leaved forests; 500–1900 m. NW Guangdong, N Guangxi, Guizhou, Hunan, S Jiangxi, SE Sichuan, SE Yunnan [N Vietnam].

4. *Schima argentea* E. Pritzl, Bot. Jahrb. Syst. 29: 473. 1900.

银木荷 yin mu he

Schima bambusifolia Hu; *S. mairei* Hochreutiner.

Trees 6–15 m tall. Young branches brown, glabrous, with white lenticels; current year branchlets silvery appressed sericeous; terminal buds silvery sericeous. Petiole 1–1.5 cm, sparsely pubescent or glabrescent; leaf blade thinly oblong to lanceolate, (6.5–)8–14 × 2–5 cm, leathery, abaxially glaucous and sparsely pubescent or glabrescent, adaxially green and shiny and glabrous, secondary veins ca. 10 on each side of midvein, slender, and visible to slightly raised on both surfaces, base cuneate, margin entire, apex acuminate to long acuminate. Flowers solitary or 3–8 arranged in a corymbose raceme. Pedicel 1–2(–3.5) cm, slender, recurved, appressed silvery sericeous; bracteoles 2, caducous, ovate, 5–7 mm. Sepals orbicular, 2–3 × 2–3 mm, outside brown and glabrous except basally sericeous, inside white sericeous, margin ciliolate. Petals white, broadly obovate, 1.5–1.8 × 1–1.5 cm, outside basally white sericeous, apex rounded. Stamens 8–10 mm; filaments basally adnate with petals. Ovary white tomentose but apically glabrous; style ca. 7

mm, glabrous; stigma 5, capitate. Capsule globose, 1–1.5 cm in diam.; pericarp woody, splitting into 5 valves, white lenticellate. Seeds together with wing 6–9 × 4–4.5 mm. Fl. Jul–Sep, fr. Dec.

Forests; 1600–2800(–3200) m. S Guangxi, Jiangxi, SW Sichuan, Yunnan [Myanmar, Vietnam].

5. *Schima multibracteata* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(3): 59. 1983.

多苞木荷 duo bao mu he

Trees. Young branches grayish white; current year branchlets stout, glabrous. Petiole 1.5–2 cm, glabrous; leaf blade obovate, 11–16 × 4.5–7 cm, thinly leathery, abaxially glaucescent, adaxially pale green and shiny when dry, both surfaces glabrous, secondary veins 12–16 on each side of midvein and visible on both surfaces, base cuneate and decurrent, margin entire, apex bluntly acute. Flowers axillary, 4–7 in a cluster. Pedicel ca. 1.5 cm, glabrous; bracteoles 4 or 5, 2 at 4–6 mm from sepals, 2 or 3 near sepals, lanceolate, 1.2–1.6 cm, outside puberulent. Sepals 5, imbricate, suborbicular, ca. 6 mm, outside silvery sericeous. Petals 5, white, broadly ovate, basally slightly connate. Stamens numerous, ca. 1/2 as long as petals; filaments distinct, basally adnate with petals. Ovary tomentose, 5-loculed. Capsule and seeds not seen. Fl. Aug–Sep.

- Forests; ca. 1400 m. E and S Guangxi.

This species is closely related to *Schima argentea*.

6. *Schima wallichii* (Candolle) Korthals, Verh. Nat. Gesch. Ned. Bezitt. Bot. 143. 1842.

红木荷 hong mu he

Gordonia wallichii Candolle, Prodr. 1: 528. 1824; *G. chilaunia* Buchanan-Hamilton ex D. Don; *Schima brevipes* Craib.

Trees 10–15(–20) m tall. Young branches grayish brown, glabrous, densely white lenticellate; current year branchlets yellowish pubescent, longitudinally ribbed; terminal buds white velutinous. Petiole 1–2 cm, yellowish villous; leaf blade elliptic to broadly elliptic, 8–17.5 × 4–7.5 cm, leathery, abaxially pale green becoming brown when dry, sparsely prostrate pubescent, and spreading villous along midvein, adaxially dark green and glabrous, midvein abaxially raised and adaxially impressed, secondary veins 8–12 on each side of midvein, secondary and reticulate veins raised on both surfaces, base broadly cuneate, margin entire, apex bluntly acute. Flowers axillary, solitary or to 3 in a cluster, white, fragrant, 3–4 cm in diam. Pedicel 1–1.5 cm, gray pubescent, white lenticellate; bracteoles 2, caducous. Sepals lunate to semiorbicular, 1.5–2 × 3–3.5 mm, outside basally glabrous or puberulent, margin ciliolate. Petals white, broadly obovate, 1.5–2 × ca. 1.5 cm, outside basally puberulent, apex rounded. Stamens 8–10 mm; filaments basally adnate with petals. Ovary globose, yellowish tomentose but apically glabrous; style ca. 7 mm, glabrous; stigma 5, capitate. Capsule brown, subglobose, 1.5–2 cm in diam., 5-loculed with 2 seeds per locule; pericarp woody, splitting into 5 valves, white lenticellate. Seeds reniform, together with wing 8–10 × 5–10 mm. Fl. Apr–May, fr. Nov–Dec. $2n = 36$.

Forests; (300–)800–1800(–2700) m. S Guangxi, S Guizhou, SE Xizang, S Yunnan [Bhutan, N India, Laos, Myanmar, Nepal, Thailand, Vietnam].

7. *Schima sinensis* (Hemsley & E. H. Wilson) Airy Shaw, Bull. Misc. Inform. Kew 1936: 496. 1936.

华木荷 hua mu he

Gordonia sinensis Hemsley & E. H. Wilson, Bull. Misc. Inform. Kew 1906: 153. 1906; *Schima grandiperulata* Hung T. Chang.

Trees 8–18(–25) m tall. Young branches brown, white lenticellate; current year branchlets purplish red, glabrous; terminal buds yellow sericeous. Petiole purplish red, 1–1.5 cm, glabrous; leaf blade oblong-elliptic to oblong, 9–16 × 3.5–5.5 cm, leathery, abaxially pale green becoming brown when dry, adaxially dark green and shiny, both surfaces glabrous, secondary veins 12–14 on each side of midvein, slender, and raised on both surfaces, base broadly cuneate, margin sparsely obtusely serrate, apex acuminate. Flowers solitary, 4–5 cm in diam. Pedicel (2.5–)4–6.5 cm, erect, glabrous; bracteoles 2, caducous, broadly obovate, 1–1.5 cm, glabrous. Sepals suborbicular, 5–6.5 mm in diam., outside glabrous, inside white sericeous, margin ciliolate. Petals white, broadly obovate, 2.5–3 × 1.5–2.2 cm, outside basally white puberulent, apex rounded. Stamens 1–1.5 cm; filaments basally adnate with petals. Ovary globose, tomentose but apically glabrous, 5-loculed; style 0.8–1.2 cm, glabrous; stigma 5, capitate. Capsule subglobose, ca. 2 cm in diam., 5-loculed with 2 seeds per locule; pericarp woody, splitting into 5 valves. Seeds together with wing 10–12 × ca. 7 mm. Fl. Jul–Aug, fr. Oct–Nov.

- Forests; 1400–2200 m. N Guangxi, Guizhou, W Hubei, W Hunan, Sichuan, NE Yunnan.

8. *Schima crenata* Korthals, Verh. Nat. Gesch. Ned. Bezitt. Bot. 143. 1842.

钝齿木荷 dun chi mu he

Trees to 20 m tall. Bark thick. Current year branchlets puberulent when young, soon glabrescent, white lenticellate. Petiole 1.5–2.5 cm, glabrous; leaf blade oblong, 7–12 × 3–4.4 cm, leathery, abaxially yellowish green when dry, adaxially green, both surfaces glabrous, secondary veins 6 or 7 on each side of midvein, secondary and reticulate veins visible on both surfaces, base cuneate and decurrent, margin basally entire and undulate crenate on ± apical 1/2, apex acuminate. Flowers solitary or several on a short raceme, ca. 3 cm in diam. Pedicel 4–5 cm, puberulent; bracteoles 2, close to calyx, caducous. Sepals persistent, semiorbicular, ca. 4 × 5 mm, outside glabrous or puberulent, inside sericeous, margin ciliolate. Petals white, broadly obovate, ca. 1.5 × 1 cm, outside basally puberulent, apex rounded. Stamens 5–8 mm; filaments distinct. Ovary tomentose, 5-loculed; style 6–7 mm; stigma 5, capitate. Capsule subglobose, 1.6–2 cm in diam., 5-loculed with 2 or 3 seeds per locule; pericarp woody, splitting into 5 valves. Seeds together with wing 6–8 × 4–5 mm. Fl. Dec–Feb, fr. Jul–Oct.

Evergreen broad-leaved forests; 700–1000 m. Hainan [Cambodia, Indonesia, Laos, Malaysia, Thailand, Vietnam].

9. *Schima remotiserrata* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(3): 60. 1983.

疏齿木荷 shu chi mu he

Schima kwangtungensis Hung T. Chang.

Trees. Current year branchlets pubescent or glabrescent; terminal buds white sericeous or glabrescent. Petiole 2–4 cm, compressed, glabrous, apically narrowly winged; leaf blade oblong to elliptic, 12–16 × 5–6.5 cm, thickly leathery, abaxially pale green, adaxially dark green and shining, both surfaces glabrous, secondary veins 9–12 on each side of midvein, secondary and reticulate veins raised on both surfaces, base broadly cuneate and decurrent, margin sparsely serrate on apical 1/2, apex acuminate. Flowers 6 or 7 in a short raceme, ca. 4 cm in diam. Pedicel 3.5–4 cm, puberulent or glabrescent; bracteoles 2, caducous, 5–10 mm from sepals. Sepals suborbicular, ca. 6 mm in diam., outside glabrous, inside white sericeous, margin ciliate. Petals white, broadly obovate, 2–3 cm, apex rounded. Stamens 0.9–1.2 cm; filaments distinct. Ovary glabrous or basally tomentose, 5-loculed; style 8–10 mm, glabrous. Capsule ca. 1.5 cm in diam. Fl. Aug–Sep, fr. Oct–Nov.

• Forests; 500–1000 m. Fujian, Guangdong, E Guangxi, S Hunan, Jiangxi (Wuyi Shan).

10. *Schima superba* Gardner & Champion, Hooker's J. Bot. Kew Gard. Misc. 1: 246. 1849.

木荷 mu he

Schima confertiflora Merrill; *S. kankaoensis* Hayata; *S. liukuensis* Nakai; *S. xinyiensis* Hung T. Chang & Z. Y. Su.

Trees 5–20 m tall. Young branches glabrous or puberulent. Petiole 1–2 cm, sparsely pubescent or glabrous; leaf blade elliptic to oblong-elliptic, 7–13 × 2.5–4(–6) cm, thinly leathery to leathery, abaxially pale green, sparsely pubescent or glabrous, and becoming yellowish green when dry, adaxially green, shiny, and glabrous, secondary veins 7–9 on each side of midvein and visible or obscure on both surfaces, base cuneate, margin undulately obtusely crenate from basal 1/2 apically, apex acuminate. Flowers 4–8 in a raceme, 2–3 cm in diam. Pedicel 1–2.5 cm, slender, glabrous or sparsely pubescent; bracteoles 2, caducous. Sepals semiorbicular, 2–3 mm, outside glabrous, inside sericeous, margin ciliate. Petals white, obovate, 1–1.5 cm, outside basally puberulent. Stamens 5–7 mm. Ovary tomentose; style ca. 5 mm. Capsule subglobose, 1–2 cm in diam. Fl. Jun–Aug, fr. Oct–Dec. $2n = 36$.

Forests; 100–800(–1600) m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Taiwan, Zhejiang [Japan (Ryukyu Islands)].

11. *Schima khasiana* Dyer in J. D. Hooker, Fl. Brit. India 1: 289. 1874.

印度木荷 yin du mu he

Schima forrestii Airy Shaw.

Trees 20–25 m tall. Current year branchlets purplish red, glabrous or glabrescent; terminal buds grayish white sericeous. Petiole 1.5–2 cm, pubescent or glabrescent; leaf blade elliptic,

10–18 × 4–9 cm, thinly leathery, abaxially pale green, pubescent along reddish midvein, and becoming pale brown when dry, adaxially dark green, shiny, and glabrous, secondary veins 10–12 on each side of midvein and slender, secondary and reticulate veins raised on both surfaces, base broadly cuneate to subrounded, margin serrate essentially along whole length, apex abruptly acute to acuminate. Flowers solitary, ca. 6 cm in diam. Pedicel 1.5–2 cm, velutinous, thickened toward apex; bracteoles 2, caducous, broadly obovate, 10–12 × 8–9 mm, puberulent. Sepals semiorbicular, ca. 4 × 6 mm, outside velutinous, margin fringed serrulate. Petals white, broadly obovate, 2.5–3 cm, outside basally velutinous. Stamens 1–1.5 cm. Ovary yellowish tomentose; style glabrous. Capsule globose, 3–3.5 cm in diam.; pericarp woody, splitting into 5 valves. Seeds together with wing 1.2–1.6 × 0.8–1 cm. Fl. Jun–Jul, fr. Oct–Dec.

Forests; 900–1800(–2800) m. SE Xizang, SE and W Yunnan [Bhutan, NE India, N Myanmar, N Vietnam].

12. *Schima sericans* (Handel-Mazzetti) T. L. Ming, Fl. Yunnan. 8: 326. 1997.

贡山木荷 gong shan mu he

Trees 9–15 m tall. Young branches brown, white lenticellate; current year branchlets gray puberulent or glabrous; terminal buds gray sericeous. Petiole 1–1.5 cm, glabrous or puberulent but glabrescent; leaf blade oblong to oblong-elliptic, 12–16 × 4–6 cm, thinly leathery, abaxially pale green, sparsely prostrate pilose, and becoming pale brown when dry, adaxially dark green and shiny and glabrous, midvein abaxially raised and adaxially impressed, secondary veins 10–12 on each side of midvein, slender, and raised on both surfaces, base cuneate to broadly cuneate, margin basally entire and sparsely obtusely serrate from middle apically, apex acuminate. Flowers solitary, ca. 4 cm in diam. Pedicel 3–6 cm, slender, puberulent or glabrous, white lenticellate; bracteoles 2, caducous, broadly obovate, ca. 1.4 × 1–1.2 cm, sparsely prostrate pilose. Sepals suborbicular, 3.5–4 mm in diam., outside gray puberulent or glabrous, inside white sericeous, margin ciliate. Petals white, obovate to elliptic, 2–2.5 × 1–1.3 cm, outside basally velutinous. Stamens ca. 1 cm. Ovary tomentose; style ca. 8 mm, glabrous. Capsule globose, 1–1.5 cm in diam.; pericarp woody, splitting into 5 valves. Seeds together with wing ca. 6 × 4 mm. Fl. Jul–Sep, fr. Oct–Nov.

• Forests; 1600–2400 m. SE Xizang, NW Yunnan.

- 1a. Current year branchlets, petioles, pedicels, and outside of sepals gray puberulent 12a. var. *sericans*
- 1b. Current year branchlets, petioles, pedicels, and outside of sepals glabrous 12b. var. *paracrenata*

12a. *Schima sericans* var. *sericans*

贡山木荷(原变种) gong shan mu he (yuan bian zhong)

Schima khasiana Dyer var. *sericans* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 61: 108. 1924.

Current year branchlets, petioles, pedicels, and outside of sepals gray puberulent. Fl. Aug–Sep, fr. Oct–Nov.

- Forests; 1600–1900 m. SE Xizang, NW Yunnan.

12b. *Schima sericans* var. *paracrenata* (Hung T. Chang) T. L. Ming, Fl. Yunnan. 8: 327. 1997.

独龙木荷 du long mu he

Schima paracrenata Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(3): 61. 1983; *S. dulungensis* Hung T. Chang & C. X. Ye.

Current year branchlets, petioles, abaxial surface of leaf blades, pedicels, and outside of sepals glabrous. Fl. Jul–Aug, fr. Oct.

- Forests; 1700–2400 m. NW Yunnan.

13. *Schima parviflora* W. C. Cheng & Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(3): 61. 1983.

小花木荷 xiao hua mu he

Trees to 12 m tall. Current year branchlets slender, pubescent. Petiole 0.8–1.5 cm, slender, pubescent; leaf blade oblong to lanceolate, 7–10 × 2–3 cm, thinly leathery to submembranous, abaxially pale green and pubescent, adaxially dark green, glabrous, and becoming yellowish green when dry, secondary veins 7–9 on each side of midvein and visible on both surfaces, base broadly cuneate, margin crenulate, apex acuminate. Flowers 4–8 in a raceme, ca. 2 cm in diam. Pedicel 1–1.5 cm, slender, pubescent; bracteoles 2, caducous. Sepals broadly ovate, ca. 2 mm, outside pubescent. Petals white, obovate, 1–1.5 cm, outside puberulent. Stamens 5–7 mm, glabrous. Ovary tomentose; style ca. 3 mm. Capsule subglobose, 1–1.2 cm in diam. Fl. Jun–Aug, fr. Oct–Nov.

- Forests, thickets; 600–1800 m. N Guizhou, W Hubei, NW Hunan, E Sichuan.

Specimens from Xizang reported to be *Schima parviflora* (Fu et al., Higher Pl. China 4: 612. 2000) are in fact *S. khasiana*.

6. STEWARTIA Linnaeus, Sp. Pl. 2: 698. 1753.

紫茎属 zi jing shu

Cavanilla Salisbury (1796), not J. F. Gmelin (1792), nor Thunberg (1792); *Hartia* Dunn; *Malachodendron* Mitchell.

Shrubs or trees, evergreen or deciduous. Winter buds laterally compressed; bud scales 1 to several, imbricate. Petiole short, narrowly to widely winged, wing sometimes enclosing and concealing axillary and terminal buds; leaf blade ovate, lanceolate, or elliptic, papery to leathery, base cuneate to rounded, margin serrulate to serrate, apex acuminate, acute, or apiculate. Flowers axillary, solitary to several arranged in a short raceme, pedicellate. Bracteoles 2, close to sepals, persistent or rarely caducous. Sepals 5, imbricate, persistent, basally connate. Petals 5, white or yellowish white, imbricate, basally slightly connate. Stamens numerous, basally connate into a short tube and adnate to petals; anthers dorsifixed. Ovary superior, 5-loculed with 2–4(–7) ovules per locule, placentation axile but nearly basal; style connate or distinct. Capsule ovoid to conic, 5-ribbed, 5-loculed with (1 or)2–4 seeds per locule, loculicidal, enveloped by persistent sepals, apex acute or acuminately rostrate; pericarp splitting into 5 valves; columella abortive or ± apical 1/2 abortive. Seeds small, obovate, angular and wingless or planoconvex with a narrow marginal wing; testa crustaceous, shiny; embryo small, straight; cotyledons subrounded, clasping, embedded in copious fleshy endosperm.

About 20 species: China, Japan, Korea, Laos, Vietnam; E North America; 15 species (14 endemic) in China.

- 1a. Deciduous; winter bud with 2–11 scales; leaf blade papery or thinly leathery; petiole wingless or narrowly winged.
 - 2a. Bracteoles reniform, not leaflike, 1/2 as long as sepals; sepals 0.6–1.2 cm, not leaflike; capsule 2–2.5 × 1.5–2 cm 15. *S. rubiginosa*
 - 2b. Bracteoles not reniform, leaflike, ± equal to sepal length; sepals 1–2 cm, leaflike; capsule 1.2–2 × 1–1.5(–1.6) cm.
 - 3a. Bracteoles 2–2.5 × 1–1.3 cm; style ca. 1 cm; ovary tomentose throughout; capsule conical 13. *S. sinensis*
 - 3b. Bracteoles (1.2–)1.5–2 × (0.6–)0.8–1.2 cm; style 1.6–1.8 cm; ovary basally densely sericeous, apically glabrous; capsule subglobose 14. *S. rostrata*
- 1b. Evergreen; winter bud without scales; leaf blade leathery or thickly leathery (papery to thinly leathery in *S. calcicola*); petiole distinctly winged.
 - 4a. Flowers 2–5 in short racemes but sometimes solitary flowers also present.
 - 5a. Sepals longer than wide.
 - 6a. Leaf blade margin serrulate, apex long acuminate; bracteoles long obovate; sepals obovate to broadly elliptic, 12–15 × ca. 10 mm 1. *S. sinii*
 - 6b. Leaf blade margin entire or apically with several serrations, apex obtuse; bracteoles and sepals lanceolate, sepals ca. 10 × 4 mm 2. *S. densivillosa*
 - 5b. Sepals as long as wide.
 - 7a. Bracteoles lanceolate, as long as sepals 3. *S. laotica*
 - 7b. Bracteoles ovate to broadly ovate (sometimes lanceolate in *S. obovata*), ca. 1/2 as long as sepals.
 - 8a. Leaf blade leathery, margin entire 4. *S. obovata*
 - 8b. Leaf blade thickly leathery, margin serrate 5. *S. crassifolia*
 - 4b. Flowers solitary.
 - 9a. Sepals orbicular to suborbicular, ± 1/2 as long as capsule.

- 10a. Bracteoles ca. 2/3 as long as sepals; capsule subglobose 10. *S. sichuanensis*
 10b. Bracteoles ca. 1/2 as long as sepals; capsule conic.
 11a. Leaf blade oblong to narrowly oblong, adaxially glabrous, apex acuminate 11. *S. micrantha*
 11b. Leaf blade oblong-elliptic, adaxially pubescent along midvein, apex abruptly acute to shortly
 acuminate 12. *S. calcicola*
 9b. Sepals ovate, long ovate, or ovate-lanceolate, ± as long as capsule.
 12a. Sepals leaflike, apex acute.
 13a. Sepals margin entire; ovary tomentose 6. *S. villosa*
 13b. Sepals margin serrulate; ovary glabrous 7. *S. pteropetiolata*
 12b. Sepals not leaflike, apex rounded to obtuse.
 14a. Petiole 1.2–2.5 cm; leaf blade long ovate, thickly leathery; sepals long ovate, 9–12 mm,
 margin entire, outside pubescent 8. *S. cordifolia*
 14b. Petiole ca. 1 cm; leaf blade oblong, leathery; sepals ovate, 7–8 mm, margin serrulate,
 outside velutinous 9. *S. medogensis*

1. *Stewartia sinii* (Y. C. Wu) Sealy, Bot. Mag. 176: t. 510. 1967.

黄毛紫茎 *huang mao zi jing*

Hartia sinii Y. C. Wu, Bot. Jahrb. Syst. 71: 194. 1940.

Trees to 10 m tall, evergreen. Current year branchlets densely yellowish villous. Petiole 1.5–2 cm, yellowish villous, wings ca. 2 mm wide; leaf blade oblong, 10–14 × 3–4.5 cm, abaxially densely yellow to reddish brown villous, adaxially glabrous and shiny, secondary veins 12–18 on each side of midvein, abaxially impressed, and adaxially raised, base broadly cuneate to rounded, margin serrulate, apex long acuminate. Flowers axillary, solitary or to 3 in a raceme. Pedicel ca. 1 cm, yellowish villous; bracteoles long obovate, 8–9 × ca. 4.5 mm, both surfaces villous. Sepals obovate to broadly elliptic, 1.2–1.5 × ca. 1 cm, outside yellowish tomentose, basally connate, margin sparsely serrate and ciliolate, apex shortly acuminate to obtuse. Petals white, suborbicular, 1.3–1.5 × ca. 1 cm. Stamens numerous. Ovary ovoid to conic. Capsule conic, equal in length to persistent sepals. Fl. May, fr. Sep.

• Forests; 300–1100 m. E and S Guangxi.

2. *Stewartia densivillosa* (Hu ex Hung T. Chang & C. X. Ye) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 57. 1996.

狭萼紫茎 *xia e zi jing*

Hartia densivillosa Hu ex Hung T. Chang & C. X. Ye, Acta Sci. Nat. Univ. Sunyatseni 21(4): 75. 1982.

Shrubs to 3 m tall, evergreen. Current year branchlets densely yellowish villous. Petiole 1–2 cm, spreading villous, wings ca. 3 mm wide; leaf blade oblong-ovate to ovate-elliptic, 6–13 × 3.5–6.5 cm, thickly leathery, abaxially appressed pubescent and spreading villous along veins, adaxially appressed pubescent and densely hirtellous along midvein, secondary veins 9–13 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially impressed, base rounded to subcordate, margin entire or apically with several serrations, apex obtuse. Flowers solitary or to 3 in a short raceme. Pedicel 5–7 mm, densely yellowish villous; bracteoles persistent, lanceolate, 7–8 × 2.5–3.5 mm, outside villous, inside glabrous. Sepals lanceolate, ca. 10 × 4 mm, outside villous, inside glabrous, apex apiculate. Petals white, oblong, outside yellowish puberulent. Stamens short than petals. Ovary glabrous. Capsule not seen. Fl. Apr.

• Evergreen broad-leaved forests; ca. 800 m. Yunnan (Funing).

3. *Stewartia laotica* (Gagnepain) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 58. 1996.

老挝紫茎 *lao wo zi jing*

Hartia laotica Gagnepain, Notul. Syst. (Paris) 10: 121. 1942; *H. gracilis* (S. Z. Yan) Hung T. Chang & C. X. Ye; *H. racemosa* Hung T. Chang & C. X. Ye; *H. yunnanensis* Hu var. *gracilis* S. Z. Yan.

Small trees, evergreen. Current year branchlets densely white pubescent. Petiole 1.1–1.3 cm, wings ca. 1.5 mm wide, white pubescent; leaf blade oblong to obovate-oblong, 7–10 × 2.5–4 cm, leathery, abaxially pubescent along midvein, adaxially glabrous and shiny, secondary veins 9–12 on each side of midvein, abaxially visible, and adaxially obscure, base cuneate, margin serrulate, apex bluntly acute. Flowers 2–4 in a short raceme. Pedicel 5–7 mm, white pubescent; bracteoles 2, lanceolate, 5–7 mm, white pubescent. Sepals 5, orbicular, ca. 5 mm in diam., outside white pubescent, margin ciliolate, apex rounded. Petals 5, white, broadly obovate, ca. 1.5 cm, outside puberulent. Stamens numerous; filaments basally connate. Ovary densely pubescent, 5-loculed; style 2–4 mm. Capsule subglobose, with 5 or 6 seeds per locule. Seeds narrowly winged. Fl. May–Jun, fr. Sep–Oct.

Forests; 900–1800 m. Guangxi, SE Yunnan [Laos, Vietnam].

4. *Stewartia obovata* (Chun ex Hung T. Chang) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 57. 1996.

钝叶紫茎 *dun ye zi jing*

Hartia obovata Chun ex Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 5(2): 24. 1959; *H. multinerva* S. Z. Yan.

Trees to 5 m tall, evergreen. Current year branchlets glabrous or puberulent. Petiole 1–1.5 cm, pubescent when young, wings 1.5–2 mm wide; leaf blade obovate to obovate-oblong, 7–12 × 3–4.5 cm, leathery, abaxially appressed pubescent when young but glabrescent and reddish brown glandular punctate, secondary veins 10–15 on each side of midvein, base asymmetrically slightly cordate, margin entire, apex obtuse to emarginate. Flowers solitary or to 4 in a short raceme, ca. 2.5 cm in diam. Pedicel 3–5 mm, pubescent; bracteoles 2, caducous, ovate to lanceolate, ca. 5 mm. Sepals obovate to suborbicular, 6–8 × 4–6 mm, outside grayish white appressed pubescent, apex rounded. Petals 5, white, broadly obovate to obovate, ca. 1.2

cm, basally slightly connate, margin serrate. Stamens numerous; filament whorls basally connate. Ovary glabrous. Capsule conic, 8–12 × 6–8 mm; pedicel ca. 5 mm. Fl. Jun–Jul, fr. Sep–Oct.

- Forests; 900–1300 m. SW Guangdong, N Guangxi.

The plants mistakenly treated as *Hartia tonkinensis* Merrill in FRPS (49(3): 228. 1998) belong here. This species, now *Stewartia tonkinensis* (Merrill) C. Y. Wu ex T. L. Ming, is endemic to Vietnam.

5. *Stewartia crassifolia* (S. Z. Yan) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 57. 1996.

厚叶紫茎 *hou ye zi jing*

Hartia crassifolia S. Z. Yan, Acta Phytotax. Sin. 19: 468. 1981.

Trees 10–18 m tall, evergreen. Current year branchlets pubescent. Petiole 1.4–2 cm, pubescent when young, wings 2–3 mm wide; leaf blade long ovate, 8–12 × 3–4.5 cm, thickly leathery, abaxially pale green and appressed pubescent when young but glabrescent, adaxially dark green and glabrous, secondary veins 12–14 on each side of midvein, base slightly cordate, margin serrate, apex abruptly acute. Flowers 2 or 3 in a short raceme. Pedicel 5–7 mm, pubescent; bracteoles caducous, broadly ovate, 2–3 mm. Sepals suborbicular, 6–8 × 5–7 mm, outside pubescent, basally slightly connate, apex rounded. Petals yellowish white, obovate, 1.2–1.5 × 0.8–1 cm, outside white sericeous. Stamens 8–10 mm; filaments basally connate. Ovary conic; style very short. Capsule shortly conic, 1.5–1.6 cm in diam. Fl. May–Jun, fr. Nov.

- Forests; 800–1900 m. NW Guangdong, NE Guangxi, S Hunan, S Jiangxi.

6. *Stewartia villosa* Merrill, Lingnan Sci. J. 7: 315. 1931.

柔毛紫茎 *rou mao zi jing*

Trees 8–20 m tall, evergreen. Current year branchlets spreading villous or appressed pubescent. Petiole 1–2 cm, spreading villous or appressed pubescent, wings ca. 2 mm wide; leaf blade elliptic-oblong, oblong, or lanceolate, (4.5–)6–13(–21) × (2.4–)3–5.5(–7) cm, leathery, both surfaces villous or pubescent but sometimes glabrescent, secondary veins 10–16 on each side of midvein, base rounded to obtuse, margin sparsely serrate, apex abruptly acute to shortly acuminate. Flowers solitary. Pedicel 6–8 mm, villous; bracteoles lanceolate, 0.8–1.5 cm, villous. Sepals ovate-lanceolate, unequal, 1.5–1.8 × (0.4–)0.6–0.8 cm, outside villous, apex acute. Petals yellowish white, obovate, ca. 1.8 × 1.2 cm. Stamens ca. 1 cm; filaments basally connate. Ovary conic, tomentose. Capsule conic, ca. 1.8 cm. Fl. Jun–Jul, fr. Oct–Nov.

- Forests; 200–1200 m. Guangdong, Guangxi, S Jiangxi.

- 1a. Current year branchlets, midvein of leaf blade abaxial surface, and petioles appressed pubescent; leaf blade lanceolate 6c. var. *kwangtungensis*
- 1b. Current year branchlets, midvein of leaf blade abaxial surface, and petioles spreading villous; leaf blade elliptic to oblong.

- 2a. Leaf blade margin entire toward base 6a. var. *villosa*
- 2b. Leaf blade margin serrate to base 6b. var. *serrata*

6a. *Stewartia villosa* var. *villosa*

柔毛紫茎(原变种) *rou mao zi jing* (yuan bian zhong)

Hartia nankwanica Hung T. Chang & C. X. Ye; *H. villosa* (Merrill) Merrill; *H. villosa* var. *elliptica* Hung T. Chang.

Current year branchlets, midvein of leaf blade abaxial surface, and petioles spreading villous. Leaf blade elliptic to oblong and 8–13 × 3–5 cm, rarely elliptic and 4.5–6 × 2.4–3.8 cm, margin entire toward base. Fl. Jun–Jul, fr. Oct.

- Forests; 600–700 m. Guangdong, Guangxi.

6b. *Stewartia villosa* var. *serrata* (Hu) T. L. Ming, **comb. nov.**

齿叶柔毛紫茎 *chi ye rou mao zi jing*

Basionym: *Hartia kwangtungensis* Chun var. *serrata* Hu, Bull. Fan Mem. Inst. Biol., Bot. 6: 170. 1935; *H. villosa* var. *serrata* (Hu) Hung T. Chang.

Current year branchlets, midvein of leaf blade abaxial surface, and petioles spreading villous. Leaf blade oblong, margin serrate to base. Fl. Jun, fr. Oct.

- Forests; 200–400 m. S Guangxi.

6c. *Stewartia villosa* var. *kwangtungensis* (Chun) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 64. 1996.

广东柔毛紫茎 *guang dong rou mao zi jing*

Hartia kwangtungensis Chun, Sunyatsenia 2: 60. 1934; *H. kwangtungensis* var. *grandifolia* Chun; *H. villosa* var. *grandifolia* (Chun) Hung T. Chang; *H. villosa* var. *kwangtungensis* (Chun) Hung T. Chang; *Stewartia villosa* var. *grandifolia* (Chun) J. Li & T. L. Ming.

Current year branchlets, midvein of leaf blade abaxial surface, and petioles appressed pubescent. Leaf blade lanceolate, margin obtusely serrate toward apex to almost entire. Fl. Jun–Jul, fr. Nov.

- Forests; 200–1200 m. Guangdong, Guangxi, S Jiangxi.

7. *Stewartia pteropetiolata* W. C. Cheng, Contr. Biol. Lab. Sci. Soc. China, Bot. Ser. 9: 202. 1934.

翅柄紫茎 *chi bing zi jing*

Hartia sinensis Dunn, Hooker's Icon. Pl. 28: t. 2727. 1902, not *Stewartia sinensis* Rehder & E. H. Wilson (1915); *Hartia serratisepala* Hu.

Trees 6–15 m tall, evergreen. Year-old branchlets purple, glabrous; current year branchlets grayish yellow pubescent. Petiole 1–1.5 cm, gray pubescent, wings ca. 3 mm wide; leaf blade elliptic to oblong, 6–10(–13) × 2.5–4.5(–5) cm, leathery, abaxially yellowish green, sparsely pubescent or glabrescent, and trichomes evident along midvein, adaxially green, shiny, and glabrous, midvein red, secondary veins 10–12 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially impressed, base rounded, margin serrate,

apex abruptly acute to shortly acuminate. Flowers solitary, ca. 3 cm in diam. Pedicel 8–10 mm, appressed pubescent; bracteoles persistent, elliptic, 5–7.5 × 3–3.5 mm, appressed pubescent. Sepals purplish red, long ovate, 1–1.5 × 0.7–1 cm, leaf-like, both surfaces white sericeous, veins pinnate, margin serrulate, apex acute. Petals white, broadly obovate to suborbicular, 1.5–1.8 × 1–1.3 cm, outside basally white sericeous, apex rounded. Stamens 7–9 mm; filaments basally connate. Ovary ovoid, 3–4 mm, glabrous; style ca. 5 mm. Capsule long ovoid, 1.5–2 × 1–1.5 cm, 5-loculed with 4 seeds per locule; columella ca. 5 mm, apically abortive. Seeds obovate, ± compressed, ca. 5 × 3.5 mm, narrowly winged. Fl. Apr–May, fr. Sep–Nov. $2n = 36^*$.

- Forests; 1200–2600 m. S and W Yunnan.

8. *Stewartia cordifolia* (H. L. Li) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 63. 1996.

心叶紫茎 xin ye zi jing

Hartia cordifolia H. L. Li, J. Arnold Arbor. 26: 65. 1945; *H. guizhouensis* C. X. Ye.

Trees 12–18 m tall, evergreen. Young branches glabrous; current year branchlets pubescent. Petiole 1.2–2.5 cm, pubescent, wings 2–3 mm wide; leaf blade long ovate, 5–8 × 3–4.5 cm, thickly leathery, abaxially yellowish green and sparsely appressed pubescent or glabrescent, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–12 on each side of midvein and raised on both surfaces, base rounded to cordate, margin sparsely serrate, apex abruptly acute to acuminate. Flowers solitary. Pedicel 4–6 mm, pubescent; bracteoles lanceolate, 4–7 × 2–3 mm, pubescent. Sepals long ovate, 9–12 × 5–7 mm, outside pubescent, inside basally puberulent, apex rounded. Petals white, elliptic, 1.2–1.5 × 0.8–1 cm. Stamens 8–10 mm. Ovary conic, glabrous. Capsule conic, ca. 1 × 1.4 cm, 5-loculed with 5 or 6 seeds per locule. Seeds broadly ovate, narrowly winged. Fl. Jun–Jul, fr. Sep–Oct.

- Forests; 400–1300 m. NE Guangxi, SE Guizhou, S Hunan.

9. *Stewartia medogensis* J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 64. 1996.

墨脱紫茎 mo tuo zi jing

Hartia brevicalyx Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(3): 65. 1983, not *Stewartia brevicalyx* S. Z. Yan (1981).

Small trees, evergreen. Current year branchlets pubescent. Petiole ca. 1 cm, grayish brown villous, wings ca. 1.5 mm wide; leaf blade oblong, 6–10 × 2.5–4 cm, leathery, abaxially pubescent and hirtellous along midvein, adaxially green, glabrous, and shiny, secondary veins ca. 10 on each side of midvein, abaxially raised, and adaxially visible, base rounded, margin serrulate, apex abruptly acute to slightly obtuse. Flowers not seen. Capsule ovoid, ca. 1.5 × 1.3 cm, brown pubescent; pedicel 5–8 mm, villous or glabrescent; bracteoles caducous; persistent sepals ovate, 7–8 mm, outside brown villous, apex rounded to obtuse. Fr. Oct.

- Forests; 1500–1800 m. Xizang (Médog).

10. *Stewartia sichuanensis* (S. Z. Yan) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 61. 1996.

四川紫茎 si chuan zi jing

Hartia sichuanensis S. Z. Yan, Acta Phytotax. Sin. 19: 469. 1981.

Shrubs or small trees, evergreen. Current year branchlets pubescent. Petiole 1–1.5 cm, sparsely pubescent or glabrescent, wings ca. 2 mm wide; leaf blade elliptic to obovate-elliptic, 7.5–10 × 3–4.5 cm, leathery, abaxially appressed pubescent, adaxially glabrous, secondary veins 7–10 on each side of midvein, base broadly cuneate to subrounded, margin serrulate, apex abruptly acute to slightly obtuse. Flowers not seen. Capsule subglobose, ca. 9 × 10 mm, longitudinally 5-grooved, glabrous, persistent style ca. 1.5 cm; pedicel 5–7 mm, pubescent; persistent bracteoles 2, linear-lanceolate, ca. 5 × 1 mm, outside densely pubescent, inside subglabrous, margin ciliolate; persistent sepals 5, suborbicular, 7–8 mm, outside densely appressed pubescent, inside sericeous, margin ciliolate, apex rounded. Fr. Sep–Oct.

- Thickets; ca. 600 m. Sichuan (Pingshan).

11. *Stewartia micrantha* (Chun) Sealy, Bot. Mag. 176: t. 510. 1967.

小花紫茎 xiao hua zi jing

Hartia micrantha Chun, Sunyatsenia 2: 62. 1934; *H. nitida* H. L. Li.

Shrubs 1–3 m tall, evergreen. Current year branchlets pubescent; terminal buds white sericeous. Petiole 1–1.5 cm, pubescent, wings 1–1.3 mm wide; leaf blade oblong to narrowly oblong, 7–13 × 2–4 cm, leathery, abaxially sparsely pubescent when young but glabrescent, adaxially glabrous and shiny, secondary veins 10–14 on each side of midvein, secondary and reticulate veins raised on both surfaces, base rounded, margin sparsely serrate, apex acuminate. Flowers solitary. Pedicel 5–7 mm, pubescent; bracteoles ovate-triangular, ca. 2.5 mm. Sepals suborbicular, 4–6 mm in diam., outside pubescent, margin glandular ciliate, apex rounded. Petals white, 1.2–1.5 × ca. 1 cm. Stamens 6–7 mm. Ovary conic, 5-loculed, densely pubescent. Capsule conic, ca. 1 cm in diam., apex acute. Seeds 5–6 mm. Fl. May–Jun, fr. Oct.

- Thickets; 300–500 m. Fujian, Guangdong (Dabu, Raoping).

12. *Stewartia calcicola* T. L. Ming & J. Li, Acta Phytotax. Sin. 34: 63. 1996.

云南紫茎 yun nan zi jing

Hartia yunnanensis Hu, Bull. Fan Mem. Inst. Biol., Bot. 6: 169. 1935, not *Stewartia yunnanensis* Hung T. Chang (1982).

Trees 8–15 m tall, evergreen. Young branches glabrous; current year branchlets purplish brown, gray pubescent. Petiole 1–1.5 cm, appressed pubescent, wings 2–3 mm wide; leaf blade oblong-elliptic, 8–16 × 3.5–6.3 cm, papery to thinly leathery, abaxially pale green, sparsely pubescent, and villous along mid-

vein, adaxially dark green and pubescent along midvein, secondary veins 9–12 on each side of midvein, secondary and reticulate veins raised on both surfaces, base broadly cuneate to rounded, margin serrate, apex abruptly acute to shortly acuminate. Flowers solitary. Pedicel 3–5 mm, appressed pubescent; bracteoles 2, caducous, lanceolate, 3–4 mm. Sepals orbicular, 4–6 mm in diam., outside gray sericeous, inside puberulent, margin glandular serrate and ciliolate, apex rounded. Petals white, obovate, ca. 11 × 8 mm, outside gray sericeous. Stamens numerous; filaments basally connate. Ovary conic, glabrous. Capsule conic, 1.5–2 × ca. 1 cm; columella ca. 7 mm, apically abortive. Seeds 4–6 × 3–4 mm, narrowly winged. Fl. May–Jun, fr. Oct–Dec.

- Forests; 900–1700 m. SW Guangxi, SE Yunnan.

13. *Stewartia sinensis* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 2: 395. 1915.

紫茎 *zi jing*

Shrubs or trees, 3–11 m tall, deciduous. Current year branchlets purplish red, glabrous or villous; winter buds with 3–11 scales. Petiole purplish red, ca. 1 cm, glabrous or villous, narrowly winged; leaf blade elliptic to obovate-elliptic, 5.5–10.5 × 2.5–4.5 cm, papery, abaxially yellowish green, appressed pubescent, and densely villous along midvein, adaxially green and glabrous, secondary veins 7–11 on each side of midvein and raised on both surfaces, base broadly cuneate to rounded, margin sparsely serrate, apex abruptly acute to acuminate. Flowers solitary. Pedicel 0.5–3 cm, pubescent or glabrescent, thickened toward apex; bracteoles persistent, ovate, long ovate, ovate-lanceolate, broadly ovate, or subcordate, 2–2.5 × 1–1.3 cm, leaflike, apex abruptly acute, acuminate, or long acuminate. Sepals ovate, long ovate, ovate-lanceolate, broadly ovate, or subcordate, 1–2 × ca. 1 cm, leaflike, outside glabrous or basally sparsely pubescent, apex abruptly acute. Petals white, broadly obovate, 2.5–3 × 1.5–2 cm, outside gray sericeous, apex rounded. Stamens 1.5–2 cm; filaments basally connate, distinct parts sparsely villous. Ovary conical, tomentose; style ca. 1 cm, glabrous. Capsule conical, 1.5–2 × 1–1.5 cm, tomentose, apex rostrate; columella abortive. Seeds obovate in outline, planoconvex, 6–9 × 4–5 mm, margin narrowly winged. Fl. May–Jul, fr. Sep–Nov.

- Forests, dense thickets or scrub on mountains; 500–2200 m. Anhui, Fujian, N Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, S Shaanxi, E Sichuan, NE Yunnan, Zhejiang.

- 1a. Current year branchlets, winter buds, petioles, bracteoles, and sepals densely villous 13d. var. *shensiensis*
- 1b. Current year branchlets, winter buds, petioles, bracteoles, and sepals glabrous or sparsely pubescent, soon glabrescent.
 - 2a. Bracteoles and sepals not leaflike, bracteoles broadly ovate to subcordate and apex obtuse, outer 2 sepals orbicular or reniform and apex rounded 13c. var. *brevicalyx*
 - 2b. Bracteoles and sepals leaflike, ovate,

long ovate, or ovate-lanceolate, apex acute to acuminate.

- 3a. Pedicel 0.5–1 cm; bracteoles and sepals ovate, apex abruptly acute 13a. var. *sinensis*
- 3b. Pedicel (1.5–)2–3 cm; bracteoles and sepals long ovate to ovate-lanceolate, apex acuminate to long acuminate 13b. var. *acutisepala*

13a. *Stewartia sinensis* var. *sinensis*

紫茎(原变种) *zi jing* (yuan bian zhong)

Stewartia gemmata S. S. Chien & W. C. Cheng; *S. nanlingensis* S. Z. Yan.

Current year branchlets, winter buds, petioles, pedicels, bracteoles, and sepals glabrous or glabrescent. Pedicel 5–10 mm; bracteoles and sepals ovate, apex abruptly acute. Fl. May–Jun, fr. Sep–Nov.

- Forests, dense thickets on mountains; 500–2200 m. Anhui, Fujian, N Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, E Sichuan, NE Yunnan, Zhejiang.

13b. *Stewartia sinensis* var. *acutisepala* (P. L. Chiu & G. R. Zhong) T. L. Ming & J. Li, Acta Phytotax. Sin. 34: 60. 1996.

尖萼紫茎 *jian e zi jing*

Stewartia acutisepala P. L. Chiu & G. R. Zhong, Acta Bot. Yunnan. 10: 57. 1988.

Current year branchlets, winter buds, petioles, pedicels, bracteoles, and sepals glabrous or glabrescent. Pedicel (1.5–)2–3 cm; bracteoles and sepals long ovate to ovate-lanceolate, apex acuminate to long acuminate. Fl. May–Jun, fr. Oct–Nov.

- Forests; 1400–1700 m. Zhejiang.

13c. *Stewartia sinensis* var. *brevicalyx* (S. Z. Yan) T. L. Ming & J. Li, Acta Phytotax. Sin. 34: 60. 1996.

短萼紫茎 *duan e zi jing*

Stewartia brevicalyx S. Z. Yan, Acta Phytotax. Sin. 19: 466. 1981.

Current year branchlets, winter buds, petioles, pedicels, bracteoles, and sepals glabrous or glabrescent. Bracteoles broadly ovate to subcordate. Outer 2 sepals orbicular to reniform, apex rounded. Fl. May–Jun.

- Dense scrub on mountains; 600–700 m. Zhejiang.

13d. *Stewartia sinensis* var. *shensiensis* (Hung T. Chang) T. L. Ming & J. Li, Acta Phytotax. Sin. 34: 60. 1996.

陕西紫茎 *shan xi zi jing*

Stewartia shensiensis Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 21(4): 76. 1982.

Current year branchlets, winter buds, petioles, pedicels, bracteoles, and sepals densely villous. Bracteoles and sepals oblong. Fl. Jul.

- Below 1400 m. Henan, S Shaanxi.

This taxon is expected to be found in extreme S Gansu.

14. *Stewartia rostrata* Spongberg, J. Arnold Arbor. 55: 198. 1974.

长喙紫茎 *chang hui zi jing*

Stewartia glabra S. Z. Yan; *S. sinensis* Rehder & E. H. Wilson var. *rostrata* (Spongberg) Hung T. Chang.

Shrubs or trees, to 10 m tall, deciduous. Bark slate gray. Branches ascending, usually several from base; outer bark on current year branchlets not exfoliating; winter buds compressed, ca. 5 mm, with 2 or 3 finely pubescent imbricate scales. Petiole (2–)4–6(–9) mm, adaxially shallowly grooved; leaf blade ovate to elliptic, (2–)6–10.5 × (1.2–)2.5–4.5 cm, papery, abaxially sparsely appressed villous especially along midvein and tufts of short trichomes in axils of midvein and secondary veins, adaxially glabrous, midvein abaxially elevated, base rounded, margin serrate, apex acuminate. Flowers axillary. Pedicel 5–7 mm; bracteoles persistent, subopposite, subtending calyx, ovate, (1.2–)1.5–2 × (0.6–)0.8–1.2 cm, leaf-like, margin irregularly undulating, apex acuminate. Sepals 5, persistent, similar to bracteoles, ovate, obovate, or orbicular, 1.2–1.8 × 0.7–1 cm, basally connate, margin irregularly undulating, apex acute to rounded. Petals 5, white, obovate to suborbicular, 2.8–3.8 × 2–3 cm, outside finely sericeous, basally connate, margin erose. Stamens numerous; filaments to 2.5 cm, basally connate into a 6–8 mm tube and adnate to petals, distinct parts pubescent. Ovary subglobose, 5-angled, basally densely sericeous, apically glabrous; style 1.6–1.8 cm, glabrous, terminating in 5 marginally ciliate stigmatic arms. Capsule subglobose, 1.2–1.6 × 1.4–1.6 cm, 5-loculed with 4 seeds per locule, apex rostrate. Seeds obovate in outline, planoconvex, 8–10 × 6–7 mm, narrowly winged. Fl. May–Jul, fr. Sep.

• Forests, along streams; 600–1500 m. Anhui, Henan, Hubei, E Hunan, Jiangxi, Zhejiang.

15. *Stewartia rubiginosa* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 5(2): 23. 1959.

红皮紫茎 *hong pi zi jing*

Trees to 15 m tall, deciduous. Bark reddish brown,

smooth. Current year branchlets purplish red, glabrous; winter buds ovoid, compressed, ca. 12 × 6 mm, with 4 or 5 scales, apically sericeous. Petiole 1–2 cm, pubescent; leaf blade oblong-elliptic to ovate-elliptic, 9–13 × 4.5–6.5 cm, thinly leathery, abaxially yellowish green and appressed pubescent, adaxially green and glabrous, secondary veins 8–12 on each side of midvein, base broadly cuneate to subrounded, margin serrate, apex acute. Flowers solitary. Pedicel 5–10 mm, pubescent or glabrescent; bracteoles reniform, 5–6 × 7–10(–14) mm, outside sericeous. Sepals obovate to suborbicular, 6–12 × 8–10 mm, outside yellowish sericeous-villous, inside sericeous, margin glandular serrate, apex rounded. Petals white, obovate, 2.5–4 cm, outside sericeous, basally connate. Stamens numerous, unequal, 1.5–2 cm; filaments basally connate. Ovary pubescent or glabrescent; style 5–8 mm, apically 5-lobed. Capsule ovoid, 2–2.5 × 1.5–2 cm. Seeds 7–10 mm, winged. Fl. May–Jun, fr. Oct–Nov.

• Forests; 1100–1300 m. NW Guangdong, Guangxi (Daming Shan), S Hunan.

1a. Seeds narrowly winged 15a. var. *rubiginosa*

1b. Seeds broadly winged 15b. var. *damingshanica*

15a. *Stewartia rubiginosa* var. *rubiginosa*

红皮紫茎(原变种) *hong pi zi jing* (yuan bian zhong)

Stewartia mangshanica C. X. Ye; *S. oblongifolia* Hu ex S. Z. Yan.

Seeds narrowly winged. Fl. May–Jun, fr. Oct–Nov.

• Forests; 1100–1300 m. NW Guangdong, S Hunan.

15b. *Stewartia rubiginosa* var. *damingshanica* (J. Li & T. L. Ming) T. L. Ming, **comb. et stat. nov.**

大明紫茎 *da ming zi jing*

Basionym: *Stewartia damingshanica* J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 61. 1996.

Seeds broadly winged. Fr. Oct.

• Forests; 1100–1300 m. Guangxi (Daming Shan).

2. Subfam. TERNSTROEMIOIDEAE

厚皮香亚科 *hou pi xiang ya ke*

Plants bisexual, dioecious, or androdioecious. Flowers usually small, less than 2 cm in diam. Stamens in (1 or)2 whorls (1–5 whorls in *Adinandra*); anthers basifixed, oblong, connective exerted. Fruit baccate, indehiscent, or sometimes dehiscent (in *Anneslea* and *Ternstroemia*). Seeds with endosperm.

About 11 genera and ca. 350 species: tropical and subtropical Africa, tropical America, E, S, and SE Asia, Pacific islands; six genera (one endemic) and 129 species (98 endemic) in China.

1a. Flowers ca. 2 cm in diam.; ovary with 1 to several ovules per locule; seeds 5–14 mm, with fleshy red outer layer, surface not foveolate and not shiny.

2a. Plants androdioecious; ovary superior but reduced to a pistillode in male flowers 7. *Ternstroemia*

2b. Plants bisexual; ovary half inferior 8. *Anneslea*

1b. Flowers less than 1 cm in diam.; ovary with several to many ovules per locule; seeds ca. 2 mm or less, without a fleshy red outer layer, surface foveolate and shiny.

3a. Plants dioecious; anthers glabrous 12. *Eurya*

3b. Plants bisexual; anthers with pubescence.

- 4a. Leaves distichously arranged; pedicel 0.4–0.6 cm; flowers 5–6 mm in diam.; ovary 3-loculed with 6–8 ovules per locule; fruit 3–4 mm in diam. 11. *Euryodendron*
- 4b. Leaves spirally arranged; pedicel 0.5–4 cm; flowers greater than 6 mm in diam.; ovary 2–5-loculed with 8–100 ovules per locule; fruit 4–20 mm in diam.
- 5a. Ovary 3–5(or 6)-loculed, 20–100 ovules per locule, style simple or apically 3–5-lobed; seeds less than 1 mm 9. *Adinandra*
- 5b. Ovary 2- or 3-loculed, 8–16 ovules per locule, style apically 2- or 3-lobed; seeds 1–2 mm 10. *Cleyera*

7. TERNSTROEMIA Mutis ex Linnaeus f., Suppl. Pl. 39, 264. 1782, nom. cons.

厚皮香属 hou pi xiang shu

Dupinia Scopoli; *Hoferia* Scopoli; *Mokof* Adanson; *Mokofua* Kuntze; *Taonabo* Aublet.

Shrubs or trees, evergreen, androdioecious. Leaves alternate but often clustered at apex of branchlets and pseudovercillate, margin entire or rarely serrate, petiolate. Flowers axillary, solitary or frequently several clustered on leafless branchlets, pedicellate. Bracteoles 2, alternate to subopposite, close to sepals, persistent or caducous. Sepals 5, imbricate, persistent or rarely caducous, margin glandular dentate, basally ± connate. Petals 5, imbricate, basally slightly connate. Stamens 30–50, in 1 or 2 whorls; filaments short and adnate to base of petals; anthers basifixed, oblong, glabrous, connective exerted. Ovary superior, 2–4(or 5)-loculed with 2(–5) ovules per locule, placentation axile; style 1, apically 2(–4)-lobed. Fruit baccate, indehiscent or irregularly dehiscent with seeds dangling and probably dispersed by birds. Seeds reniform, slightly compressed, with a fleshy red outer layer; endosperm abundant.

About 90 species: tropical and subtropical Africa, America, and Asia; 13 species (ten endemic) in China.

- 1a. Leaf blade abaxially glandular punctate.
- 2a. Leaf blade thickly leathery, midvein adaxially flat or only slightly impressed; bracteoles 4–5 mm; stamens ca. 6 mm 3. *T. kwangtungensis*
- 2b. Leaf blade leathery to thinly leathery, midvein adaxially distinctly impressed; bracteoles 1.5–3 mm; stamens 3.5–4.5 mm.
- 3a. Leaf blade obovate to obovate-elliptic, 8–15 cm, secondary veins visible on both surfaces; fruit ca. 2 cm in diam., pedicel 1–1.5 cm and stout 1. *T. yunnanensis*
- 3b. Leaf blade elliptic to broadly elliptic, 3–9 cm, secondary veins obscure on both surfaces; fruit 1–1.3 cm in diam., pedicel 1.5–2.5 cm and slender 2. *T. hainanensis*
- 1b. Leaf blade abaxially not glandular punctate.
- 4a. Fruit globose to compressed globose.
- 5a. Ovary 2-loculed, style apically 2-lobed; petals 6–10 mm.
- 6a. Pedicel 2–3 cm, bracteoles 2.5–3 mm; petals 8–10 mm wide 5. *T. luteoflora*
- 6b. Pedicel 1–1.5 cm, bracteoles 1.5–2.5 mm; petals 4–6 mm wide 7. *T. gymnanthera*
- 5b. Ovary 4-loculed, style apically 4-lobed; petals 10–18 mm.
- 7a. Petiole 1.5–3 cm, bracteoles 4–6 mm; sepals 10–14 mm; fruit 1.6–3 cm in diam. 4. *T. insignis*
- 7b. Petiole 1–1.5 cm, bracteoles ca. 2.5 mm; sepals 5–6.5 mm; fruit ca. 1.5 cm in diam. 6. *T. biangulipes*
- 4b. Fruit ovoid, long ovoid, conic, or ellipsoid.
- 8a. Fruit ovoid, long ovoid, or conic, widest basally, apex acute.
- 9a. Leaf blade adaxially becoming blackish brown when dry; sepals ovate to oblong-ovate, both surfaces golden punctate 8. *T. nitida*
- 9b. Leaf blade adaxially becoming light green when dry; sepals ovate-orbicular, suborbicular, ovate-oblong, oblong, both surfaces not punctate.
- 10a. Petiole 1–2 cm; leaf blade elliptic to broadly elliptic, secondary veins visible or slightly raised on both surfaces; pedicel 1.5–3 cm; sepals ovate-orbicular to suborbicular, 6–8 × 5–7 mm; fruit 1.5–2 × 1–1.3 cm, persistent sepals ca. 8 × 7 mm 9. *T. conicocarpa*
- 10b. Petiole 0.5–1 cm; leaf blade elliptic to oblong-elliptic, secondary veins obscure on both surfaces; pedicel 1–1.5 cm; sepals ovate-oblong to oblong, 3–4.5 × 2–3.5 mm; fruit 1–1.2 × ca. 0.8 cm, persistent sepals 4–5 × 3–3.5 mm 10. *T. sichuanensis*
- 8b. Fruit ellipsoid, widest at middle, apex obtuse.
- 11a. Petiole 10–15 mm; leaf blade 6–9.5 cm, secondary veins 6–9 on each side of midvein; petals yellow 11. *T. simaoensis*
- 11b. Petiole 3–10 mm; leaf blade 2–7 cm, secondary veins 3–6 on each side of midvein; petals white or pale yellowish white.
- 12a. Petiole 5–10 mm; leaf blade elliptic, obovate-elliptic, or broadly elliptic, (4–)5–7 cm, secondary veins 4–6 on each side of midvein; pedicel 1–1.5 cm; petals 4.5–5 × 5–5.5 mm; fruit 12–15 × ca. 10 mm 12. *T. japonica*

- 12b. Petiole ca. 3 mm; leaf blade obovate, obovate-oblong, or oblanceolate, 2–5(–6.5) cm, secondary veins 3–4 on each side of midvein; pedicel 0.5–1 cm; petals ca. 4 × 3.5 mm; fruit 8–10 × 5–6 mm 13. *T. microphylla*

1. *Ternstroemia yunnanensis* L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 182. 1998.

云南厚皮香 *yun nan hou pi xiang*

Trees 5–12 m tall. Young branches grayish brown; current year branchlets reddish brown, glabrous. Petiole 1–1.5 cm, glabrous, adaxially grooved; leaf blade obovate to obovate-elliptic, 8–15 × 4–7 cm, leathery, abaxially pale green and dark red glandular punctate, adaxially dark green and shiny, both surfaces glabrous and becoming reddish brown when dry, midvein abaxially elevated and adaxially impressed, secondary veins 7–9 on each side of midvein, abaxially slightly raised, and adaxially visible, base broadly cuneate, margin entire to obscurely serrate and slightly revolute, apex acute to abruptly shortly acuminate and with an obtuse tip. Flowers axillary and solitary or 5–10 congested on leafless branchlets. Pedicel ca. 1.5 mm, thickening toward apex. Male flowers (not yet open): bracteoles triangular to ovate-triangular, 1.5–2.5 × 1.5–2.5 mm, margin glandular dentate, apex acute; sepals ovate to suborbicular, 5–6 × 4–5 mm, margin densely glandular dentate, apex rounded; petals broadly obovate, ca. 5 × 4–5 mm; stamens ca. 50, ca. 3.5 mm; filaments short; anthers oblong, ca. 2 mm; pistillode small, glabrous. Bisexual flowers: bracteoles and sepals similar to those of male flowers but larger; petals obovate, 8–9 mm, basally connate for ca. 1 mm, apex emarginate; ovary globose, usually 2-loculed with 2 ovules per locule; style persistent, ca. 2.5 mm, apically 2-parted. Fruit purplish red when mature, globose, ca. 2 cm in diam., 2-loculed with 2 seeds per locule. Seeds compressed ellipsoid, 10–14 × ca. 6 mm. Fl. May–Jun, fr. Oct–Nov.

• Forests on mountain slopes or in valleys; 1100–1800 m. Yunnan (Hekou, Jinping, Pingbian).

2. *Ternstroemia hainanensis* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 9(4): 134. 1963.

海南厚皮香 *hai nan hou pi xiang*

Trees 10–25 m tall. Young branches grayish brown, glabrous. Petiole 1–1.6 cm, glabrous; leaf blade elliptic to broadly elliptic, 3–9 × 2.5–4.5 cm, leathery, abaxially pale green and densely dark red glandular punctate, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5–8 on each side of midvein and obscure on both surfaces or adaxially slightly impressed, reticulate veins obscure, base cuneate, margin slightly revolute and entire or rarely apically serrate, apex abruptly acute to shortly acuminate. Flowers axillary and solitary or often several clustered on leafless branchlets. Pedicel 1–1.5 cm, slightly recurved, glabrous. Male flowers: bracteoles 2, triangular-ovate, ca. 3 mm; sepals ovate-orbicular, ca. 5 × 4 mm, margin glandular dentate, apex rounded; petals white, broadly obovate, ca. 7 × 6 mm, apex rounded; stamens ca. 36, ca. 4.5 mm; anthers oblong, ca. 3 mm; pistillode very small. Bisexual flowers not seen. Fruit subglobose, 1–1.3 × 1–1.5 cm, 4-loculed with 1 seed per locule; pedicel 1–2.5 mm; persistent bracteoles

triangular, ca. 3 mm, apex acute; persistent sepals ovate-orbicular, 5–6 mm, apex rounded. Seeds reniform-oblate, 5–6 mm in diam. Fl. May–Jun, fr. Aug–Oct.

• Forests on mountain slopes or in valleys; 900–1400 m. Hainan.

3. *Ternstroemia kwangtungensis* Merrill, Philipp. J. Sci. 13: 148. 1918.

厚叶厚皮香 *hou ye hou pi xiang*

Ternstroemia pachyphylla L. K. Ling (1951), not Krug & Urban (1896); *T. subrotundifolia* Hung T. Chang.

Shrubs or trees, 2–10 m tall. Bark grayish brown to blackish brown, smooth. Young branches grayish brown; current year branchlets reddish brown, glabrous. Petiole 1–2 cm, stout, glabrous; leaf blade broadly elliptic to obovate, (5–)8–11(–13) × (3–)4–6.5 cm, thickly leathery, abaxially pale green and densely reddish brown or brown glandular punctate, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially flat or slightly impressed, secondary veins 5–7 on each side of midvein and obscure on both surfaces or adaxially visible, base broadly cuneate to obtuse, margin entire or rarely apically sparsely serrate, apex abruptly shortly acute and with an obtuse tip. Flowers axillary, solitary. Pedicel 1.5–2 cm, slightly recurved, glabrous. Male flowers: bracteoles ovate, triangular-ovate, or ovate, 4–5 × ca. 3 mm, margin sparsely glandular dentate; sepals ovate to suborbicular, 6–8 × 6–8 mm, glabrous, margin glandular dentate, apex rounded; petals white, obovate to oblong-obovate, ca. 10 × 8 mm, apex rounded and retuse; stamens numerous, ca. 6 mm; anthers ovate, ca. 3 mm; pistillode very small. Bisexual flowers not seen. Fruit compressed-globose, 1.5–1.8 × 1.6–2 cm, 3–4(–5)-loculed with 1 seed per locule; pedicel 1.5–2 cm, ca. 3 mm thick; persistent bracteoles triangular-ovate, ca. 3 × 4 mm; persistent sepals suborbicular, 6–7 × 6–7 mm; persistent style 1–2 mm, apically 3- or 4(or 5)-lobed. Seeds subreniform, 7–8 × ca. 6 mm. Fl. May–Jun, fr. Oct–Nov.

Forests on mountain slopes, thickets along streams; 700–1700 m. Fujian, Guangdong, S Guangxi, Jiangxi [Vietnam].

4. *Ternstroemia insignis* Y. C. Wu, Bot. Jahrb. Syst. 71: 195. 1940.

大果厚皮香 *da guo hou pi xiang*

Adinandra bracteata H. L. Li.

Trees 9–15 m tall. Bark grayish brown, smooth. Young branches gray to grayish brown, glabrous. Petiole 1.5–3 cm, stout; leaf blade obovate to obovate-elliptic, 7–13.5 × 3–5.5 cm, leathery, abaxially pale green becoming reddish brown when dry, adaxially green, shiny, and becoming pale brown when dry, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 9–11 on each side of midvein and visible to slightly raised on both surfaces, base cuneate, margin entire, apex acute to shortly acuminate and with an obtuse tip. Flowers axillary, solitary or several clustered on

leafless branchlets. Pedicel 1.5–2.5 cm, stout, slightly recurved. Male flowers: bracteoles persistent, ovate, 4–6 × 3.5–5 mm, glabrous, margin membranous and lacerately glandular dentate, apex acute to rounded; sepals persistent, orbicular to ovate, 1–1.4 × 1–1.4 cm, glabrous, margin membranous and entire or sparsely lacerate glandular dentate, apex rounded to retuse; petals white, obovate, 1.2–1.8 × 1–1.6 cm, basally slightly connate, apex rounded and retuse; stamens 5–8 mm; anthers oblong, 3–5 mm; pistillode obscure. Bisexual flowers: bracteoles, sepals, and petals similar to those of male flowers; ovary ovoid, 4-loculed with 2 ovules per locule; style ca. 1.5 mm, apically 4-lobed. Fruit globose to compressed globose, 2–2.5 × 1.6–3 cm, 4-loculed with 2 seeds per locule; persistent style 2–5 mm, apically 4-lobed. Seeds oblong-reniform, 10–12 × 4.5–5 mm. Fl. Jun–Jul, fr. Aug–Oct.

• Forests, forest margins; 800–2600 m. N Guangxi, SW Guizhou, SE Yunnan.

5. *Ternstroemia luteoflora* L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 183. 1998.

尖萼厚皮香 jian e hou pi xiang

Trees 4–8 m tall. Bark grayish white. Current year branchlets purplish brown, glabrous. Petiole 1–1.5 cm, adaxially grooved; leaf blade oblong-elliptic, oblong-lanceolate, or rarely obovate-elliptic, 5–11 × 2.5–3.5(–4.5) cm, leathery, abaxially pale green becoming reddish brown when dry, adaxially dark green, shiny, and becoming yellowish green when dry, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins obscure on both surfaces, base cuneate, margin entire and slightly revolute, apex shortly acuminate and with an obtuse tip. Flowers ca. 1.5 cm in diam. Pedicel 2–3 cm, ± incurved; bracteoles 2, ovate-lanceolate, 2.5–3 mm, apex acuminate. Sepals long ovate, 5–7 × 3–4 mm, margin glandular ciliate, apex acuminate to long acuminate. Petals white or pale yellow, obovate, 8–10 × 8–10 mm, apex retuse. Male flowers: stamens 35–45, ca. 5 mm; anthers oblong, ca. 4 mm; ovary reduced to a pistillode. Bisexual flowers: ovary globose, 2-loculed with 2 ovules per locule; style apically 2-cleft. Fruit globose, 1.5–2 cm in diam., 2-loculed with 2 seeds per locule. Seeds ellipsoid, ca. 8 × 6 mm. Fl. May–Jun, fr. Aug–Oct.

• Forests; 400–1500(–1900) m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, SE Yunnan.

6. *Ternstroemia biangulipes* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(3): 65. 1983.

角柄厚皮香 jiao bing hou pi xiang

Ternstroemia longipedicellata L. K. Ling.

Shrubs or trees, 4–15 m tall. Young branches reddish brown, glabrous, white lenticellate. Petiole 1–1.5 cm, glabrous; leaf blade oblong to oblong-elliptic, (7–)8.5–16 × (2–)3.5–6.2 cm, leathery, abaxially pale green but reddish brown when dry, adaxially dark green but brown and shiny when dry, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 7–10 on each side of midvein and visible or obscure on both surfaces, base cuneate, margin entire and slightly revolute, apex acuminate to shortly acuminate and

with an acute tip. Flowers axillary, solitary or several clustered on leafless branchlets, ca. 2 cm in diam. Pedicel 1.5–3 cm, compressed, longitudinally 2-ribbed. Male flowers similar to bisexual flowers but ovary reduced to a pistillode. Bisexual flowers: bracteoles 2, caducous before anthesis, lanceolate, ca. 2.5 mm, apex acuminate; sepals elliptic to broadly elliptic, 5–6.5 × 4–5.5 mm, glabrous, margin glandular dentate, apex obtuse or rounded; petals white or pale pink, broadly obovate, 10–11 × ca. 9 mm, basally slightly connate, apex emarginate; stamens ca. 5.5 mm; anthers oblong, ca. 3 mm; ovary globose, 4- or 5-loculed; style 1.5–2 mm, apically 4- or 5-parted; stigma capitate. Fruit globose, ca. 1.5 cm in diam., 4-loculed with 2 seeds per locule. Seeds ellipsoid, slightly compressed, ca. 8 × 4.5 mm. Fl. Jul–Aug, fr. Oct–Nov.

• Forests on mountain slopes; 1300–2600 m. Xizang (Mêdog), NW Yunnan.

This species is expected to be found in N Myanmar.

7. *Ternstroemia gymnanthera* (Wight & Arnott) Beddome, Fl. Sylv. S. India 91. 1871.

厚皮香 hou pi xiang

Shrubs 1.5–10(–15) m tall. Bark grayish brown, smooth. Young branches grayish brown; current year branchlets purplish red to reddish brown, glabrous. Petiole 0.7–1.3 cm, glabrous, adaxially grooved; leaf blade obovate, oblong-obovate, or broadly elliptic, (3–)4–12 × 1.5–5.5 cm, leathery, abaxially pale green becoming reddish brown when dry, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5–7 on each side of midvein and obscure on both surfaces, base cuneate, margin entire or apically sparsely serrate, apex acute to shortly acuminate and with an obtuse tip. Flowers axillary, solitary or several clustered on leafless branchlets, 1–1.8 cm in diam. Pedicel 1–1.5 cm, recurved. Male flowers similar to bisexual flowers but ovary reduced to a pistillode. Bisexual flowers: bracteoles triangular to triangular-ovate, 1.5–2.5 mm, margin glandular dentate, apex acute; sepals ovate to long ovate, 4–7 × 3–4 mm, glabrous, margin glandular dentate, apex rounded; petals pale yellow, obovate, 6–9 × 4–6 mm, apex rounded and retuse; stamens 4–5 mm; anthers oblong, longer than filaments; ovary ovoid, 2-loculed with 2 ovules per locule; style 1–3 mm, apically 2-lobed. Fruit purplish red when mature, globose, 1–1.5 cm in diam., 2-loculed with 1 or 2 seeds per locule. Seeds reniform, ca. 6 × 4 mm. Fl. May–Jul, fr. Sep–Nov.

Forests, thickets; 200–2800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan, Zhejiang [Bhutan, Cambodia, India, Laos, Myanmar, Nepal, Thailand, Vietnam].

The name *Ternstroemia gymnanthera* has often been mistakenly applied to other *Ternstroemia* species in the literature.

- 1a. Leaf blade (3–)4–9 × 1.5–3.5 cm, margin entire; flowers ca. 1 cm in diam.; fruit ca. 1 cm in diam. 7a. var. *gymnanthera*
- 1b. Leaf blade 10–12 × 3.5–5.5 cm, margin apically sparsely serrate; flowers 1.5–1.8 cm in diam.; fruit ca. 1.5 cm in diam. 7b. var. *wightii*

7a. Ternstroemia gymnanthera var. **gymnanthera**

厚皮香(原变种) hou pi xiang (yuan bian zhong)

Cleyera gymnanthera Wight & Arnott, Prodr. Fl. Ind. Orient. 87. 1834; *Hoferia japonica* Franchet; *Ternstroemia parvifolia* Hu; *T. pseudomicrophylla* Hung T. Chang.

Leaf blade (3–)4–9 × 1.5–3.5 cm, margin entire. Flowers ca. 1 cm in diam. Fruit ca. 1 cm in diam. Fl. May–Jul, fr. Sep–Nov.

Forests, thickets; 200–2800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan, Zhejiang [Bhutan, Cambodia, India, Laos, Myanmar, Nepal, Vietnam].

7b. Ternstroemia gymnanthera var. **wightii** (Choisy) Handel-Mazzetti, Symb. Sin. 7: 397. 1931.

阔叶厚皮香 kuo ye hou pi xiang

Cleyera wightii Choisy, Mém. Soc. Phys. Genève 14: 115. 1855; *Ternstroemia japonica* (Thunberg) Thunberg var. *wightii* (Choisy) Dyer.

Leaf blade 10–12 × 3.5–5.5 cm, margin apically sparsely serrate. Flowers 1.5–1.8 cm in diam. Fruit ca. 1.5 cm in diam. Fl. May–Jun, fr. Sep–Nov.

Forests, thickets; 1400–2800 m. Guangdong, Guangxi, Guizhou, Hubei, Hunan, Sichuan, Yunnan [India].

8. Ternstroemia nitida Merrill, J. Arnold Arbor. 8: 10. 1927.

亮叶厚皮香 liang ye hou pi xiang

Shrubs or trees, 2–8(–12) m tall. Bark grayish brown, smooth. Young branches grayish brown, glabrous. Petiole 1–1.5 cm, glabrous; leaf blade oblong-elliptic to oblong-obovate, 6–10 × 2.5–4 cm, papery to thinly leathery, abaxially pale green, adaxially dark green, shiny, and becoming blackish brown when dry, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 7–9 on each side of midvein, abaxially obscure, and adaxially slightly impressed, base cuneate, margin entire, apex acuminate. Flowers axillary, usually solitary. Pedicel 1.5–2 cm, slender, glabrous. Male flowers similar to bisexual flowers but ovary reduced to a pistillode. Bisexual flowers: bracteoles ovate-triangular, ca. 2 × 1.7 mm, margin sparsely glandular dentate, apex acute; sepals ovate to oblong-ovate, 3–5 × 2.5–3.5 mm, both surfaces golden punctate, apex obtuse to rounded; petals white or pale yellow, broadly obovate to oblong-obovate, 5–7 × 4–5 mm, apex rounded; stamens 25–45, 3.5–4.5 mm; anthers oblong, 2–2.5 mm; ovary ovoid, glabrous, 2-loculed with 1 ovule per locule; style apically 2-parted. Fruit purplish red when mature, long ovoid, 10–12 × 8–9 mm. Seeds compressed ovate, 5–6 × 4–5 mm. Fl. Jun–Jul, fr. Aug–Sep.

• Forests on mountain slopes or along streams; 200–900 m. Anhui, Fujian, N Guangdong, NE Guangxi, E Guizhou, S and W Hunan, Jiangxi, S Zhejiang.

9. Ternstroemia coniocarpa L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 185. 1998.

锥果厚皮香 zhui guo hou pi xiang

Shrubs or trees, 3–12 m tall. Young branches grayish brown, glabrous. Petiole 1–2 cm, glabrous; leaf blade elliptic to broadly elliptic, 6–10 × 2.8–5.3 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially slightly impressed, secondary veins 6–8 on each side of midvein, slender, and visible or slightly raised on both surfaces, reticulate veins obscure, base broadly cuneate and ± decurrent, margin entire, apex shortly acuminate to acute and with an obtuse tip. Flowers axillary, solitary. Male flowers (not yet open): pedicel 1.5–3 cm, slightly compressed, glabrous; bracteoles ovate, ca. 2.5 × 2 mm, apex acute; sepals ovate-orbicular to suborbicular, 6–8 × 5–7 mm, glabrous, apex rounded to emarginate; petals white, broadly obovate, ca. 7 × 7–8 mm; stamens more than 50; filaments ca. 1 mm; anthers oblong, ca. 3 mm; pistillode evident. Bisexual flowers not seen. Fruit ovoid to conic, 1.5–2 × 1–1.3 cm, 2-loculed with 1 seed per locule; pedicel 1.5–3 cm; persistent bracteoles ovate, ca. 2.5 mm; persistent sepals ovate-orbicular, ca. 8 × 7 mm. Seeds ovoid-ellipsoid, ca. 10 × 5 mm. Fl. May–Jun, fr. Sep–Oct.

• Forests on hills, slopes, or along streams; 300–500 m. NW Guangdong, NE Guangxi, S Hunan.

10. Ternstroemia sichuanensis L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 186. 1998.

四川厚皮香 si chuan hou pi xiang

Shrubs or trees, 3–8 m tall. Bark blackish brown, smooth. Young branches grayish brown; current year branchlets reddish brown, glabrous. Petiole 5–10 mm; leaf blade elliptic to oblong-elliptic, 6–9 × 2.8–4 cm, leathery to thinly leathery, abaxially pale green to pale yellowish green, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6 or 7 on each side of midvein and obscure, base broadly cuneate to rarely cuneate, margin entire, apex shortly acuminate to acute and with an obtuse tip. Flowers axillary, solitary or several clustered on leafless branchlets. Pedicel 1–1.5 cm, slender, thickening toward apex. Male flowers: bracteoles ovate-triangular to ovate-lanceolate, 1–2.5 × 1–1.5 mm, apex acute; sepals ovate-oblong to oblong, 3–4.5 × 2–3.5 mm, margin glandular dentate, apex rounded to obtuse; petals pale yellow, obovate, 6–7 × ca. 6 mm, apex rounded to slightly emarginate; stamens ca. 45, 4–5 mm; anthers oblong, 2–2.5 mm; pistillode very small. Bisexual flowers not seen. Fruit purplish red when mature, ovoid, 10–12 × ca. 8 mm, 2-loculed with 2 seeds per locule, apex acute; pedicel 1–1.5 cm; bracteoles persistent; persistent sepals oblong, 4–5 × 3–3.5 mm; persistent style ca. 1 mm, apically 2-parted. Seeds long ovate-semiorbicular, ca. 7 × 4 mm. Fl. Jun–Jul, fr. Aug–Oct.

• Forests or thickets on mountain slopes; 600–1800 m. Guizhou, Sichuan.

11. Ternstroemia simaoensis L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 187. 1998.

思茅厚皮香 si mao hou pi xiang

Shrubs or trees, 2–10 m tall. Young branches grayish brown; current year branchlets purplish brown, glabrous. Petiole 1–1.5 cm, glabrous, adaxially grooved; leaf blade oblong to

obovate-oblong, 6–9.5 × 2.5–3.5 cm, thinly leathery, abaxially pale green becoming pale brown or reddish brown when dry, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6–9 on each side of midvein and visible to slightly raised on both surfaces, base cuneate to broadly cuneate, margin entire or apically sparsely serrate, apex acute and with an obtuse tip. Flowers axillary, solitary or several clustered on leafless branches. Pedicel 1–1.5 cm. Male flowers: bracteoles triangular to triangular-ovate, ca. 1.5 × 1 mm, margin glandular dentate; sepals broadly elliptic to suborbicular, ca. 3 × 2 mm, margin glandular dentate, apex rounded; petals yellow, broadly obovate to ovate, ca. 5 × 4 mm; stamens 45–50 or more, 2–3.5 mm; anthers ca. 1 mm; pistillode very small. Bisexual flowers: bracteoles, sepals, and petals similar to those of male flowers; stamens ca. 45; ovary ovoid, 2-loculed with 2 ovules per locule; style short, apically 2-parted. Fruit ellipsoid, 10–12 × 7–9 mm, 2-loculed with 1 seed per locule. Seeds obliquely ovoid, ca. 8 × 5 mm. Fl. May–Jun, fr. Oct–Nov.

- Forests on mountain slopes; 700–1800 m. S Yunnan.

12. Ternstroemia japonica (Thunberg) Thunberg, Trans. Linn. Soc. London 2: 335. 1794.

日本厚皮香 ri ben hou pi xiang

Cleyera japonica Thunberg, Nov. Gen. Pl. 69. 1783; *C. dubia* Champion; *C. fragrans* Champion; *Mokofua japonica* (Thunberg) Kuntze; *Taonabo japonica* (Thunberg) Szyszylowicz; *Ternstroemia dubia* (Champion) Choisy; *T. fragrans* (Champion) Choisy; *T. mokof* Nakai.

Shrubs or trees, 3–10 m tall. Bark grayish brown or dark brown, smooth. Young branches grayish brown; current year branchlets reddish brown, glabrous. Petiole 5–10 mm, glabrous; leaf blade elliptic, obovate-elliptic, or broadly elliptic, (4–)5–7 × (1.4–)2.2–3 cm, leathery, abaxially pale green or glaucous green, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 4–6 on each side of midvein, abaxially visible or obscure, and adaxially slightly impressed, base cuneate, margin entire, apex acute and with an obtuse to retuse tip. Flowers axillary, solitary or several clustered on leafless branches. Male flowers similar to bisexual flowers but ovary reduced to a pistillode. Bisexual flowers 1–1.5 cm in diam.; pedicel 1–1.5 cm; bracteoles 2, triangular-ovate, ca. 1.5 mm, apex acute to acuminate; sepals broadly ovate to suborbicular, ca. 3 × 3–3.5 mm, margin lacerately serrate, apex rounded; petals white or pale yellowish

white, broadly obovate, 4.5–5 × 5–5.5 mm; stamens 40–45, ca. 4.5 mm; anthers oblong, 2.5–3 mm, connective exerted; ovary elliptic-ovoid, 2-loculed with 2–3 ovules per locule; style apically 2-lobed. Fruit ellipsoid, 1.2–1.5 × ca. 1 cm, 2-loculed with 2(or 3) seeds per locule. Seeds long reniform, ca. 5 × 3 mm. Fl. Jun–Jul, fr. Oct–Nov.

Evergreen broad-leaved forests; middle elevations. Taiwan [Japan].

The type specimen and Thunberg's original description of *Cleyera japonica* include elements of both *Cleyera* and *Ternstroemia*. Thunberg subsequently transferred *C. japonica* to *Ternstroemia* but without resolving the problem of the name being based on two different elements. Siebold and Zuccarini (Fl. Jap. 148. 1841) emended Thunberg's description of *T. japonica* to include only the *Ternstroemia* element. See also the discussion under the genus *Cleyera* and under *C. japonica*.

13. Ternstroemia microphylla Merrill, Sunyatsenia 3: 254. 1937.

小叶厚皮香 xiao ye hou pi xiang

Ternstroemia oblancilimba Hung T. Chang; *T. pseudoverticillata* Merrill & Chun.

Shrubs or trees, 1–6(–10) m tall. Young branches slender, grayish brown, glabrous. Petiole ca. 3 mm, glabrous; leaf blade obovate, oblong-obovate, or oblanceolate, rarely narrowly elliptic to narrowly elliptic-oblanceolate, 2–5(–6.5) × 0.6–1.5(–3) cm, leathery to thickly leathery, abaxially pale green, adaxially green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 3 or 4(or 5) on each side of midvein and obscure on both surfaces or adaxially slightly impressed, base cuneate, margin apically sparsely serrulate to subentire, apex acute, obtuse, or rounded. Flowers axillary, solitary or several clustered on leafless branchlets, 5–8 mm in diam. Pedicel 5–10 mm, slender, glabrous. Male flowers: bracteoles, sepals, and petals similar to bisexual flowers; stamens 35–45; pistillode very small. Bisexual flowers: bracteoles ovate-triangular, ca. 1 mm, margins glandular dentate, apex acute; sepals ovate-orbicular, 2–3 × 2–3 mm, margin sparsely glandular dentate, apex rounded; petals white, broadly obovate, ca. 4 × 3.5 mm; stamens 35–45, ca. 3 mm; anthers oblong, ca. 1.5 mm; ovary ovoid, 2-loculed with 1 ovule per locule; style short, apically 2-lobed. Fruit ellipsoid, 8–10 × 5–6 mm, 2-loculed with 1 seed per locule. Seeds long reniform, 5–7 mm. Fl. May–Jun, fr. Aug–Oct.

- Thickets, hills, rock crevices; below 100–1000 m. E Fujian, Guangdong, S Guangxi, Hainan.

8. ANNESLEA Wallich, Pl. Asiat. Rar. 1: 5. 1829, nom. cons., not Roxburgh ex Andrews (1811), nor *Annesia* Salisbury (1807).

茶梨属 cha li shu

Mounthorisia Szyszylowicz.

Shrubs or trees, evergreen. Leaves alternate but often clustered at apex of branches, petiolate; leaf blade leathery, margin entire or rarely serrate. Flowers bisexual, axillary, several to numerous in a corymb, pedicellate. Bracteoles 2, ± persistent, close to sepals. Sepals 5, imbricate, persistent, enlarged in fruit, leathery, basally connate. Petals 5, imbricate, basally slightly connate. Stamens numerous, inserted in receptacle, in 1 or 2 whorls; filaments distinct; anthers linear, connective exerted. Ovary half inferior, 2- or 3(–5)-loculed with 3–10 ovules per locule, placentation axile; ovules suspended from apical corner of locules; style 1, persistent, apically 2- or 3(–5)-lobed. Fruit globose to ellipsoid, dehiscent, wrapped in persistent enlarged sepals; pericarp woody. Seeds with a fleshy red outer layer; embryo with abundant endosperm.

About three species: Cambodia, China, Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam; one species in China.

1. *Anneslea fragrans* Wallich, Pl. Asiat. Rar. 1: 5. 1829.

茶梨 cha li

Anneslea alpina H. L. Li; *A. fragrans* var. *alpina* (H. L. Li) Kobuski; *A. fragrans* var. *hainanensis* Kobuski; *A. fragrans* var. *lanceolata* Hayata; *A. fragrans* var. *rubriflora* (Hu & Hung T. Chang) L. K. Ling; *A. hainanensis* (Kobuski) Hu; *A. lanceolata* (Hayata) Kanehira; *A. rubriflora* Hu & Hung T. Chang; *Callosmia fragrans* (Wallich) C. Presl; *Mountnorrisia fragrans* (Wallich) Szyszylowicz.

Shrubs or trees, 3–15 m tall. Bark dark brown. Young branches grayish brown; current year branchlets reddish brown, glabrous; terminal buds ovate, glabrous. Petiole 2–3.5 cm; leaf blade ovate, elliptic, obovate-elliptic, oblong, or oblong-lanceolate, (4–)6–16 × (2.5–)3–7.3 cm, leathery to thinly leathery, abaxially pale green or glaucescent green and reddish brown glandular punctate, adaxially dark green and shiny, midvein abaxially elevated and adaxially impressed or rarely raised, secondary veins 10–12 on each side of midvein and slightly raised to obscure on both surfaces, base cuneate to broadly cuneate, margin entire or apically sparsely serrate, apex obtuse,

rounded, or rarely obtusely acute. Flowers axillary, several to more than 10 in a corymb. Pedicel (2–)3–6(–7) cm; bracteoles 2, broadly ovate to triangular-ovate, ca. 4 × 3–3.5 mm, margin sparsely glandular. Sepals reddish, broadly ovate, 1–1.5 cm, basally slightly connate, margin glandular. Petals pale yellow, broadly ovate, ca. 1.5 cm, basally connate for ca. 5 mm, apex acute. Stamens 30–40, 1.2–1.5 cm; filaments basally connate for ca. 5 mm; anthers linear, glabrous, connective exerted. Ovary half inferior, glabrous, 2- or 3(–5)-loculed; style 1.5–2 cm, apically 2- or 3(–5)-lobed. Fruit globose to ellipsoid, (1–)2–3.5 cm in diam., 2- or 3(–5)-loculed with 2 or 3 seeds per locule, dehiscent between between persistent enlarged sepals. Seeds long obovate, 7–12 × 4.5–7 mm, with a fleshy red outer layer. Fl. Oct–Mar, fr. Jul–Sep.

Forests or thickets on mountain slopes or in valleys; 300–2700 m. S Fujian, Guangdong, Guangxi, SE Guizhou, Hainan, S Hunan, S Jiangxi, S Taiwan, S and W Yunnan [Cambodia, Laos, Malaysia, Myanmar, Thailand, Vietnam].

Anneslea fragrans is a widespread and somewhat variable species with several varieties having been recognized primarily on leaf character differences. Further study is needed to confirm whether these differences justify taxonomic recognition.

9. ADINANDRA Jack, Malayan Misc. 2(7): 49. 1822.

杨桐属 yang tong shu

Shrubs or trees, evergreen. Leaves petiolate; leaf blade margin entire or serrulate. Flowers bisexual, solitary or paired. Pedicel usually recurved, seldom erect; bracteoles 2, inserted at apex of pedicel, alternate or opposite, persistent or caducous. Sepals 5, persistent, imbricate, unequal, thick, concave, basally slightly connate. Petals 5, imbricate, outside glabrous or sericeous, basally connate. Stamens 15–60, in 1–5 whorls; filaments connate or distinct, adnate to base of sepals, glabrous or with pubescence; anthers basifixed, oblong, with filiform trichomes, connective projected into an apiculum. Ovary pubescent or glabrous, (2 or)3–5-loculed, placentation axile; ovules 20–100 per locule; style 1, simple or apically 3–5-lobed. Fruit baccate, many-seeded, with a persistent style. Seeds brown, minute, foveolate to pitted, shiny; embryo inflexed; endosperm abundant; cotyledons semiterete.

About 85 species: Bangladesh, Cambodia, China, India, Indonesia, S Japan, Laos, Malaysia, Myanmar, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; tropical Africa; 22 species (17 endemic) in China.

Adinandra stenosepala Hu is the basionym of *Xantolis stenosepala* (Hu) P. Royen in the Sapotaceae (see Fl. China 15: 209. 1996).

- 1a. Style apically parted or lobed.
- 2a. Ovary pubescent 6. *A. filipes*
- 2b. Ovary glabrous.
- 3a. Style villous 16. *A. elegans*
- 3b. Style glabrous.
- 4a. Style apically slightly 2-lobed 19. *A. retusa*
- 4b. Style apically 3- or 4-lobed.
- 5a. Leaf blade abaxially reddish glandular punctate; pedicel 0.6–0.8 cm 17. *A. pingbianensis*
- 5b. Leaf blade abaxially not glandular punctate; pedicel 1–2 cm 18. *A. nitida*
- 1b. Style simple.
- 6a. Ovary glabrous.
- 7a. Leaf blade 4–7 mm wide *A. angustifolia* (see Addendum, p. 477)
- 7b. Leaf blade 10 mm wide or more.
- 8a. Ovary more than 3-loculed.
- 9a. Petiole 10–20 mm, leaf blade elliptic, 13–18 × 5.5–8.5 cm, abaxially glabrous, base broadly cuneate, apex acute and with an obtuse tip; pedicel 1–1.8 cm 4. *A. grandis*
- 9b. Petiole 1–1.5 mm, leaf blade lanceolate to narrowly lanceolate, 7.5–12.5 × 1.9–2.5 cm, abaxially appressed pubescent and densely so along midvein, base obliquely auriculate, apex long acuminate to caudate-acuminate; pedicel 0.5–0.7 cm 5. *A. auriformis*

- 8b. Ovary 3-loculed.
- 10a. Petiole 0.3–0.5 cm; leaf blade abaxially not glandular; petals ovate to suborbicular, outside sericeous; filaments glabrous 20. *A. howii*
- 10b. Petiole 1.5–2 cm; leaf blade abaxially glandular punctate; petals broadly obovate to oblong-obovate, outside glabrous; filaments with dense filiform trichomes on apical 1/2 21. *A. nigroglandulosa*
- 6b. Ovary pubescent.
- 11a. Ovary 5(or 6)-loculed.
- 12a. Style glabrous 3. *A. latifolia*
- 12b. Style sericeous.
- 13a. Leaf blade abaxially reddish brown glandular punctate 2. *A. hainanensis*
- 13b. Leaf blade abaxially not glandular punctate.
- 14a. Leaf blade secondary veins 20–26 on each side of midvein; bracteoles oblong, 6–7 mm; sepal apex obtuse; petals 10–13 × 6–7 mm 1. *A. megaphylla*
- 14b. Leaf blade secondary veins 12–16 on each side of midvein; bracteoles ovate to long ovate, 2–3.5 mm; sepal apex acute; petals 8–10 × 5–6 mm 7. *A. integerrima*
- 11b. Ovary 3-loculed.
- 15a. Style pubescent at least basally (*A. hirta* var. *macrobracteata* sometimes with a glabrous style).
- 16a. Leaf blade abaxially hirsute with trichomes projecting beyond margin.
- 17a. Petiole 8–10 mm; pedicel 6–16 mm, bracteoles caducous; petals outside hirtellous along median portion; style densely hirsute on basal 2/3 or entire length 10. *A. glischroloma*
- 17b. Petiole 5–7 mm; pedicel 5–6 mm, bracteoles persistent; petals outside glabrous; style hirtellous or only basally hirtellous 11. *A. hirta*
- 16b. Leaf blade abaxially appressed pubescent with trichomes not projecting beyond margin.
- 18a. Pedicel 2–4 cm 6. *A. filipes*
- 18b. Pedicel 0.5–0.7 cm.
- 19a. Petiole 3–5 mm; leaf blade acuminate; bracteoles caducous; filaments 1.5–2 mm, glabrous; style ca. 10 mm 8. *A. lasiostyla*
- 19b. Petiole 8–15 mm; leaf blade abruptly acute; bracteoles persistent; filaments 2–4 mm, pubescent; style 3–4 mm 9. *A. epunctata*
- 15b. Style glabrous.
- 20a. Sepals 4–6 mm; petals outside densely sericeous along median portion.
- 21a. Petiole 2–3 mm; leaf blade lanceolate to oblong-lanceolate, base broadly cuneate to rounded; pedicel 0.5–0.9 cm; petals lanceolate to obovate-lanceolate, apex acuminate; stamens 15–17; persistent sepals reflexed 14. *A. lancipetala*
- 21b. Petiole 5–7 mm; leaf blade oblong to oblong-ovate, base cuneate; pedicel 1–2 cm; petals ovate, apex rounded and mucronate; stamens 25–30; persistent sepals not reflexed 15. *A. bockiana*
- 20b. Sepals 7–11 mm; petals outside glabrous.
- 22a. Leaf blade margin apically serrate; pedicel 2.5–3.5 cm 12. *A. formosana*
- 22b. Leaf blade margin entire; pedicel 0.5–2 cm.
- 23a. Petiole 5–7 mm; leaf blade 9–12.5(–16) × 3–4.5(–5.8) cm; pedicel 5–6 mm, bracteoles 6–10 mm 11. *A. hirta*
- 23b. Petiole 3–5 mm; leaf blade 4.5–9 × 2–3 cm; pedicel ca. 20 mm, bracteoles 2–3 mm 13. *A. millettii*

1. *Adinandra megaphylla* Hu, Bull. Fan Mem. Inst. Biol., Bot. 6: 172. 1935.

大叶杨桐 da ye yang tong

Adinandra petelotii Gagnepain; *A. serrulata* H. L. Li.

Trees 5–20 m tall. Bark grayish brown. Young branches brown, glabrous; current year branchlets densely ferruginous-brown appressed pubescent; terminal buds densely ferruginous appressed pubescent. Petiole 1–1.5 cm, appressed ferruginous pubescent; leaf blade oblong to oblong-elliptic, 14–25(–28.5) × 4–7(–8.5) cm, leathery, abaxially pale green, ferruginous appressed pubescent or glabrescent, and becoming pale brown when dry, adaxially dark green and pubescent along midvein

when young but glabrescent, midvein abaxially elevated and adaxially impressed, secondary veins 20–26 on each side of midvein and slightly raised on both surfaces, base broadly cuneate to rounded, margin serrulate, apex acuminate. Flowers axillary, solitary. Pedicel 2–4 cm, slender, recurved, appressed pubescent, apically thickened; bracteoles caducous, oblong, 6–7 × ca. 3 mm, both surfaces appressed pubescent. Sepals broadly ovate, unequal, 1–1.3 × 0.8–1 cm, leathery, outside sericeous along median portion, inside glabrous, apex obtuse. Petals white, broadly ovate-oblong to elliptic, unequal, 10–13 × 6–7 mm, outside ferruginous sericeous along middle portion, inside glabrous. Stamens 40–45; filaments ca. 2 mm, distinct, glabrous; anthers ca. 4 mm, abaxially densely sericeous, connective exerted. Ovary conic, densely ferruginous sericeous, 5-

loculed with many ovules per locule; style ca. 1 cm, simple, densely sericeous. Fruit purplish black when mature, globose, ca. 2 cm in diam., densely sericeous. Seeds brown, compressed reniform, shiny. Fl. Jun–Jul, fr. Oct–Nov.

Forests on mountain slopes or in valleys; 1200–1900 m. NW Guangxi, SE Yunnan [N Vietnam].

2. *Adinandra hainanensis* Hayata, Icon. Pl. Formosan. 3: 43. 1913.

海南杨桐 hai nan yang tong

Adinandra hainanensis Merrill (1923), not Hayata (1913); *A. maclurei* Merrill; *A. rubropunctata* Merrill & Chun.

Shrubs or trees, 5–10(–25) m tall. Young branches grayish brown to brown, glabrous; current year branchlets reddish brown, densely yellowish brown appressed pubescent; terminal buds yellowish brown pubescent. Petiole 5–10 mm, pubescent; leaf blade oblong-elliptic to oblong-obovate, 6–8(–13) × 2–3(–6) cm, leathery, abaxially pale green, appressed pubescent when young but glabrescent, and densely reddish brown glandular punctate, adaxially shiny green, midvein abaxially not impressed, secondary veins 10–13 on each side of midvein, secondary and reticulate veins evident on both surfaces, base cuneate, margin serrulate, apex shortly acuminate. Flowers axillary, solitary or paired. Pedicel 7–10(–20) mm, recurved, grayish brown pubescent or glabrescent; bracteoles caducous, ovate, 3–5 × 1.5–3 mm, outside appressed pubescent. Sepals ovate, 6–10 × 6–7 mm, outside grayish brown sericeous, apex slightly acute to subrounded; outer sepals thicker, margin reddish glandular denticulate; inner sepals membranous, margin entire. Petals white, oblong to oblong-elliptic, 7–9 × 3–5 mm, outside yellowish brown sericeous along median portion, basally connate, apex obtuse. Stamens 30–45, 5.5–7 mm; filaments 3–4 mm, glabrous, adnate to base of sepals; anthers linear, 2–3 mm, with filiform trichomes, connective with a ca. 1 mm apiculum. Ovary ovoid, densely tawny sericeous, 5-loculed with many ovules per locule; style simple, 5–7 mm, sericeous. Fruit purplish black, globose, 1–1.5 cm in diam., pubescent, 5-loculed with many seeds per locule. Seeds black, compressed reniform, shiny. Fl. May–Jun, fr. Sep–Oct.

Forests or thickets on mountain slopes or in valleys; 1000–1800 m. SW Guangdong, S Guangxi, Hainan [N Vietnam].

3. *Adinandra latifolia* L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 189. 1998.

阔叶杨桐 kuo ye yang tong

Trees 10–15 m tall. Young branches grayish brown, glabrous, lenticellate; current year branchlets yellowish brown pubescent. Petiole ca. 5 mm, densely yellowish brown pubescent; leaf blade oblong-elliptic to oblong, 13–20.5 × 4–6.5 cm, leathery, abaxially yellowish green and yellowish brown appressed pubescent particularly along midvein and near margin with trichomes persistent and projecting beyond margin, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 25–30 on each side of midvein, secondary and reticulate veins raised on both surfaces, base broadly cuneate, margin entire and slightly reflexed, apex

acuminate. Flowers axillary, solitary or paired. Pedicel 5–10 mm, thick, densely yellowish brown pubescent; bracteoles persistent, ovate, ca. 5 × 3 mm, outside appressed pubescent, apex abruptly acute. Sepals broadly ovate, 8–10 × 6–9 mm, outside yellowish brown sericeous, apex obtuse to rounded and mucronate. Petals white, obovate, 10–12 × 5–6 mm, outside yellowish sericeous along median portion, apex rounded. Stamens 30–35, 7–8 mm; filaments 2–3 mm, nearly distinct, glabrous; anthers linear-oblong, 3.5–4.5 mm, with filiform trichomes, connective exerted. Ovary ovoid, yellowish sericeous, 5(or 6)-loculed with many ovules per locule; style simple, ca. 8 mm, glabrous. Fruit globose, ca. 1.5 cm in diam., sericeous, 5(or 6)-loculed with many seeds per locule. Seeds blackish brown, shiny. Fl. Aug–Sep, fr. Nov–Dec.

• Forests on mountain slopes or along streams; 1300–1400 m. Yunnan (Gongshan).

This species is expected to be found in N Myanmar.

4. *Adinandra grandis* L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 190. 1998.

大杨桐 da yang tong

Trees 13–20 m tall. Young branches grayish brown; current year branchlets green and glabrous; terminal buds long conic, ca. 2 cm, glabrous. Petiole 1–2 cm, thick, glabrous; leaf blade elliptic, 13–18 × 5.5–8.5 cm, leathery, abaxially pale green and reddish brown glandular punctate, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins ca. 20 on each side of midvein and evident or slightly raised on both surfaces, base broadly cuneate, margin entire, apex acute and with an obtuse tip. Flowers axillary, 2 or 3 in a cluster. Pedicel 1–1.8 cm; bracteoles caducous, ovate, ca. 2.5 mm. Sepals broadly ovate, 8–10 × 6–7 mm, concave, leathery, glabrous, margin ciliolate, apex rounded to obtuse and mucronate. Petals white, broadly ovate, 1–1.4 × ca. 0.8 cm, glabrous. Stamens 46–50, 7–10 mm; filaments 2–3 mm, glabrous; anthers linear-oblong, 5–7 mm, with filiform trichomes. Ovary ovoid, glabrous, (4 or 5)(or 6)-loculed with many ovules per locule; style simple, ca. 5 mm, glabrous. Fruit not seen. Fl. Jun–Jul.

• Forests; 900–1400 m. Yunnan (Yuanyang).

5. *Adinandra auriformis* L. K. Ling & S. Ye Liang in L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 190. 1998.

耳基叶杨桐 er ji ye yang tong

Shrubs or small trees. Young branches grayish brown, glabrescent; current year branchlets densely yellowish brown spreading villous; terminal buds long conic, ca. 8 mm, yellowish brown sericeous. Petiole 1–1.5 mm, abaxially pubescent, adaxially grooved; leaf blade lanceolate to narrowly lanceolate, 7.5–12.5 × 1.9–2.5 cm, thinly leathery, abaxially yellowish green and appressed pubescent densely so along midvein, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 14–16 on each side of midvein, abaxially slightly raised, and adaxially visible, base obliquely auriculate and amplexicaul, margin inconspicuously serrulate, apex long acuminate to caudate-acuminate. Flowers

axillary, solitary. Pedicel 5–7 mm, ca. 1.5 mm in diam., sparsely pubescent; bracteoles caducous. Sepals 5, ovate to long ovate, 7–9 × 5–6 mm, outside sericeous near apex, apex acute. Petals white. Stamens ca. 34, 4–4.5 mm; filaments ca. 1.5 mm, almost distinct, glabrous; anthers linear, ca. 1.5 mm, glabrous, connective exerted for ca. 1 mm. Ovary ovoid, glabrous, 5-loculed with many ovules per locule; style simple, ca. 3 mm, glabrous. Fruit ovoid, ca. 1.3 × 0.8–0.9 cm, with few seeds per locule. Seeds brown, compressed reniform, shiny.

- Guangxi (without precise locality or date).

This species is known only from the type.

6. *Adinandra filipes* Merrill ex Kobuski, J. Arnold Arbor. 28: 22. 1947.

细梗杨桐 xi geng yang tong

Shrubs to 4 m tall. Young branches grayish brown; current year branchlets reddish brown, appressed pubescent or glabrescent; terminal buds yellowish brown pubescent. Petiole ca. 2 mm, abaxially sparsely pubescent, adaxially grooved; leaf blade oblong-elliptic, 7–10 × 2–2.7 cm, leathery, abaxially pale green, sparsely pubescent when young but glabrescent, and reddish brown glandular punctate, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 12–15 on each side of midvein, abaxially obscure, and adaxially visible, base broadly cuneate, margin serrulate or rarely basally entire, apex acuminate. Flowers axillary, solitary. Pedicel 2–4 cm, slender, recurved; bracteoles caducous. Sepals ovate to oblong-ovate, 5–8 mm, outside obscurely pubescent, margin ciliolate, apex acute. Petals white, 7–8 mm, glabrous. Stamens 5–6 mm; anthers with filiform trichomes. Ovary densely pubescent, 3-loculed; style ca. 6 mm, pubescent, apically 3-parted. Fruit ovoid, ca. 1 cm in diam., sparsely pubescent. Fl. Apr, fr. Aug–Sep.

- Forests; 1400–1600 m. Guangxi (Lingyun).

7. *Adinandra integerrima* T. Anderson ex Dyer in J. D. Hooker, Fl. Brit. India 1: 282. 1874.

全缘叶杨桐 quan yuan ye yang tong

Adinandra lutescens Craib; *A. phlebophylla* Hance.

Trees 5–15 m tall. Young branches grayish brown, glabrous; current year branchlets densely fulvous pubescent; terminal buds fulvous sericeous. Petiole 5–7(–12) mm, appressed pubescent when young but glabrescent; leaf blade oblong-elliptic to oblong-ovate, 8–13 × 3–5 cm, leathery, abaxially pale green, sparsely appressed pubescent or glabrescent, and becoming yellowish green when dry, adaxially dark green, slightly shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 12–16 on each side of midvein and raised on both surfaces, base broadly cuneate, margin entire or apical portion undulately denticulate, apex acuminate. Flowers axillary, solitary. Pedicel 2–3.5 cm, thick, recurved, appressed pubescent or glabrescent; bracteoles caducous, ovate to long ovate, 2–3.5 mm, sparsely pubescent. Sepals ovate to triangular-ovate, 1–1.3 × 1–1.3 cm, leathery, outside sparsely pubescent or glabrescent, margin glandular and ciliolate, apex acute. Petals white, broadly ovate to oblong-ovate, 8–10 × 5–6 mm,

outside yellowish sericeous along median portion, apex obtuse to acute. Stamens ca. 30, 5–6 mm; filaments 1.5–2 mm, glabrous, basally slightly connate; anthers oblong, 2.5–3 mm, with filiform trichomes, connective exerted. Ovary depressed globose, yellowish brown sericeous, 5-loculed with many ovules per locule; style simple, 3–5 mm, sericeous. Fruit red when mature, ovoid to globose, 1–1.7 cm in diam., many seeded, appressed pubescent. Seeds brown, compressed-reniform, small, shiny. Fl. Apr–May, fr. Sep–Oct.

Forests in valleys or on mountain slopes; 700–1900 m. S and SE Yunnan [Cambodia, Malaysia, Myanmar, Thailand, Vietnam].

8. *Adinandra lasiostyla* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 42. 1911.

毛挂杨桐 mao zhu yang tong

Trees 8–15 m tall. Young branches grayish brown, glabrous; current year branchlets yellowish brown appressed pubescent; terminal buds yellowish brown appressed pubescent. Petiole 3–5 mm, pubescent; leaf blade oblong-elliptic, 8–13 × 2–5 cm, leathery, abaxially pale green and appressed pubescent, adaxially shiny green and glabrous, secondary veins ca. 12 on each side of midvein, abaxially ± visible, and adaxially obscure, base broadly cuneate, margin entire or obscurely serrulate, apex acuminate. Flowers axillary, solitary. Pedicel ca. 5 mm, recurved, pubescent; bracteoles caducous. Sepals ovate, ca. 6 × 5 mm, outside pubescent, margin glandular. Petals white, oblong, ca. 9 × 5 mm, outside sericeous along median portion, apex obtuse and sometimes mucronate. Stamens 20–25, 5–5.5 mm; filaments 1.5–2 mm, distinct, glabrous; anthers linear-oblong, ca. 2.5 mm, with filiform trichomes, connective exerted for 1–1.5 mm. Ovary subglobose, densely sericeous, 3-loculed with many ovules per locule; style ca. 1 cm, completely united, basally sericeous. Fruit globose, ca. 5 mm in diam., many seeded, sparsely pubescent. Fl. May, fr. Oct.

- Forests; 2200–2500 m. C and S Taiwan.

9. *Adinandra epunctata* Merrill & Chun, Sunyatsenia 5: 132. 1940.

无腺杨桐 wu xian yang tong

Trees 12–18 m tall. Young branches grayish brown, glabrescent; current year branchlets ferruginous appressed pubescent; terminal buds conic, densely ferruginous sericeous. Petiole 0.8–1.5 cm, appressed pubescent; leaf blade elliptic-oblong, 5–11 × 2–4 cm, leathery, abaxially pale green becoming ferruginous brown when dry, grayish brown appressed pubescent or glabrescent, and not glandular punctate, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 12–15 on each side of midvein and adaxially visible, base cuneate, margin entire, apex abruptly acute. Flowers axillary, solitary or rarely paired, ca. 1 cm in diam. Pedicel ca. 7 mm, slightly recurved, densely grayish brown pubescent; bracteoles persistent, ovate, ca. 3 × 1.7–2 mm, outside densely pubescent, apex acute. Sepals ovate, ca. 5 × 3–3.5 mm, outside densely yellowish brown appressed pubescent, apex acute. Petals white, oblong-ovate, 6–7 × 3–4 mm, outside yellowish brown sericeous along median portion, basally slightly connate, apex rounded to obtuse. Stamens ca. 25,

unequal, 4–6 mm; filaments 2–4 mm, pubescent; anthers lanceolate, 1.5–2 mm, with filiform trichomes, connective exerted. Ovary conic to ovoid, densely gray sericeous, 3-loculed; style 3–4 mm, completely united, sericeous. Fruit ovoid, ca. 5 × 4 mm, 3-loculed with 7–10 seeds per locule, sericeous. Seeds brown, shiny. Fl. Nov–Dec.

- Forests on mountaintops; ca. 1300 m. Hainan (Ding'an).

10. *Adinandra glischroloma* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 60: 96. 1924.

两广杨桐 liang guang yang tong

Shrubs or trees, 3–8 m tall. Young branches grayish brown; current year branchlets and terminal buds densely spreading yellowish brown or ferruginous villous. Petiole 8–10 mm, densely hirsute; leaf blade oblong-elliptic, 8–13 × 2.5–4.5 cm, leathery, abaxially yellowish green and yellowish brown to ferruginous hirsute with trichomes projecting beyond margin, adaxially dark green and glabrous, secondary veins 10–12 on each side of midvein and conspicuous on both surfaces, base cuneate to rarely rounded, margin entire, apex acuminate. Flowers axillary, 2 or 3 in a cluster, rarely solitary. Pedicel 0.6–1.5 cm, often recurved, densely hirsute; bracteoles caducous. Sepals broadly ovate, 5–14 mm, outside densely ferruginous hirtellous, apex acute. Petals white, oblong to ovate-oblong, 8–15 × 4–6 mm, outside hirtellous along median portion, apex rounded. Stamens 25–30, 5–9 mm; filaments glabrous; anthers linear, 2–4.5 mm, with filiform trichomes, connective exerted. Ovary ovoid, densely hirsute, 3-loculed with many ovules per locule; style ca. 8 mm, completely united, densely hirsute on basal 2/3 or entire length. Fruit black when mature, globose, 0.8–1.3 cm in diam., densely hirsute. Fl. May–Jun, fr. Sep–Oct.

- Forests, thickets; 200–1800 m. Fujian, Guangdong, E and S Guangxi, S Hunan, E and S Jiangxi, S Zhejiang.

- 1a. Older leaf blades abaxially densely ferruginous hirsute on entire surface, trichomes to 5 mm 10c. var. *jubata*
 1b. Older leaf blades abaxially densely hirsute at margin otherwise sparsely hirsute or glabrescent, trichomes to 3 mm.
 2a. Sepals 5–7 mm; petals ca. 0.8 cm 10a. var. *glischroloma*
 2b. Sepals 11–14(–15) mm; petals 1.3–1.5 cm 10b. var. *macrosepala*

10a. *Adinandra glischroloma* var. *glischroloma*

两广杨桐(原变种) liang guang yang tong (yuan bian zhong)

Adinandra chinensis Merrill & F. P. Metcalf.

Older leaf blades abaxially densely hirsute at margin otherwise sparsely hirsute or glabrescent, trichomes to 3 mm. Sepals 5–7(–8) mm. Petals ca. 8 mm. Fruit 8–9 mm in diam. Fl. May–Jun, fr. Sep–Oct.

- Forests on mountain slopes or in valleys; 600–1800 m. N Guangdong, E Guangxi, S Hunan, S Jiangxi.

10b. *Adinandra glischroloma* var. *macrosepala* (F. P. Metcalf) Kobuski, J. Arnold Arbor. 28: 20. 1947.

大萼杨桐 da e yang tong

Adinandra macrosepala F. P. Metcalf, Lingnan Sci. J. 11: 18. 1932.

Older leaf blades abaxially densely hirsute at margin otherwise sparsely hirsute or glabrescent, trichomes to 3 mm. Sepals 1.1–1.4(–1.5) cm. Petals 1.3–1.5 cm. Fruit to 1.3 cm in diam. Fl. May–Jul, fr. Sep.

- Forests, thickets; 200–1700 m. Fujian, N Guangdong, E Guangxi, E and S Jiangxi, S Zhejiang.

10c. *Adinandra glischroloma* var. *jubata* (H. L. Li) Kobuski, J. Arnold Arbor. 28: 21. 1947.

长毛杨桐 chang mao yang tong

Adinandra jubata H. L. Li, J. Arnold Arbor. 25: 422. 1944.

Older leaf blades abaxially densely ferruginous hirsute on entire surface, trichomes to 5 mm. Fl. May–Jun, fr. Sep–Oct.

- Forests. S Fujian, Guangdong, S Guangxi.

11. *Adinandra hirta* Gagnepain, Notul. Syst. (Paris) 10: 113. 1942.

粗毛杨桐 cu mao yang tong

Shrubs or trees, 3–15(–25) m tall. Current year branchlets densely brown to ferruginous spreading hirsute, indumentum ± persistent; terminal buds densely brown to ferruginous hirsute. Petiole 5–7 mm, ferruginous hirsute; leaf blade oblong-elliptic to elliptic, 9–12.5(–16) × 3–4.5(–5.8) cm, leathery, abaxially yellowish green, densely grayish brown to ferruginous hirsute with trichomes projecting beyond margin, and becoming brown when dry, adaxially green to yellowish green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–13 on each side of midvein and raised on both surfaces, base broadly cuneate, margin entire and densely hirsute, apex acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 5–6 mm, hirsute; bracteoles persistent, ovate to broadly ovate, 4–10 × 3–5 mm, outside hirtellous, apex acute. Sepals ovate to long ovate, 8–11 × 3.5–5 mm, outside densely yellowish brown hirtellous, inside glabrous, apex acute. Petals white, long ovate to ovate-lanceolate, 10–12 × 4–5 mm, outside glabrous. Stamens 30–35, 8–9 mm; filaments 4–5 mm, pubescent, basally adnate to petals; anthers linear, 3–4 mm, with filiform trichomes, connective exerted. Ovary densely hirtellous, 3-loculed with many ovules per locule; style 8–10 mm, completely united, hirtellous, only basally hirtellous, or glabrous. Fruit globose, ca. 8 mm in diam., densely hirtellous. Fl. Apr–May, fr. Jul–Aug.

- Forests on mountain slopes or in valleys; 400–1900 m. SW Guangdong, E, N, and SW Guangxi, SE Guizhou, SE Yunnan.

- 1a. Bracteoles 4–6 × 3–4 mm; style hirtellous on entire length 11a. var. *hirta*
 1b. Bracteoles 6–10 × 4.5–5 mm; style slender, glabrous or only basally hirtellous 11b. var. *macrobracteata*

11a. *Adinandra hirta* var. *hirta*

粗毛杨桐(原变种) cu mao yang tong (yuan bian zhong)

Adinandra glischroloma Handel-Mazzetti var. *hirta* (Gagnepain) Kobuski.

Bracteoles 4–6 × 3–4 mm. Style hirtellous on entire length.

• Forests on mountain slopes or in valleys; 400–1900 m. SW Guangdong, N and SW Guangxi, SE Guizhou, SE Yunnan.

11b. *Adinandra hirta* var. *macrobracteata* L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 191. 1998.

大萼粗毛杨桐 da e cu mao yang tong

Bracteoles 6–10 × 4.5–5 mm. Style slender, glabrous or only basally hirtellous.

• Forests on mountain slopes or in valleys; 700–1000 m. E and N Guangxi, SE Guizhou.

12. *Adinandra formosana* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 22: 45. 1906.

台湾杨桐 tai wan yang tong

Shrubs or small trees. Young branches grayish brown, glabrous; current year branchlets reddish brown, grayish brown pubescent; terminal buds pubescent. Petiole 3–7 mm, pubescent or glabrescent; leaf blade ovate-oblong, obovate-oblong, oblong, or elliptic, (4–)5–9 × (2–)2.5–3.5 cm, thinly leathery, abaxially pale green and sparsely pubescent or glabrescent, adaxially shiny green and glabrous, secondary veins 10–12 on each side of midvein and visible on both surfaces, base cuneate, margin basally entire and apically serrulate, apex shortly acuminate, acute, or obtuse. Flowers axillary, solitary. Pedicel (1.5–)2.5–3.5 cm, slender, slightly recurved; bracteoles ovate-lanceolate, lanceolate, or linear, (2–)4–5 × (1–)2(–3) mm, outside sparsely pubescent to subglabrous. Sepals ovate to ovate-lanceolate, 7–9 × 3–5 mm, outside sparsely pubescent to subglabrous, margin glandular, apex acute. Petals white, oblong-ovate, 7–10 × 4–6 mm, outside glabrous, apex acute. Stamens 20–25, 6–7 mm; filaments 2–3 mm, glabrous; anthers linear-lanceolate, 2–2.5 mm, with filiform trichomes, connective exerted. Ovary pubescent, 3-loculed with many ovules per locule; style 4–5 mm, completely united, glabrous. Fruit globose, 7–8 mm in diam., many seeded, sparsely pubescent. Seeds brown, shiny. Fl. Apr–Jun, fr. Aug–Sep.

• Forests, thickets; 200–1900 m. Taiwan.

- 1a. Leaf blade apex acute, acuminate, or shortly caudate; bracteoles ovate-lanceolate to obovate-lanceolate, 2–3 mm wide 12a. var. *formosana*
 1b. Leaf blade apex obtuse to shortly acute; bracteoles linear, ca. 1 mm wide 12b. var. *obtusissima*

12a. *Adinandra formosana* var. *formosana*

台湾杨桐(原变种) tai wan yang tong (yuan bian zhong)

Adinandra formosana var. *caudata* H. Keng; *A. formosana* var. *hypochlora* (Hayata) Yamamoto ex H. Keng; *A. hypochlora* Hayata; *A. millettii* (Hooker & Arnott) Benth. & J. D. Hooker ex Hance var. *formosana* (Hayata) Kobuski; *A. pedunculata* Hayata.

Petiole 3–7 mm; leaf blade ovate-oblong, obovate-oblong, or oblong, 5–9 × 2.5–3.5 cm, apex acute, shortly acuminate, or caudate. Bracteoles ovate-lanceolate to obovate-lanceolate, 2–3 mm wide.

• Forests, thickets; 200–1900. Taiwan.

12b. *Adinandra formosana* var. *obtusissima* (Hayata ex Yamamoto) H. Keng, Taiwania 1: 245. 1950.

钝叶台湾杨桐 dun ye tai wan yang tong

Adinandra obtusissima Hayata ex Yamamoto, J. Soc. Trop. Agric. 5: 347. 1933; *A. millettii* var. *obtusissima* (Hayata ex Yamamoto) Kobuski.

Petiole 5–7 mm; leaf blade elliptic, 4–8 × 2–3.5 cm, apex very obtuse to shortly acute. Bracteoles linear, ca. 1 mm wide.

• Forests; 400–1000 m. S Taiwan.

13. *Adinandra millettii* (Hooker & Arnott) Benth. & J. D. Hooker ex Hance, J. Bot. 16: 9. 1878.

杨桐 yang tong

Cleyera millettii Hooker & Arnott, Bot. Beechey Voy. 171. 1833; *Adinandra drakeana* Franchet; *A. hemsleyi* Handel-Mazzetti ex F. P. Metcalf.

Shrubs or trees, 2–10(–16) m tall. Young branches brown, glabrous; current year branchlets grayish brown appressed pubescent; terminal buds appressed pubescent. Petiole 3–5 mm, sparsely pubescent or glabrescent; leaf blade oblong-elliptic, 4.5–9 × 2–3 cm, leathery, abaxially pale green to yellowish green and appressed pubescent when young but glabrescent, adaxially shiny green and glabrous, secondary veins 10–12 on each side of midvein and visible on both surfaces, base cuneate, margin entire or apically sparsely serrate, apex shortly acuminate to rarely acuminate and with an obtuse tip. Flowers axillary, solitary. Pedicel ca. 2 cm, slender, sparsely pubescent or glabrescent; bracteoles caducous, linear-lanceolate, 2–3 × ca. 1 mm. Sepals ovate-lanceolate to ovate-triangular, 7–8 × 4–5 mm, outside sparsely pubescent or glabrescent, margin ciliolate and glandular, apex acute. Petals white, ovate-oblong to oblong, ca. 9 × 4–5 mm, glabrous, apex acute. Stamens ca. 25, 6–7 mm; filaments ca. 3 mm, distinct or nearly so, glabrous or apically white pubescent; anthers linear-oblong, 1.5–2.5 mm, with filiform trichomes, connective exerted. Ovary globose, pubescent, 3-loculed with many ovules per locule; style 7–8 mm, completely united, glabrous. Fruit black when mature, globose, ca. 1 cm in diam., many seeded, pubescent. Seeds shiny brown. Fl. May–Jul, fr. Aug–Oct.

Thickets or forests on mountain slopes; 100–1300(–1800) m. Anhui, Fujian, Guangdong, Guangxi, E Guizhou, SE Hubei, S Hunan, Jiangxi, SW Zhejiang [Vietnam].

14. *Adinandra lancipetala* L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 192. 1998.

狭瓣杨桐 xia ban yang tong

Shrubs or trees, 2–18 m tall. Young branches grayish brown, glabrous; current year branchlets densely yellowish brown spreading villous; terminal buds yellowish brown spreading villous. Petiole 2–3 mm, pubescent; leaf blade lanceolate to oblong-lanceolate, 6–10 × 1.7–3 cm, thinly leathery, abaxially pale green and densely yellowish brown appressed pubescent particularly along midvein, adaxially dark green and glabrous, secondary veins 10–13 on each side of midvein and visible on both surfaces or abaxially slightly raised, base broadly cuneate to rounded, margin entire, apex acuminate, long acuminate, or rarely subcaudate. Flowers axillary, solitary or paired. Pedicel 5–9 mm, densely pubescent; bracteoles persistent, ovate to long ovate, 1–3 mm, outside densely pubescent, apex acute. Sepals long ovate, 4–6 × 2–2.5 mm, outside densely yellowish brown appressed pubescent, margin ciliolate or sometimes intermixed with glands, apex acute. Petals yellowish white, lanceolate to obovate-lanceolate, 6–12 × 2–3 mm, outside densely yellowish brown sericeous along median portion, apex acuminate. Stamens 15–17, 4–6 mm; filaments 1.5–2 mm, nearly distinct, glabrous; anthers linear-lanceolate, 2–2.5 mm, with filiform trichomes, connective exerted for 1–1.5 mm. Ovary ovoid, yellowish brown tomentose, 3-loculed with many ovules per locule; style 4–9 mm, completely united, glabrous. Fruit globose, ca. 8 mm in diam., many seeded; persistent sepals reflexed. Seeds brown, compressed reniform, shiny. Fl. Jan–Feb, fr. May–Jun.

Forests on mountain slopes or tops; 500–1000 m. Guangxi (Longzhou), Yunnan (Funing) [N Vietnam].

15. *Adinandra bockiana* E. Pritzl, Bot. Jahrb. Syst. 29: 474. 1900.

川杨桐 chuan yang tong

Shrubs or trees, 2–9 m tall. Young branches blackish brown, glabrous or subglabrous; current year branchlets, terminal buds, petioles, and pedicels densely yellowish brown to ferruginous spreading villous or grayish brown appressed pubescent. Petiole 5–7 mm; leaf blade oblong to oblong-ovate, 9–13 × 3–4 cm, leathery, abaxially pale green and densely yellowish brown to ferruginous villous or sparsely appressed pubescent to glabrescent, adaxially dark green and shiny, secondary veins 11–12 on each side of midvein and inconspicuous on both surfaces, base cuneate, margin entire and slightly revolute, apex acuminate to long acuminate and with a 1–2 mm acumen. Flowers axillary, solitary. Pedicel 1–2 cm; bracteoles caducous, linear-oblong, 3–4 × ca. 1.5 mm, densely villous. Sepals broadly ovate to ovate, 5–6 × 3.5–4 mm, margin glandular and ciliolate, apex obtuse to rounded and mucronate. Petals white, broadly ovate, 6–7 × 4–5 mm, outside yellowish brown sericeous along median portion, apex rounded and mucronate. Stamens 25–30, ca. 5 mm; filaments 1.5–2.5 mm, distinct, glabrous; anthers linear-lanceolate, 1.5–2 mm, with filiform trichomes, connective exerted. Ovary globose, sericeous, 3-loculed with many ovules per locule; style, 5–6 mm, completely united, glabrous. Fruit purplish black when mature, globose, ca.

1 cm in diam., many seeded, sparsely pubescent; persistent sepals not reflexed. Seeds reddish brown, shiny. Fl. Jun–Aug, fr. Sep–Nov.

• Forests, forest margins, or thickets on mountain slopes or in valleys; 200–1500 m. Fujian, E and N Guangdong, Guangxi, S and W Guizhou, S and W Hunan, E and S Jiangxi, E Sichuan.

- 1a. Current year branchlets and terminal buds densely spreading villous 15a. var. *bockiana*
 1b. Current year branchlets and terminal buds appressed pubescent 15b. var. *acutifolia*

15a. *Adinandra bockiana* var. *bockiana*

川杨桐(原变种) chuan yang tong (yuan bian zhong)

Current year branchlets, terminal buds, petioles, and pedicels densely yellowish brown to ferruginous spreading villous. Leaf blade abaxially villous particularly along midvein and margin. Fl. Jun–Jul, fr. Sep–Oct.

• Forests or thickets on mountain slopes; 800–1300 m. N Guangxi, S and W Guizhou, E Sichuan.

15b. *Adinandra bockiana* var. *acutifolia* (Handel-Mazzetti) Kobuski, J. Arnold Arbor. 28: 17. 1947.

尖叶川杨桐 jian ye chuan yang tong

Adinandra acutifolia Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 59: 105. 1922.

Current year branchlets, terminal buds, petioles, and pedicels appressed pubescent. Leaf blade abaxially sparsely pubescent to glabrescent. Fl. Jun–Aug, fr. Sep–Nov.

• Forests or forest margins on mountain slopes or in valleys; 200–1500 m. Fujian, E and N Guangdong, Guangxi, S and W Hunan, E and S Jiangxi.

16. *Adinandra elegans* F. C. How & W. C. Ko ex Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 6(1): 27. 1960.

长梗杨桐 chang geng yang tong

Shrubs to 1.5 m tall. Young branches grayish brown, glabrous; current year branchlets pale reddish brown, sparsely pubescent or almost glabrous; terminal buds appressed pubescent. Petiole ca. 1 mm, subglabrous; leaf blade narrowly lanceolate to oblanceolate, 4–6(–7) × 1–1.5 cm, thinly leathery, abaxially pale green and sparsely appressed pubescent or glabrescent, adaxially dark green, shiny, and glabrous, secondary veins ca. 10 on each side of midvein and obscure on both surfaces, base cuneate, margin undulate serrate, apex obtuse and with a retuse tip. Flowers axillary, solitary. Pedicel 2–3 cm, slender, recurved, glabrous; bracteoles caducous, linear, ca. 3 mm, glabrous. Sepals ovate-lanceolate, ca. 5 mm, outside glabrous, margin glandular or ciliolate, apex acute. Petals white, oblong-ovate, 8–10 × ca. 4 mm, outside sericeous along median portion. Stamens ca. 25, 4–6 mm; filaments glabrous; anthers linear-oblong, shorter than filaments, with filiform trichomes. Ovary ovoid, glabrous, 3-loculed with many ovules per locule; style ca. 3 mm, villous, apically 3-parted. Fruit black, ovoid, 6–7 mm in diam., many seeded. Seeds brown, compressed reniform, shiny. Fl. Jun–Jul, fr. Sep–Oct.

• Thickets along streams or on rocks; 400–500 m. Guangdong (Yangchun).

17. *Adinandra pingbianensis* L. K. Ling, Fl. Reipubl. Popul. Sin. 50(1): 188. 1998.

屏边杨桐 ping bian yang tong

Trees 12–25 m tall. Current year branchlets reddish brown, sparsely appressed pubescent or glabrescent; terminal buds densely tawny sericeous. Petiole 1–1.2 cm, subglabrous; leaf blade obovate-elliptic to oblong-elliptic, 8–12.5 × 2.7–3.8 cm, leathery, abaxially pale green, sparsely appressed pubescent particularly along midvein, glabrescent, and sparsely reddish brown glandular punctate, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 12–14 on each side of midvein, abaxially slightly visible, and adaxially obscure, base cuneate, margin serrulate, apex abruptly shortly acuminate to shortly caudate. Flowers axillary, 2 or 3 in a cluster. Pedicel 6–8 mm, ascending to rarely slightly recurved, sparsely pubescent; bracteoles caducous. Sepals ovate, ca. 1.5 × 1.5 mm, outside sparsely pubescent or glabrescent, margin ciliolate, apex rounded and mucronate. Petals white, oblong to obovate-oblong, ca. 8 × 4 mm, outside glabrous, apex rounded. Stamens 17–20, 4–6 mm; filaments 2.5–4.5 mm, almost distinct, basally glabrous, apical 1/2 with dense filiform trichomes; anthers ovoid, ca. 1 mm, with filiform trichomes, connective exerted. Ovary ovoid, glabrous, 3- or 4-loculed with many ovules per locule; style 3–4 mm, glabrous, apically 3- or 4-lobed. Immature fruit ovoid, ca. 5 mm in diam., with 7–10 seeds, glabrous. Seeds brown, shiny. Fl. Apr–May.

• Forests on mountain slopes; 1200–1300 m. Yunnan (Jinping, Pingbian).

18. *Adinandra nitida* Merrill ex H. L. Li, J. Arnold Arbor. 25: 422. 1944.

亮叶杨桐 liang ye yang tong

Shrubs or trees, 4–20 m tall. Young branches grayish brown; current year branchlets purplish brown, glabrous; terminal buds apically appressed pubescent. Petiole 1–1.5 cm, glabrous; leaf blade ovate-oblong to oblong-elliptic, 7–13 × 2.5–4 cm, thickly leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous or abaxially sparsely appressed pubescent when young, midvein abaxially elevated and adaxially level, secondary veins 12–16 on each side of midvein and visible on both surfaces, base cuneate, margin serrulate, apex acuminate. Flowers axillary, solitary. Pedicel 1–2 cm, glabrous; bracteoles persistent, ovate to oblong, 6–10 × 3–5 mm, glabrous, apex acute to obtuse. Sepals ovate, ca. 1.5 × 0.7–0.9 cm, glabrous, apex acute and mucronate. Petals white, oblong-ovate, 1.7–1.9 × 0.9–1.2 cm, glabrous, apex obtuse to rounded. Stamens 25–30, 6–11 mm; filaments 2–5 mm, basally connate and adnate to petals; anthers linear-lanceolate, 4–6 mm, with filiform trichomes, connective exerted. Ovary ovoid, glabrous, 3-loculed with many ovules per locule; style ca. 1 cm, glabrous, apically 3-lobed. Fruit orange to yellow when mature, globose to ovoid, ca. 1.5 cm in diam., many seeded. Seeds brown, shiny. Fl. Jun–Jul, fr. Sep–Oct.

• Forests on mountain slopes or along streams; 500–1000 m. Guangdong, E and S Guangxi, SE Guizhou.

19. *Adinandra retusa* D. Fang & D. H. Qin, Acta Bot. Yunnan. 24: 709. 2002.

凹萼杨桐 ao e yang tong

Shrubs to 1 m tall. Young branches terete, 2.5–5 mm thick, glabrous; terminal buds long conic, 1.8–2.3 cm, glabrous. Petiole 0.5–1.2 cm, thick, glabrous, adaxially grooved; leaf blade elliptic to rarely broadly obovate, 4.5–12.5 × 2.7–6 cm, thickly leathery, abaxially dark brown glandular punctate and ferruginous when dry, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 17–25 on each side of midvein, abaxially obscure, and adaxially slightly visible, base broadly cuneate to cuneate and decurrent, margin entire, apex abruptly acute, obtuse, or retuse. Flowers axillary, solitary or paired. Pedicel 1–1.6 cm, apically thickened, glabrous; bracteoles caducous. Sepals broadly orbicular to suborbicular, 3–4 × 4–5 mm, thickly leathery, glabrous, margin ciliolate, apex retuse. Petals and stamens not seen. Ovary ovoid, glabrous, 3-loculed with 20–30 ovules per locule; style 7–8 mm, glabrous, apex slightly 2-lobed. Fruit not seen. Fl. Jun–Jul.

• Forests on limestone hills; 1200–1300 m. Guangxi (Napo).

20. *Adinandra howii* Merrill & Chun, Sunyatsenia 5: 131. 1940.

保亭杨桐 bao ting yang tong

Trees 6–7 m tall. Young branches reddish brown, glabrous; current year branchlets grayish brown, sparsely appressed pubescent when young but glabrescent; terminal buds ovate, ca. 1.5 cm, densely gray appressed pubescent. Petiole 3–5 mm, sparsely pubescent or glabrescent; leaf blade oblong-elliptic, 6–11 × 2.5–4 cm, leathery, abaxially pale green and appressed pubescent when young but glabrescent, adaxially dark green, shiny, and glabrous, secondary veins 15–20 on each side of midvein and visible on both surfaces, base cuneate, margin serrulate, apex acuminate. Flowers axillary, solitary. Pedicel 1.5–2 cm, glabrous; bracteoles caducous. Sepals broadly ovate to ovate, 6–8 × 4–5 mm, glabrous, margin entire or reddish brown glandular serrulate, apex obtuse. Petals white, ovate, 8–11 × 6–8 mm, outside gray appressed pubescent along median portion. Stamens 30–35, 5–6 mm; filaments 3–4 mm, almost distinct, glabrous; anthers ovate to linear-oblong, 1–1.5 mm, with filiform trichomes, connective exerted. Ovary ovoid, glabrous, 3-loculed with many ovules per locule; style 3–3.5 mm, completely united, glabrous. Fruit red when mature, ovoid, ca. 1 cm in diam., many seeded. Seeds brown. Fl. Jul–Aug, fr. Oct–Sep.

• Forests on mountain slopes or along streams; 900–2300 m. Hainan.

21. *Adinandra nigroglandulosa* L. K. Ling, Fl. Reipubl. Popul. Sin. 50(1): 193. 1998.

腺叶杨桐 xian ye yang tong

Trees 10–20 m tall. Young branches grayish brown, glabrous; current year branchlets reddish brown, sparsely appressed pubescent when young but glabrescent; terminal buds

ovate, gray to grayish yellow sericeous. Petiole 1.5–2 cm, glabrous or sparsely pubescent when young; leaf blade oblong-elliptic to elliptic, 9.5–14 × 3.5–5.5 cm, leathery, abaxially densely reddish brown glandular punctate, when dry abaxially pale yellowish green and adaxially yellowish green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 11–13 on each side of midvein and raised on both surfaces when dry, base broadly cuneate to cuneate, margin serrulate, apex acuminate to abruptly shortly acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 1–1.5 cm, slightly recurved, sparsely pubescent; bracteoles caducous. Sepals oblong to oblong-ovate, 2–3.5 × 1.5–3 mm, outside sparsely appressed pubescent, margin ciliolate and some

times glandular, apex rounded and retuse with a mucronate tip. Petals white, broadly obovate to oblong-obovate, 8–11 × 6–7 mm, outside glabrous, apex rounded to emarginate. Stamens ca. 32, 4–6 mm; filaments 2–3.5 mm, basally almost distinct, apical 1/2 with dense filiform trichomes; anthers ca. 1.5 mm, with filiform trichomes, connective exerted for ca. 1 mm. Ovary ovoid, glabrous, 3-loculed with many ovules per locule; style 4–6 mm, completely united, glabrous. Immature fruit ovoid to globose, ca. 9 mm in diam., with 8 or 9 seeds per locule. Seeds brown, shiny. Fl. Aug–Sep, fr. Nov–Dec.

• Forests or thickets on mountain slopes; 1300–1700 m. Yunnan (Hekou, Malipo, Xichou).

10. CLEYERA Thunberg, Nov. Gen. Pl. 68. 1783, nom. cons., not Adanson (1763).

红淡比属 hong dan bi shu

Sakakia Nakai; *Tristylium* Turczaninow.

Shrubs or trees, evergreen. Leaves petiolate; leaf blade margin entire or serrulate. Flowers bisexual, axillary, solitary or several in a cluster. Pedicel 1 cm or more, apically thickened; bracteoles 2, caducous, small, inserted near pedicel apex. Sepals 5, imbricate, unequal, basally slightly connate; outer sepals persistent, small. Petals 5, imbricate, basally connate. Stamens 25–30; filaments distinct, glabrous; anthers basifixed, 2-loculed, longitudinally dehiscent, with filiform trichomes, connective apiculate. Ovary usually glabrous, 2- or 3-loculed with 8–16 ovules per locule, placentation axile; style 1, persistent, slender, elongated, apically 2- or 3-lobed. Fruit baccate, ovoid to oblate, with several seeds per locule. Seeds blackish brown, reniform-globose to compressed globose, foveolate, shiny, glabrous; endosperm sparse; embryo curved.

About 24 species: China, N India, Japan, Korea, Myanmar, Nepal, N Vietnam; tropical America; nine species (seven endemic) in China.

Unlike *Cleyera japonica*, the Thunberg description of the genus *Cleyera* did not include elements of a mixed collection with *Ternstroemia*.

- 1a. Fruit long ovoid, oblong, obconic, or ovoid-ellipsoid.
- 2a. Leaf blade ovate to obovate-oblong, margin entire; sepals orbicular 8. *C. obovata*
- 2b. Leaf blade oblong-elliptic or rarely oblong-oblancheolate, margin serrulate, sparsely serrate, or rarely subentire; sepals suborbicular, triangular, or ovate-triangular.
- 3a. Leaf blade abaxially reddish brown glandular punctate; sepals suborbicular 7. *C. obscurinervia*
- 3b. Leaf blade abaxially not punctate; sepals triangular to ovate-triangular 9. *C. longicarpa*
- 1b. Fruit globose.
- 4a. Leaf blade abaxially not punctate.
- 5a. Sepals ovate-triangular, apex acute with a black mucro; petiole 3–5 mm; pedicel 0.5–0.8 cm 3. *C. parvifolia*
- 5b. Sepals ovate to orbicular, apex rounded and without a mucro; petiole 7–10(–12) mm; pedicel 1–2(–3) cm.
- 6a. Leaf blade margin entire, midvein adaxially slightly impressed 1. *C. japonica*
- 6b. Leaf blade margin conspicuously serrate, crenate serrate, or sparsely serrate, midvein adaxially raised 2. *C. lipingensis*
- 4b. Leaf blade abaxially densely or sparsely reddish or reddish brown glandular punctate.
- 7a. Leaf blade oblong, secondary veins 20–28 on each side of midvein; sepals oblong to ovate-oblong, thick 4. *C. pachyphylla*
- 7b. Leaf blade elliptic, oblong-elliptic, narrowly elliptic, or oblanceolate-elliptic, secondary veins 8–12 on each side of midvein; sepals ovate to orbicular, thin.
- 8a. Leaf blade elliptic to oblong-elliptic, margin entire, midvein adaxially raised, secondary veins 12–14 on each side of midvein 5. *C. yangchunensis*
- 8b. Leaf blade narrowly elliptic to oblanceolate-elliptic, margin serrulate to sparsely serrate, midvein adaxially slightly impressed, secondary veins 8–12 on each side of midvein 6. *C. incornuta*

1. *Cleyera japonica* Thunberg, Nov. Gen. Pl. 69. 1783, p.p. emend. Siebold & Zuccarini, Fl. Jap. 153. 1841.

红淡比 hong dan bi

Shrubs or trees, 2–10 m tall. Young branches grayish brown, terete; current year branchlets brown, slightly 2-ribbed,

glabrous; terminal buds long conic, 1–1.5 cm, glabrous. Petiole 7–10(–12) mm, glabrous; leaf blade elliptic, narrowly elliptic, oblong, oblong-elliptic, oblong-lanceolate, obovate, or obovate-elliptic, (3.5–)5–15 × (1.2–)2.5–6 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein level or rarely abaxially elevated and adaxially slightly

impressed, secondary veins 6–8(–12) on each side of midvein and visible on both surfaces or abaxially obscure, base cuneate to broadly cuneate, margin entire, apex acute to acuminate and sometimes with an obtuse to retuse tip. Flowers axillary, solitary to 3(–5) in a cluster. Pedicel 1–3 mm, glabrous; bracteoles caducous. Sepals ovate to orbicular, ca. 2.5×2.5 mm, margin ciliolate, apex rounded. Petals white, obovate-oblong, ca. 8 mm. Stamens 25–30, 4–6 mm; filaments glabrous; anthers ovate to long ovate, ca. 1.5 mm, with filiform trichomes, connective exerted. Ovary globose, glabrous, 2-loculed, more than 10 ovules per locule; style ca. 6 mm, apically 2-lobed. Fruit purplish black when mature, globose, 8–10 mm in diam. Seeds dark brown, compressed, shiny, ca. 2 mm in diam. Fl. May–Jul, fr. Oct–Dec. $2n = 90$.

Forests or thickets on mountain slopes or in valleys; 200–2000 m. S Anhui, Fujian, Guangdong, E and N Guangxi, SE Guizhou, Henan, W Hubei, Hunan, S Jiangsu, Jiangxi, E and W Sichuan, Taiwan, SE Xizang, W Yunnan, Zhejiang [N India, Japan, Myanmar, Nepal].

The type specimen and Thunberg's original description of *Cleyera japonica* include elements of both *Cleyera* and *Ternstroemia*. Siebold and Zuccarini (Fl. Jap. 153. 1841) emended Thunberg's description to include only the *Cleyera* element as *C. japonica*. See also the discussion under *T. japonica*. The name *C. japonica* has often been mistakenly applied to other *Cleyera* species in the literature.

- 1a. Leaf blade oblong, oblong-elliptic, oblong-lanceolate, obovate, or obovate-elliptic, (3.5–)5–9(–10) \times (1.2–)2.5–3.5(–4.5) cm; pedicel 1.5–2 mm 1a. var. *japonica*
 1b. Leaf blade elliptic to narrowly elliptic, 10–15 \times 4–6 cm; pedicel 2.5–3 mm ... 1b. var. *wallichiana*

1a. *Cleyera japonica* var. *japonica*

红淡比(原变种) hong dan bi (yuan bian zhong)

Adinandra chingii F. P. Metcalf; *Cleyera japonica* var. *hayatae* (Masamune & Yamamoto) Kobuski; *C. japonica* var. *morii* (Yamamoto) Masamune; *C. ochracea* Candolle; *Eurya ochracea* (Candolle) Szyszłowicz; *E. ochracea* var. *morii* Yamamoto; *Sakakia hayatae* Masamune & Yamamoto; *S. morii* (Yamamoto) Yamamoto & Masamune; *S. ochracea* (Candolle) Nakai; *Ternstroemia japonica* (Thunberg) Thunberg, p.p. emend. Siebold & Zuccarini; *Tristylidium ochraceum* (Candolle) Merrill; *T. ochraceum* var. *morii* (Yamamoto) Sasaki.

Leaf blade oblong-elliptic, oblong, oblong-lanceolate, obovate, or obovate-elliptic, (3.5–)5–9(–10) \times (1.2–)2.5–3.5(–4.5) cm. Pedicel 1.5–2 mm. Fl. May–Jun, fr. Oct–Nov.

Forests or thickets on mountain slopes or in valleys; 200–1200 m. S Anhui, Fujian, Guangdong, E and N Guangxi, SE Guizhou, Henan, W Hubei, Hunan, S Jiangsu, Jiangxi, E and W Sichuan, Taiwan, Zhejiang [Japan].

1b. *Cleyera japonica* var. *wallichiana* (Candolle) Sealy, Bot. Mag. 163: t. 9606. 1940.

大花红淡比 da hua hong dan bi

Cleyera ochracea var. *wallichiana* Candolle, Mém. Soc. Phys. Genève 1: 413. 1822; *C. grandiflora* Wallich ex Choisy; *C. japonica* var. *grandiflora* (Wallich ex Choisy) Kobuski; *C.*

lushia (Buchanan-Hamilton ex D. Don) G. Don; *C. ochracea* var. *grandiflora* (Wallich ex Choisy) Choisy; *C. ochracea* var. *kaempferiana* Candolle; *C. wallichiana* (Candolle) Siebold & Zuccarini; *Ternstroemia lushia* Buchanan-Hamilton ex D. Don.

Leaf blade elliptic to narrowly elliptic, 10–15 \times 4–6 cm. Pedicel 2.5–3 mm. Fl. Jul, fr. Nov–Dec.

Broad-leaved or needle-leaved forests on mountain slopes; 1600–2000 m. W Sichuan, SE Xizang, W Yunnan [N India, Myanmar, Nepal].

2. *Cleyera lipingensis* (Handel-Mazzetti) T. L. Ming, **comb. et stat. nov.**

齿叶红淡比 chi ye hong dan bi

Shrubs or trees, 2–10 m tall. Young branches grayish brown, glabrous; current year branchlets sparsely pubescent or glabrous; terminal buds pubescent or glabrous. Petiole ca. 1 cm, sparsely pubescent or glabrous; leaf blade oblong, ovate, obovate-spatulate, or oblong-lanceolate, (3–)6–9 \times (1–)2.5–3.5 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein raised on both surfaces, secondary veins 6–8 on each side of midvein and visible on both surfaces, base cuneate, margin serrate, sparsely serrate, crenate serrate, apex caudate-acuminate. Flowers axillary, 2–4 in a cluster. Pedicel 1–2 cm, sparsely pubescent or glabrous; bracteoles caducous. Sepals ovate to orbicular, 2–3 \times 2–2.5 mm, margin ciliolate, apex rounded and with a retuse tip. Petals white, obovate-oblong, ca. 8 mm. Stamens 25–30, ca. 5 mm; anthers ovate, ca. 1.5 mm, with filiform trichomes, connective exerted. Ovary ovoid, glabrous, 2-loculed; style ca. 5 mm, glabrous, apically 2-lobed. Fruit globose, 8–10 mm in diam., more than 10 seeds per locule. Seeds dark brown, ovoid-globose, shiny. Fl. May–Jun, fr. Oct–Nov.

• Forests, thickets; (400–)500–1200 m. N Guangxi, Guizhou, W Hubei, E and NW Hunan, W Jiangxi, SE Shaanxi, E Sichuan, Taiwan.

- 1a. Current year branchlets, terminal buds, petioles, and pedicels pubescent; leaf blade oblong, 6–9 \times 2.5–3.5 cm, midvein adaxially raised 2a. var. *lipingensis*
 1b. Current year branchlets, terminal buds, petioles, and pedicels glabrous; leaf blade oblong-lanceolate, ovate, or obovate-spatulate, 3–5.5 \times 1–2 cm, midvein adaxially slightly raised to slightly impressed 2b. var. *taipinensis*

2a. *Cleyera lipingensis* var. *lipingensis*

齿叶红淡比(原变种) chi ye hong dan bi (yuan bian zhong)

Basionym: *Eurya ochracea* (Candolle) Szyszłowicz var. *lipingensis* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 58: 180. 1921; *Cleyera japonica* Thunberg var. *lipingensis* (Handel-Mazzetti) Kobuski.

Terminal buds, young branches, petioles, and pedicels pubescent. Leaf blade oblong, 6–9 \times 2.5–3.5 cm, midvein adaxially raised, margin conspicuously serrate.

• Forests, thickets; (400–)500–1200 m. N Guangxi, Guizhou, W Hubei, E and NW Hunan, W Jiangxi, SE Shaanxi, E Sichuan, W Taiwan.

2b. *Cleyera lipingensis* var. *taipinensis* (H. Keng) T. L. Ming, **comb. nov.**

太平山红淡比 tai ping shan hong dan bi

Basionym: *Cleyera japonica* Thunberg var. *taipinensis* H. Keng, *Taiwania* 1: 251. 1950; *C. japonica* var. *taipehensis* H. Keng.

Plant parts all glabrous. Leaf blade oblong-lanceolate, ovate, or obovate-spatulate, 3–5.5 × 1–2 cm, midvein adaxially slightly raised to slightly impressed, margin sparsely serrate.

- Forests, thickets; middle elevations. C and N Taiwan.

3. *Cleyera parvifolia* (Kobuski) Hu ex L. K. Ling, *Fl. Reipubl. Popularis Sin.* 50(1): 61. 1998.

小叶红淡比 xiao ye hong dan bi

Cleyera japonica Thunberg var. *parvifolia* Kobuski, *J. Arnold Arbor.* 18: 127. 1937.

Shrubs or trees, 2–5 m tall. Young branches grayish brown, terete; current year branchlets reddish brown, slightly 2-ribbed, glabrous; terminal buds long conic, ca. 1 cm, glabrous. Petiole 3–5 mm, glabrous; leaf blade elliptic, 3–5.5 × 1.5–2 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein slightly elevated on both surfaces, secondary veins 5 or 6 on each side of midvein and obscure on both surfaces, base cuneate, margin entire and slightly revolute, apex shortly acuminate and with an obtuse tip. Flowers axillary, solitary or rarely to 3 in a cluster. Pedicel 5–8 mm glabrous; bracteoles caducous. Sepals ovate-triangular, ca. 3.5 × 2 mm, outside glabrous, margin ciliolate, apex acute and with a black mucro. Petals white, oblong to obovate-oblong, 5–6 × 2.5–3 mm. Stamens ca. 25, ca. 5 mm; anthers ovate, ca. 1 mm, with filiform trichomes, connective exerted. Ovary globose, 2-loculed, several ovules per locule; style ca. 4 mm, apically 2-lobed. Fruit black when mature, globose, ca. 5 mm in diam. Seeds black, compressed globose, shiny. *Fl.* Apr–May, *fr.* Aug–Nov.

- Forests on mountain slopes. N Guangdong.

4. *Cleyera pachyphylla* Chun ex Hung T. Chang, *Acta Sci. Nat. Univ. Sunyatseni* 5(2): 29. 1959.

厚叶红淡比 hou ye hong dan bi

Cleyera pachyphylla var. *epunctata* Hung T. Chang.

Shrubs or trees, 3–8(–12) m tall. Young branches grayish brown; current year branchlets reddish brown or yellowish brown, glabrous; terminal buds long conic, 1.5–2.5 cm, glabrous. Petiole 0.8–1.5 cm, glabrous; leaf blade oblong, 8–14 × 3.5–6 cm, thickly leathery, abaxially pale green and densely reddish punctate, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially slightly impressed, secondary veins 20–28 on each side of midvein and adaxially visible or slightly raised, base broadly cuneate to subrounded, margin sparsely serrulate and slightly revolute, apex abruptly acute and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster. Pedicel 0.8–1.5 cm, glabrous; bracteoles caducous, broadly ovate, ca. 2 mm. Sepals ovate-oblong to oblong, 4–8 × 2.5–5 mm, thick, margin ciliolate, apex rounded and mucro-

nate. Petals white, elliptic-oblong to elliptic-obovate, 10–12 × ca. 6 mm. Stamens 25–27, ca. 8 mm; anthers oblong, ca. 2 mm, with filiform trichomes, connective exerted. Ovary globose, glabrous, 2- or 3-loculed with 5–7 ovules per locule; style ca. 9 mm, apically 2- or 3-lobed. Fruit dark brown, globose, 8–10 mm in diam. Seeds blackish brown, compressed globose, ca. 2 mm in diam. *Fl.* Jun–Jul, *fr.* Oct–Nov.

- Forests on mountain slopes or tops; 300–1800 m. Fujian, W Guangdong, Guangxi, S Hunan, Jiangxi, S Zhejiang.

5. *Cleyera yangchunensis* L. K. Ling, *Fl. Reipubl. Popularis Sin.* 50(1): 194. 1998.

阳春红淡比 yang chun hong dan bi

Shrubs or trees, 2–9 m tall. Young branches grayish brown; current year branchlets yellowish green, glabrous; terminal buds long conic, 2–2.5 cm, glabrous. Petiole 5–10 mm, glabrous; leaf blade elliptic to oblong-elliptic, 6–9 × 3–3.5 cm, thickly leathery, abaxially pale green and densely reddish brown glandular punctate, adaxially dark green and shiny, both surfaces glabrous, midvein raised on both surfaces, secondary veins 12–14 on each side of midvein and obscure on both surfaces, base broadly cuneate, margin entire, apex abruptly shortly acuminate and with an obtuse tip. Flowers not seen. Fruit axillary, solitary or to 3 in a cluster; immature fruit globose, with 2 or 3 seeds per locule, 7–8 mm in diam.; pedicel 1–1.7 cm; persistent sepals orbicular to ovate, 2–3 × 2–3 mm, outside glabrous, margin ciliolate, apex rounded and mucronate; persistent style slender, ca. 5 mm. Seeds brown, compressed globose, shiny. *Fr.* Oct–Nov.

- Forests on mountain slopes or in valleys; 300–500 m. Guangdong (Yangchun).

6. *Cleyera incornuta* Y. C. Wu, *Bot. Jahrb. Syst.* 71: 196. 1940.

凹脉红淡比 ao mai hong dan bi

Adinandra incornuta (Y. C. Wu) T. L. Ming.

Shrubs or trees, 4–10(–18) m tall. Young branches grayish brown; current year branchlets yellowish brown, slightly 2-ribbed, glabrous; terminal buds long conic, glabrous. Petiole 1–1.5 cm, glabrous; leaf blade narrowly elliptic to oblanceolate-elliptic, 6.5–10 × 2.5–3.5 cm, leathery, abaxially pale green and sparsely dark reddish brown glandular punctate, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially slightly impressed, secondary veins 8–12 on each side of midvein and obscure on both surfaces or adaxially slightly impressed, base cuneate, margin serrulate to sparsely serrate, apex acuminate to shortly acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 1.5–2 cm, glabrous; bracteoles caducous. Sepals ovate, ca. 4 × 4 mm, margin ciliolate, apex rounded and with a retuse tip. Petals white, obovate-oblong, 9–11 × 5–6 mm, margin ciliolate, apex rounded. Stamens ca. 25, 6.5–9 mm; anthers oblong, 2–2.5 mm, with filiform trichomes, connective exerted. Ovary globose, glabrous, 3-loculed with many ovules per locule; style ca. 6 mm, apically 3-lobed. Fruit purplish black when mature, globose, 8–10 mm in diam.; pedicel 1.5–2 cm; persistent style 6–7 mm. Seeds compressed globose, more than 10 per locule. *Fl.* May–Jul, *fr.* Sep–Oct.

• Forests in valleys or on mountaintops; 100–1800 m. NE Guangdong, Guangxi, NE Guizhou, E and S Hunan, W Jiangxi, SE Yunnan.

7. *Cleyera obscurinervia* (Merrill & Chun) Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 5(2): 28. 1959.

隐脉红淡比 yin mai hong dan bi

Adinandra obscurinervia Merrill & Chun, Sunyatsenia 2: 283. 1935; *Cleyera conocarpa* Hung T. Chang.

Trees 6–15 m tall. Current year branchlets reddish brown, glabrous, bark grayish brown, smooth; terminal buds long conic, 1–2 cm. Petiole 1–1.5 cm, glabrous; leaf blade oblong-elliptic, 7–9 × 2–3.5 cm, thickly leathery, abaxially pale green and reddish brown glandular punctate, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially level, secondary veins 12–15 on each side of midvein and obscure on both surfaces, base cuneate, margin sparsely obtusely serrate to serrulate, apex abruptly acute and with an obtuse tip. Flowers axillary, solitary or paired. Pedicel 1–1.5 cm, glabrous; bracteoles caducous, small. Sepals suborbicular, ca. 4 mm, outside glabrous, margin ciliolate. Petals white, oblong-obovate to obovate, ca. 6 mm. Stamens numerous, shorter than petals. Ovary glabrous, 2- or 3-loculed with more than 10 ovules per locule; style ca. 4 mm, apically 3-lobed. Fruit long ovoid, 10–12 × ca. 7 mm, 2-loculed with more than 10 seeds per locule, apex acuminate. Seeds brown, compressed globose, shiny, ca. 2 mm in diam. Fl. May–Jun, fr. Sep–Oct.

• Dense forests on mountain slopes or in valleys; 1300–3200 m. S Guangxi, Hainan.

8. *Cleyera obovata* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 5(2): 27. 1959.

倒卵叶红淡比 dao luan ye hong dan bi

Shrubs or trees, to 4 m tall. Young branches grayish brown; current year branchlets brown, slightly ribbed, glabrous; terminal buds long conic, 1.2–1.5 cm, glabrous. Petiole 1–1.2 cm, glabrous; leaf blade ovate to obovate-oblong, 3–8 × 1.5–3.5 cm, leathery, abaxially pale green to yellowish green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially level, secondary veins 11–13 on each side of midvein, abaxially slightly visible, and adaxially obscure, base cuneate, margin entire and slightly revolute when dry,

apex obtuse. Flowers axillary, usually solitary, rarely 3 in a cluster. Pedicel 1.5–2.5 cm, glabrous; bracteoles caducous. Sepals caducous, orbicular, 2–3 mm in diam., outside glabrous, margin ciliolate, apex rounded. Petals white, obovate to obovate-orbicular, 5–6 × ca. 5 mm. Stamens ca. 25; anthers ovate, ca. 1 mm, with filiform trichomes. Ovary ovoid, 2-loculed with more than 10 ovules per locule; style 2–3 mm, apically 2-lobed. Fruit oblong to obconic, with more than 10 seeds per locule, 1–1.8 × 0.6–1 cm, apex acuminate; pedicel 1.8–2.8 cm. Seeds brown, compressed globose, ca. 2 mm in diam., shiny. Fl. May–Jun, fr. Aug–Sep.

Dense forests on mountain slopes or tops. S Guangxi [N Vietnam].

9. *Cleyera longicarpa* (Yamamoto) L. K. Ling, Fl. Reipubl. Popularis Sin. 50(1): 66. 1998.

长果红淡比 chang guo hong dan bi

Sakakia longicarpa Yamamoto, J. Soc. Trop. Agric. 5: 350. 1933; *Cleyera japonica* Thunberg var. *longicarpa* (Yamamoto) L. K. Ling & C. F. Hsieh.

Shrubs or trees, to 20 m tall. Young branches yellowish brown to grayish brown; current year branchlets pale yellowish brown, slightly ribbed, glabrous; terminal buds pale yellowish brown, glabrous. Petiole 5–10 mm, glabrous; leaf blade oblong-elliptic to rarely oblong-oblong, 6–9(–12) × 1.8–2.5(–3.4) cm, leathery, abaxially pale yellowish green, adaxially green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially level or slightly raised, secondary veins 8–10 on each side of midvein and obscure on both surfaces, base cuneate, margin sparsely serrulate to rarely subentire, apex shortly acuminate and with an obtuse tip. Flowers axillary, usually 2 to several in a cluster, rarely solitary. Pedicel 6–10 mm, glabrous; bracteoles caducous. Sepals triangular to ovate-triangular, ca. 2.5 × 2.5 mm, outside glabrous, margin densely ciliolate. Petals (not open) oblong-obovate to obovate, 6–8 × 4–6 mm. Stamens ca. 21, ca. 5 mm; anthers oblong, ca. 1.5 mm, with filiform trichomes. Ovary ovoid, 3-loculed with many ovules per locule; style ca. 3 mm, apex entire. Immature fruit ovoid-ellipsoid, ca. 6 × 4 mm, with 4–6 seeds per locule. Seeds brown, compressed reniform, ca. 1.5 mm in diam., shiny.

• Forests; 2000–2300 m. N Taiwan.

11. EURYODENDRON Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 9(4): 129. 1963.

猪血木属 zhu xue mu shu

Trees, evergreen. Leaf blade margin serrate. Flowers bisexual, axillary, solitary or to 3 on leafy branchlets or congested in clusters to 9 on leafless branches, pedicellate. Bracteoles 2, persistent, inserted on apical portion of pedicel. Sepals 5, imbricate, persistent, unequal. Petals 5, imbricate, basally slightly connate. Stamens numerous, in 1 whorl, distinct; anthers ovate, with filiform trichomes, connective exerted. Ovary superior, 3-loculed with 10–12 ovules per locule, placentation axile; ovules distichously arranged; style 1, simple. Fruit baccate, 3-loculed with 4–6 seeds per locule. Seeds brown, subreniform, foveolate, shiny.

• One species: China.

1. *Euryodendron excelsum* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 9(4): 129. 1963.

猪血木 zhu xue mu

Trees 15–25 m tall. Bark grayish brown or grayish black. Year-old branchlets pale grayish brown; current year branchlets reddish brown, slender, terete, glabrous; terminal buds glabrous. Petiole 3–5 mm, adaxially canaliculate, sparsely pilose,

glabrescent; leaf blade elliptic, oblong, or oblong-elliptic, 5–9 × 1.7–3 cm, thinly leathery, abaxially pale green, adaxially dark green, both surfaces glabrous, midvein abaxially slightly elevated and adaxially impressed, secondary veins 5 or 6 on each side of midvein, abaxially raised, and adaxially impressed to raised, reticulate veins visible on both surfaces, base cuneate, margin serrulate, apex acuminate and with an obtuse tip. Flowers 5–6 mm in diam. Pedicel 4–6 mm, sparsely pilose, glabrescent; bracteoles broadly ovate, ca. 1 mm, outside glabrous, margin ciliolate, apex rounded. Sepals 5, leathery, broadly ovate to suborbicular, ca. 2 mm, outside glabrous, inside puberulent,

margin ciliolate, apex rounded and with a retuse tip. Petals white, obovate to obovate-elliptic, ca. 4 mm, glabrous, apex rounded. Stamens 25–28, 1.5–2.2 mm; filaments glabrous; anthers ovate, ca. 0.6 mm, with filiform trichomes. Ovary globose, glabrous, 3-loculed with 6–8 seeds per locule; style ca. 3 mm. Fruit bluish black when mature, ovoid to subglobose, 3–4 mm in diam., with 2 or 3 seeds per locule. Fl. May–Jul, fr. Oct–Nov. $2n = 46^*$.

• Forests on mountain slopes or in valleys; 100–400 m. Guangdong (Yangchun), Guangxi (Bama, Pingnan).

12. EURYA Thunberg, Nov. Gen. Pl. 67. 1783.

铃木属 ling mu shu

Shrubs, small trees, or rarely large trees, evergreen, dioecious. Current year branchlets terete or 2- or 4-ribbed; winter buds exposed. Leaves distichous; leaf blade margin usually serrulate. Flowers axillary or congested on leafless branchlets, solitary to several in a cluster, small, pedicellate. Bracteoles 2, close to sepals, alternate. Sepals 5, persistent, imbricate, unequal. Petals 5, white or yellowish, basally slightly connate. Male flowers: stamens 5–35, in 1 whorl; filaments linear, glabrous, free or adnate to base of petals; anthers ovate-oblong to oblong, basifixed, 2-loculed, sometimes locellate (constricted at several places along anther length), connective slightly exerted; pistillode conspicuous. Female flowers: stamens usually absent or sometimes present as staminodes; ovary superior, 2–5-loculed with 3–60 ovules per locule, placentation axile; style 2–5, distinct or variously connate. Fruit baccate, globose, ovoid, or ellipsoid, with 2–60 seeds per locule. Seeds black, globose, shiny, foveolate-pitted; endosperm fleshy; embryo recurved.

About 130 species: Bhutan, Cambodia, China, NE India, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Vietnam; Pacific islands; 83 species (63 endemic) in China.

Although some *Eurya* species are very distinctive, many of them are very similar and difficult to differentiate. It is quite possible that future systematic studies may decrease the number of recognized species in China.

Eurya cavaleriei H. Léveillé (Repert. Spec. Nov. Regni Veg. 9: 450. 1911) is a synonym of *Symplocos cochinchinensis* (Loureiro) S. Moore var. *laurina* (Retzius) Nooteboom in the Symplocaceae (see Fl. China 15: 249. 1996).

Eurya esquirolii H. Léveillé (Fl. Kouy-Tchéou, 415. 1914–1915) is the basionym of *Litsea esquirolii* (H. Léveillé) C. K. Allen (1936, not H. Léveillé, 1911), which is in turn the replaced synonym of *L. kobuskiana* C. K. Allen in the Lauraceae (see Fl. China 7).

Artificial key to all species (see also key to sections below)

- 1a. Current year branchlets and terminal buds glabrous.
 - 2a. Current year branchlets terete.
 - 3a. Leaf blade base auriculate-amplexicaul 60. *E. lunglingensis*
 - 3b. Leaf blade base cuneate or rounded.
 - 4a. Leaf blade oblong-elliptic to elliptic, base cuneate, margin obtusely serrate or subentire; stamens 15–24 (unknown in *E. subintegra*).
 - 5a. Leaf blade abaxially pale green to yellowish green when dry; anthers locellate; style 1, apically 3-lobed 27. *E. muricata*
 - 5b. Leaf blade abaxially reddish brown when dry; anthers not locellate; styles 3, distinct 55. *E. macartneyi*
 - 4b. Leaf blade ovate to oblong, base rounded to subrounded, margin serrulate; stamens 5–12.
 - 6a. Leaf blade ovate, 4–7 cm, base rounded; stamens 11 or 12 57. *E. ovatifolia*
 - 6b. Leaf blade oblong, 9–12 cm, base subrounded; stamens 5 81. *E. crassilimba*
 - 2b. Current year branchlets 2- or 4-ribbed.
 - 7a. Leaf blade base auriculate-amplexicaul 59. *E. amplexifolia*
 - 7b. Leaf blade base cuneate, rounded, or slightly cordate.
 - 8a. Current year branchlets 4-ribbed.
 - 9a. Leaf blade papery to thinly leathery; sepal margins glandular; ovary ovoid and fruit ellipsoid.
 - 10a. Leaf blade oblong-elliptic, 7–14 cm, papery, secondary veins 10–13 on each side of midvein ... 26. *E. impressinervis*
 - 10b. Leaf blade oblong-lanceolate, 15–20 cm, thinly leathery to leathery, secondary veins ca. 20 on each side of midvein, base obtuse to cuneate 53. *E. polyneura*
 - 9b. Leaf blade leathery to thickly leathery; sepal margins not glandular; ovary and fruit globose.
 - 11a. Petiole 1.2–1.5 cm; leaf blade 7–15 × 2.5–4.5 cm, secondary and reticulate veins adaxially impressed, margin closely serrulate 54. *E. gungshanensis*

- 11b. Petiole to 0.7 cm; leaf blade 3–11 × 1–3.5 cm, secondary and reticulate veins adaxially obscure to slightly raised, margin serrulate to sparsely serrate.
- 12a. Anthers locellate.
- 13a. Current year branchlets reddish brown; petiole ca. 5 mm; leaf blade oblong to oblong-lanceolate, 5–10 cm, base cuneate 24. *E. tetragonoclada*
- 13b. Current year branchlets brown; petiole ca. 1 mm; leaf blade obovate-elliptic to elliptic, 3–4.5 cm, base broadly cuneate 25. *E. hupehensis*
- 12b. Anthers not locellate.
- 14a. Leaf blade oblong, 8–11 cm; styles 3(or 4)-parted to base 65. *E. paratetragonoclada*
- 14b. Leaf blade oblong-elliptic to elliptic, 4–7.5 cm; style 3-lobed 72. *E. alata*
- 8b. Current year branchlets 2-ribbed.
- 15a. Leaf blade obovate, apex rounded and emarginate.
- 16a. Petiole 2–3 mm; leaf blade leathery, secondary veins adaxially impressed, margin revolute; pedicel 1.5–2 mm; female flower petals ca. 1.5 mm; style 3-lobed 79. *E. saxicola*
- 16b. Petiole 1–1.5 mm; leaf blade thinly leathery, secondary veins adaxially obscure, margin not revolute; pedicel ca. 1 mm; female flower petals 2–2.3 mm; style 2(or 3)-lobed 80. *E. marlipoensis*
- 15b. Leaf blade not obovate, apex acuminate, acute, or rarely slightly obtuse.
- 17a. Fruit long ovoid.
- 18a. Sepals outside pubescent or glabrescent; style ca. 1 mm; fruit ca. 1.3 cm 83. *E. chuekiangensis*
- 18b. Sepals glabrous; style ca. 3 mm; fruit 0.5–0.9 cm.
- 19a. Leaf blade lanceolate to oblong-lanceolate, 3–6(–11) cm, apex acuminate to caudate 51. *E. stenophylla*
- 19b. Leaf blade ovate, ovate-elliptic, or ovate-lanceolate, 2–3.5 cm, apex obtuse 52. *E. metcalifiana*
- 17b. Fruit globose.
- 20a. Sepal margins glandular or ciliolate.
- 21a. Sepal margins glandular.
- 22a. Petiole 6–9 mm; leaf blade 7–14 × 2.5–5 cm; stamens 13–15 50. *E. subintegra*
- 22b. Petiole 2–5 mm; leaf blade 3–7 × 1–2.5 cm; stamens 5–7 82. *E. cavineris*
- 21b. Sepal margins ciliolate; stamens 10–15.
- 23a. Leaf blade lanceolate to narrowly oblong; stamens 6–10; anther apices apiculate 30. *E. glaberrima*
- 23b. Leaf blade elliptic to obovate-elliptic; stamens 13–15; anther apices rounded 64. *E. brevistyla*
- 20b. Sepal margins neither glandular nor ciliolate.
- 24a. Leaf blade base rounded to subcordate; sepals outside pubescent 58. *E. rubiginosa*
- 24b. Leaf blade base cuneate or rounded; sepals glabrous.
- 25a. Sepals leathery, brown when dry; style ca. 1 mm.
- 26a. Leaf blade thinly leathery, secondary veins adaxially impressed, base rounded 56. *E. oblonga*
- 26b. Leaf blade leathery, secondary veins adaxially slightly raised, base cuneate to broadly cuneate 58. *E. rubiginosa*
- 25b. Sepals membranous, pale green when dry; style 1.5–3 mm.
- 27a. Leaf blade thinly leathery, secondary veins adaxially not impressed.
- 28a. Leaf blade obovate to obovate-elliptic, secondary veins 6–8 on each side of midvein and abaxially obscure; male flower petals 3–3.5 mm 44. *E. chinensis*
- 28b. Leaf blade elliptic, oblong-elliptic, obovate-oblong, secondary veins 9–12 on each side of midvein and abaxially slightly visible; male flower petals 3.5–4 mm 46. *E. nitida*
- 27b. Leaf blade thickly leathery, secondary veins adaxially impressed.
- 29a. Leaf blade obovate, obovate-elliptic, or oblong-elliptic, 3–7 cm, margin not revolute when dry; style ca. 1.5 mm 47. *E. japonica*
- 29b. Leaf blade oblong, elliptic, or oblanceolate, 7–8(–11) cm, margin revolute when dry; style ca. 2 mm 48. *E. renegechiensis*
- 1b. Current year branchlets and terminal buds pubescent or villous or at least terminal buds pubescent.
- 30a. Ovary and fruit pubescent or ovary sparsely pubescent when young, soon glabrescent.
- 31a. Leaf blade base auriculate-amplexicaul; stamens 5–11.
- 32a. Leaf blade ovate-lanceolate, 1.5–2.5 cm; sepals pubescent; stamens 10 or 11; ovary and fruit pubescent 4. *E. auriformis*
- 32b. Leaf blade oblong, 2–3.5 cm; sepals glabrous; stamens 5–10; ovary sparsely pubescent when young but soon glabrescent, fruit glabrous 5. *E. disticha*
- 31b. Leaf blade base cuneate, rounded, or cordate; stamens 15–28.
- 33a. Current year branchlets 2-ribbed.
- 34a. Current year branchlets pubescent; leaf blade narrowly elliptic, 4–7 cm; ovary and fruit pubescent 13. *E. gnaphalocarpa*

- 34b. Current year branchlets glabrous; leaf blade lanceolate to narrowly oblong-lanceolate, 12–19 cm; ovary sparsely pubescent when young but soon glabrescent, fruit glabrous 22. *E. persicifolia*
- 33b. Current year branchlets terete.
- 35a. Leaf blade thickly leathery, secondary and reticulate veins impressed on both surfaces 9. *E. rugosa*
- 35b. Leaf blade papery, leathery, or rarely thickly leathery, secondary and reticulate veins abaxially not impressed.
- 36a. Current year branchlets pubescent.
- 37a. Leaf blade secondary veins 10–14 on each side of midvein, margin entire or rarely apically serrate; ovary glabrous or very sparsely pubescent, fruit glabrous; style ca. 5 mm 18. *E. pseudocerasifera*
- 37b. Leaf blade secondary veins 8–18 on each side of midvein, margin serrate or serrulate; ovary and fruit pubescent; style 3–4 mm.
- 38a. Styles 4 or 5, distinct.
- 39a. Petiole ca. 3 mm, glabrous; leaf blade secondary veins 14–18 on each side of midvein; sepals 2–2.5 mm; male flower petals elliptic; styles 2.5–3 mm 8. *E. pittosporifolia*
- 39b. Petiole 4–6 mm, pubescent; leaf blade secondary veins 8–10 on each side of midvein; sepals 1.5–2 mm; male flower petals ovate; styles ca. 1.5 mm 14. *E. megatrichocarpa*
- 38b. Style 1, apically 3-lobed or -parted.
- 40a. Sepals ovate, apex acute; current year branchlets yellowish brown 11. *E. acutisepala*
- 40b. Sepals orbicular, apex emarginate; current year branchlets reddish brown.
- 41a. Current year branchlets densely pubescent; leaf blade oblong-elliptic, abaxially sparsely pubescent; sepals pubescent, margin ciliolate; anthers locellate 10. *E. trichocarpa*
- 41b. Current year branchlets sparsely pubescent when young, soon glabrescent; leaf blade elliptic to oblong-elliptic, abaxially sparsely appressed pubescent when young but glabrescent; sepals glabrous, margin not ciliolate; anthers not locellate 12. *E. acuminatissima*
- 36b. Current year branchlets densely spreading villous.
- 42a. Pedicel 2–3 mm.
- 43a. Leaf blade base slightly cordate, apex obtuse to acute 17. *E. subcordata*
- 43b. Leaf blade base broadly cuneate, obtuse, or rounded, apex acuminate-caudate.
- 44a. Leaf blade 6.5–9 × 1.5–2.5 cm, leathery to rigidly leathery, base broadly cuneate to obtuse; sepals outside sparsely pubescent to subglabrous 15. *E. kueichowensis*
- 44b. Leaf blade 3.5–5(–7) × 1–1.4(–1.8) cm, thinly leathery, base rounded; sepals outside glabrous 16. *E. henryi*
- 42b. Pedicel 1 mm or less.
- 45a. Pedicel ca. 0.5 mm; style ca. 1.5 mm 6. *E. strigillosa*
- 45b. Pedicel ca. 1 mm; style 3–4 mm.
- 46a. Petiole ca. 1 mm; style distinct or parted almost to base.
- 47a. Leaf blade margin entire or rarely serrate; sepals 2–2.5 mm; stamens 22–28; styles 4 or 5, distinct 1. *E. ciliata*
- 47b. Leaf blade margin serrulate; sepals 1–1.5 mm; stamens 15–18; style 3-parted almost to base 3. *E. distichophylla*
- 46b. Petiole 2–4 mm; style connate at least for basal 1/2.
- 48a. Leaf blade oblong-lanceolate to ovate-lanceolate, 5–9 × 2–2.5 cm, base obtuse to subrounded; sepal apex acute to acuminate; style apically 3(or 4)-lobed 2. *E. patentipila*
- 48b. Leaf base oblong-elliptic, 12–15 × 4–5.2 cm, base broadly cuneate; sepal apex rounded; style 3–5-parted to middle 7. *E. velutina*
- 30b. Ovary glabrous.
- 49a. Current year branchlets 2-ribbed.
- 50a. Sepals outside pubescent.
- 51a. Leaf blade 12–19 cm, ovary pubescent at least when young 22. *E. persicifolia*
- 51b. Leaf blade 4.5–10 cm, ovary glabrous.
- 52a. Leaf blade base obtuse to subrounded; style ca. 2.5 mm 37. *E. tsingpienensis*
- 52b. Leaf blade base attenuate to cuneate; style 1 mm or less.
- 53a. Petiole 0.5–1 cm; flowers in clusters to 6; style ca. 1 mm, apically 3-lobed 31. *E. septata*
- 53b. Petiole 2–5 cm; flowers in clusters to 3; style less than 0.4 mm, 4-parted almost to base 45. *E. taitungensis*
- 50b. Sepals outside glabrous.
- 54a. Sepal margins not glandular.
- 55a. Anthers locellate; style ca. 1 mm; pedicel 0.5–1.5 mm 31. *E. septata*
- 55b. Anthers not locellate; style 1.5–2 mm; pedicel ca. 2 mm 44. *E. chinensis*
- 54b. Sepal margins glandular.

- 56a. Leaf blade oblong-elliptic to elliptic; style 3–3.5 mm 23. *E. jintungensis*
 56b. Leaf blade lanceolate to oblong-lanceolate; style ca. 2 mm 49. *E. lanciformis*
- 49b. Current year branchlets terete.
- 57a. Current year branchlets and terminal buds puberulent.
- 58a. Leaf blade obovate, apex rounded; stamens 5 79. *E. saxicola*
 58b. Leaf blade not obovate, apex acuminate, acute, or obtuse; stamens 10–24.
- 59a. Sepals outside glabrous; stamens 17–24; styles distinct 55. *E. macartneyi*
 59b. Sepals outside puberulent or pubescent; stamens 10–15; style lobed or parted.
- 60a. Leaf blade oblong-lanceolate to ovate-lanceolate, thinly leathery; sepals ovate; style 2–3 mm 36. *E. loquaiana*
 60b. Leaf blade oblong to oblong-elliptic, leathery; sepals orbicular; style 1–1.5 mm.
- 61a. Terminal buds only puberulent; leaf blade oblong-elliptic to elliptic, margin serrulate, apex abruptly shortly acute; sepals 2.5–3 mm, margin ciliolate 71. *E. hebeclados*
 61b. Terminal buds puberulent and pubescent; leaf blade oblong to oblong-elliptic, margin sparsely serrate on apical 1/2 or subentire, apex obtuse; sepals 1–1.5 mm, margin not ciliolate 73. *E. obtusifolia*
- 57b. Current year branchlets densely spreading villous or pubescent or at least terminal buds pubescent.
- 62a. Leaf blade base auriculate-amplexicaul, cordate, or obliquely cordate.
- 63a. Leaf blade base auriculate-amplexicaul.
- 64a. Leaf blade oblong, 2–3 cm, secondary and reticulate veins adaxially obscure; sepals glabrous 5. *E. disticha*
 64b. Leaf blade elliptic, 4–8 cm, secondary and reticulate veins adaxially impressed; sepals villous 62. *E. weissiae*
- 63b. Leaf blade base cordate or obliquely cordate.
- 65a. Leaf blade base unequally cordate; style 4–4.5 mm 40. *E. obliquifolia*
 65b. Leaf blade base cordate, slightly cordate, or obliquely rounded; style 1–2 mm.
- 66a. Leaf blade abaxially not black glandular punctate; style ca. 2 mm 39. *E. inaequalis*
 66b. Leaf blade abaxially black glandular punctate; style 1–1.5 mm 61. *E. glandulosa*
- 62b. Leaf blade base cuneate or rounded.
- 67a. Leaf blade 14–20 cm, margin spinescent serrulate 70. *E. perserrata*
 67b. Leaf blade 2–13(–15) cm (may reach 15 cm in *E. magniflora*), margin subentire, serrate, or serrulate.
- 68a. Leaf blade margin subentire or only apically serrate.
- 69a. Leaf blade oblong-lanceolate to lanceolate, secondary and reticulate veins raised on both surfaces, apex falcately acuminate to caudate-acuminate; anthers 20–24-locellate 19. *E. luchunensis*
 69b. Leaf blade obovate, secondary veins adaxially visible or obscure, apex obtuse; anthers not locellate 43. *E. cuneata*
- 68b. Leaf blade margin serrulate to serrate.
- 70a. Leaf blade obovate, apex rounded or emarginate.
- 71a. Leaf blade margin revolute; sepal margins not glandular; stamens ca. 20; ovary globose 29. *E. emarginata*
 71b. Leaf blade margin not revolute; sepal margins glandular; stamens 5; ovary ovoid 78. *E. pyracanthifolia*
- 70b. Leaf blade not obovate, apex acute, acuminate, or rarely slightly obtuse.
- 72a. Ovary 4- or 5-loculed; styles 4 or 5 and distinct or basally connate and apically 4- or 5-lobed or parted (sometimes apically 3-lobed in *E. prunifolia*).
- 73a. Leaf blade membranous to papery, secondary veins adaxially impressed 38. *E. quinquelocularis*
 73b. Leaf blade leathery or thinly leathery, secondary veins adaxially not impressed.
- 74a. Current year branchlets densely spreading villous; sepals ovate to oblong-ovate, outside pubescent; fruit globose 32. *E. pentagyna*
 74b. Current year branchlets sparsely pubescent when young, soon glabrescent; sepals suborbicular, outside glabrous; fruit ovate-ellipsoid 41. *E. prunifolia*
- 72b. Ovary 3-loculed; style apically 3-lobed or 3-parted, rarely 3 and distinct (sometimes 4 and distinct in *E. fangii*).
- 75a. Sepals ovate, apex acute or slightly obtuse.
- 76a. Current year branchlets densely spreading villous; petiole ca. 1 mm; female flowers with petals ca. 2.5 mm 33. *E. groffii*
 76b. Current year branchlets pubescent; petiole 2–5 mm; female flowers with petals 3–4 mm.
- 77a. Pedicel 2–3 mm; stamens 15–20; style 2–3 mm 34. *E. acuminata*
 77b. Pedicel 1–1.5 mm; stamens 12–15; style ca. 1 mm 35. *E. acuminoides*
- 75b. Sepals orbicular, apex rounded and usually emarginate.
- 78a. Sepals outside glabrous.
- 79a. Sepal margins ciliolate.
- 80a. Leaf blade oblong-elliptic, abaxially glabrous; anthers apically rounded; styles 3 or 4, distinct 66. *E. fangii*

- 80b. Leaf blade oblong to oblanceolate-oblong, abaxially pubescent along midvein; anthers apically acute; style apically 3-lobed 69. *E. semiserrulata*
- 79b. Sepal margins not ciliolate but sometimes glandular.
- 81a. Leaf blade to 4 cm, papery to thinly leathery; stamens 5–8.
- 82a. Leaf blade lanceolate, oblong, oblong-lanceolate, or elliptic-lanceolate, 2.5–3.5 cm, thinly leathery; stamens 7 or 8 76. *E. leptophylla*
- 82b. Leaf blade elliptic to obovate-oblong, 1–2.5 cm, leathery; stamens 5 77. *E. crenatifolia*
- 81b. Leaf blade longer than 6 cm, leathery; stamens 15–22.
- 83a. Sepal margins not glandular; anthers locellate; style ca. 1.5 mm 27. *E. muricata*
- 83b. Sepal margins sparsely glandular; anthers not locellate; style 3–4 mm 42. *E. hainanensis*
- 78b. Sepals outside pubescent.
- 84a. Sepal margins not ciliolate or glandular; petiole glabrous 20. *E. magniflora*
- 84b. Sepals margins ciliolate or glandular; petiole pubescent.
- 85a. Leaf blade 1.5–2.7 × 0.7–1.2 cm, secondary veins 6–8 on each side of midvein ... 75. *E. wenshanensis*
- 85b. Leaf blade 2–12 × 1–4 cm, secondary veins 8–24 on each side of midvein.
- 86a. Style ca. 3 mm; petiole 5–8 mm 21. *E. bifidostyla*
- 86b. Style 1–1.5 mm; petiole 1–3 mm.
- 87a. Stamens 5 or 6, anthers apically rounded; petiole ca. 1 mm 74. *E. yunnanensis*
- 87b. Stamens 12–15, anthers apically apiculate; petiole 1.5–3 mm.
- 88a. Sepal margins glandular, sometimes also ciliolate 67. *E. tsaii*
- 88b. Sepal margins ciliolate but not glandular.
- 89a. Leaf blade secondary veins 14–20 on each side of midvein; style ca. 1 mm ... 68. *E. taronensis*
- 89b. Leaf blade secondary veins 8–12 on each side of midvein; style ca. 1.5 mm or ca. 2.5 mm.
- 90a. Anthers 4- or 5-locellate; style ca. 2.5 mm 28. *E. wuliangshanensis*
- 90b. Anthers not locellate; style ca. 1.5 mm 63. *E. handel-mazzettii*

Key to sections

- 1a. Anthers usually locellate (not locellate in *E. acuminatissima*, *E. subcordata*, *E. megatrichocarpa*, and *E. pittosporifolia*; unknown in *E. rugosa*); ovary pubescent (including *E. acuminatissima*, *E. megatrichocarpa*, *E. pittosporifolia*, *E. rugosa*, and *E. subcordata*) or glabrous (species nos. 1–31) 1. *E.* sect. *Meristotheca*
- 1b. Anthers not locellate (unknown in *E. taitungensis*); ovary glabrous (species nos. 32–83) 2. *E.* sect. *Eurya*

1. *Eurya* sect. *Meristotheca* Vesque, Bull. Soc. Bot. France 42: 156. 1895.

格药铃组 ge yao ling zu

Current year branchlets terete or 2–4-ribbed. Anthers locellate (not locellate in *E. acuminatissima*, *E. megatrichocarpa*, *E. pittosporifolia*, and *E. subcordata* but then ovary pubescent). Ovary pubescent or glabrous, with more than 10 ovules per locule, rarely with only 10 ovules per locule; style 0.5–6 mm.

Thirty-one species: China, NE India, Indonesia, Japan, Korea, Laos, Myanmar, Nepal, Philippines, Thailand, Vietnam; 31 species (22 endemic) in China.

- 1a. Ovary and fruit glabrous.
- 2a. Current year branchlets clearly 2- or 4-ribbed.
- 3a. Fruit ovate-ellipsoid; current year branchlets 4-ribbed; leaf blade papery, secondary veins adaxially impressed 26. *E. impressinervis*
- 3b. Fruit globose; current year branchlets 2- or 4-ribbed; leaf blade leathery or thickly leathery, secondary veins adaxially raised.
- 4a. Current year branchlets 2-ribbed; terminal buds pubescent; sepal margins glandular; style 3–3.5 mm 23. *E. jintungensis*
- 4b. Current year branchlets 4-ribbed; terminal buds glabrous; sepal margins not glandular; style ca. 2 mm.
- 5a. Leaf blade oblong to obovate-lanceolate, 5–10 cm, secondary veins abaxially raised, apex acuminate 24. *E. tetragonoclada*
- 5b. Leaf blade elliptic to ovate-elliptic, 3–4.5 cm, secondary veins abaxially visible to slightly raised, apex slightly obtuse 25. *E. hupehensis*
- 2b. Current year branchlets terete or slightly 2-ribbed.
- 6a. Sepals ovate.
- 7a. Current year branchlets terete; petiole 2–3 mm; pedicel 2–2.5 mm 28. *E. wuliangshanensis*
- 7b. Current year branchlets slightly ribbed; petiole 5–10 mm; pedicel 0.4–1 mm 31. *E. septata*

- 6b. Sepals suborbicular or orbicular.
- 8a. Leaf blade 2–3 cm, apex rounded and retuse; sepals 1–1.5 mm 29. *E. emarginata*
- 8b. Leaf blade 4–18 cm, apex acute, acuminate, or caudate; sepals 2–4 mm.
- 9a. Sepals outside pubescent.
- 10a. Style 5–5.5 mm; petals ca. 9 mm; leaf blade secondary veins ca. 25 on each side of midvein and adaxially impressed 20. *E. magniflora*
- 10b. Style ca. 3 mm; petals ca. 4 mm; leaf blade secondary veins 20–24 on each side of midvein and adaxially raised 21. *E. bifidostyla*
- 9b. Sepals outside glabrous.
- 11a. Leaf blade secondary veins 6–8 on each side of midvein, apex acute and with a retuse tip 30. *E. glaberrima*
- 11b. Leaf blade secondary veins 9–13 on each side of midvein, apex acuminate, falcately acuminate, or caudate-acuminate.
- 12a. Petiole 10–13 mm; leaf blade narrowly oblong-lanceolate to lanceolate 19. *E. luchunensis*
- 12b. Petiole 4–5 mm; leaf blade oblong-elliptic to elliptic 27. *E. muricata*
- 1b. Ovary and fruit pubescent or at least ovary sparsely pubescent.
- 13a. Sepals ovate, leathery, brown when dry, apex acute; current year branchlets spreading villous.
- 14a. Styles 4 or 5, distinct; stamens 22–28; leaf blade papery, secondary veins adaxially slightly impressed or obscure 1. *E. ciliata*
- 14b. Styles 3, distinct or variously connate; stamens 5–11 or 15–19; leaf blade papery, thinly leathery, or leathery, secondary veins adaxially obscure.
- 15a. Styles ca. 1.5 mm, distinct; leaf blade lanceolate 6. *E. strigilosa*
- 15b. Style 2–6 mm, apically 3(or 4)-lobed or parted; leaf blade oblong, oblong-lanceolate, ovate-lanceolate, or ovate-oblong.
- 16a. Stamens 15–19; leaf blade base obtuse, subrounded, obliquely rounded, or obliquely cordate.
- 17a. Leaf blade oblong-lanceolate to ovate-lanceolate, 5–9 cm, leathery; style apically 3(or 4)-lobed 2. *E. patentipila*
- 17b. Leaf blade ovate-lanceolate to ovate-oblong, 3.5–6 cm, papery; style 3-parted almost to base 3. *E. distichophylla*
- 16b. Stamens 5–11; leaf blade base auriculate and amplexicaul.
- 18a. Stamens 10 or 11; ovary and fruit pubescent; sepals outside pubescent 4. *E. auriformis*
- 18b. Stamens 5–10; ovary sparsely pubescent when young, soon glabrescent; sepals glabrous 5. *E. disticha*
- 13b. Sepals orbicular, membranous, pale green or yellowish green when dry, apex emarginate or apiculate; current year branchlets pubescent or spreading villous.
- 19a. Styles 3–5, distinct or nearly so.
- 20a. Styles 3 or 4, ca. 2 mm; leaf blade thickly leathery, secondary veins impressed on both surfaces 9. *E. rugosa*
- 20b. Styles 4 or 5, 2.5–5 mm; leaf blade papery, thinly leathery, or leathery, secondary veins visible or slightly raised on both surfaces.
- 21a. Leaf blade elliptic, abaxially appressed pubescent; petiole abaxially velutinous 7. *E. velutina*
- 21b. Leaf blade oblong to narrowly oblanceolate, abaxially glabrescent; petiole glabrous ... 8. *E. pittosporifolia*
- 19b. Style 3(–5)-lobed.
- 22a. Ovary at first sparsely pubescent, soon glabrescent; fruit usually glabrous or rarely sparsely pubescent; leaf blade 7–20 × 2.5–7.5 cm.
- 23a. Current year branchlets 2-ribbed, glabrous; terminal buds densely grayish white pubescent; leaf blade margin densely serrulate 22. *E. persicifolia*
- 23b. Current year branchlets terete, glabrous, puberulent, or pubescent; terminal buds glabrous, puberulent, densely silvery sericeous, or densely pubescent; leaf blade margin entire or only apical 1/2 serrate.
- 24a. Ovary glabrous or very sparsely pubescent; style ca. 5 mm 18. *E. pseudocerasifera*
- 24b. Ovary glabrous; style 3–5.5 mm.
- 25a. Style 5–5.5 mm; petals ca. 9 mm; leaf blade elliptic to oblong, 8–15 × 3.5–7.5 cm, secondary veins ca. 25 on each side of midvein and adaxially impressed 20. *E. magniflora*
- 25b. Style ca. 3 mm; petals ca. 4 mm; leaf blade elliptic to elliptic-lanceolate, 6–12 × 2–4 cm, secondary veins 20–24 on each side of midvein and adaxially raised 21. *E. bifidostyla*
- 22b. Ovary and fruit pubescent; leaf blade 3–8 × 1–2 cm.
- 26a. Current year branchlets densely spreading villous.

- 27a. Anthers not locellate; leaf blade base obliquely cordate to subcordate, apex obtuse to acute 17. *E. subcordata*
- 27b. Anthers locellate; leaf blade base cuneate to rounded, apex acuminate.
- 28a. Anthers 4–6-locellate; sepals sparsely pubescent to subglabrous; leaf blade base cuneate, secondary veins adaxially obscure 15. *E. kueichowensis*
- 28b. Anthers 2- or 3-locellate; sepals glabrous; leaf blade base rounded, secondary veins adaxially impressed 16. *E. henryi*
- 26b. Current year branchlets pubescent or glabrescent.
- 29a. Style ca. 2 mm.
- 30a. Anthers locellate; style 3- or 4-parted; current year branchlets 2-ribbed; leaf blade narrowly elliptic, 4–7 cm 13. *E. gnaphalocarpa*
- 30b. Anthers not locellate; style 4- or 5-parted; current year branchlets terete; leaf blade oblong-elliptic, 7–11 cm 14. *E. megatrichocarpa*
- 29b. Style 3–5 mm.
- 31a. Anthers not locellate; current year branchlets pubescent when young, soon glabrescent; leaf blade abaxially glabrous 12. *E. acuminatissima*
- 31b. Anthers locellate; current year branchlets pubescent; leaf blade abaxially sparsely pubescent.
- 32a. Current year branchlets reddish brown; sepals orbicular, outside pubescent, margin ciliolate, apex emarginate; fruit globose 10. *E. trichocarpa*
- 32b. Current year branchlets yellowish brown; sepals ovate, glabrous, margin not ciliolate, apex acute; fruit ovate-ellipsoid 11. *E. acutisepala*

1. *Eurya ciliata* Merrill, Philipp. J. Sci. 23: 253. 1923.

化南毛柃 *hua nan mao ling*

Shrubs or trees, 3–10 m tall. Young branches grayish brown to dark brown, glabrous or glabrescent; current year branchlets terete, densely yellowish brown spreading villous; terminal buds spreading villous. Petiole ca. 1 mm; leaf blade lanceolate to oblong-lanceolate, 5–8(–11) × 1.2–2.4 cm, papery, abaxially pale green and appressed pubescent, adaxially shiny green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–14 on each side of midvein, abaxially raised, and adaxially slightly impressed or obscure, base obliquely cordate, margin entire or rarely serrate, apex acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 1 mm, pubescent. Male flowers: bracteoles ovate, outside pubescent, apex acute; sepals broadly ovate, 2–2.5 mm, leathery, outside densely pubescent, apex rounded to obtuse; petals oblong, 4–4.5 mm; stamens 22–28; anthers 5–8-locellate; pistillode densely pubescent. Female flowers: bracteoles and sepals smaller, and petals slightly smaller, than those of male flower; ovary globose, densely pubescent, 5-loculed; styles 4 or 5, distinct, ca. 4 mm. Fruit globose, 5–6 mm in diam., with many seeds per locule, densely pubescent. Seeds brown, rotund-reniform, shiny. Fl. Oct–Nov, fr. Apr–May.

• Forests on mountain slopes or along streams; 100–1300 m. SW Guangdong, S Guangxi, Hainan, SE Yunnan.

2. *Eurya patentipila* Chun, Sunyatsenia 2: 56. 1934.

长毛柃 *chang mao ling*

Eurya parastrigillosa P. S. Hsu.

Shrubs 1.5–5 m tall. Young branches glabrous or glabrescent; current year branchlets terete, densely yellowish brown villous; terminal buds densely villous. Petiole ca. 2 mm, densely villous; leaf blade oblong-lanceolate to ovate-lanceolate, 5–9 × 2–2.5 cm, leathery, abaxially pale yellowish green and ap-

pressed villous particularly along midvein, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins ca. 20 on each side of midvein and obscure on both surfaces, base obtuse to subrounded, margin serrulate, apex long acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 1 mm, villous. Male flowers: bracteoles ovate, villous; sepals ovate, 2.5–4 mm, leathery, outside densely villous, apex acute to acuminate; petals oblong, ca. 5 mm; stamens 15–19; anthers 6–8-locellate; pistillode densely pubescent. Female flowers: bracteoles, sepals, and petals similar to those of male flowers; ovary ovoid, densely pubescent; style 3–4 mm, apically 3(or 4)-lobed. Fruit purplish black when mature, globose, ca. 6 mm in diam., densely villous. Seeds shiny. Fl. Oct–Dec, fr. Jun–Jul.

• Forests on mountain slopes or in valleys; 500–1100 m. W Guangdong, Guangxi.

3. *Eurya distichophylla* Hemsley, J. Linn. Soc., Bot. 23: 77. 1886.

二列叶柃 *er lie ye ling*

Eurya distichophylla f. *asymmetrica* Hung T. Chang; *E. swinglei* Merrill.

Shrubs or trees, 1.5–7 m tall. Young branches slender, grayish brown to dark brown, glabrescent; current year branchlets densely spreading villous; terminal buds villous. Petiole ca. 1 mm, villous; leaf blade ovate-lanceolate to ovate-oblong, 3.5–6 × 1.1–1.8 cm, papery to thinly leathery, abaxially pale green and densely appressed villous, adaxially green, slightly shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–11 on each side of midvein, abaxially visible, and adaxially obscure, base obliquely rounded to obliquely cordate, margin serrulate, apex acuminate to long acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 1 mm, villous. Male flowers: bracteoles ovate, very small; sepals ovate, ca. 1.5 mm, outside densely villous, apex slightly

acute to obtuse; petals obovate-oblong to obovate, ca. 4 mm, margin slightly bluish, apex rounded; stamens 15–18; anthers many-locellate; pistillode densely pubescent. Female flowers: sepals ovate, ca. 1 mm, outside densely villous, apex acute to obtuse; petals lanceolate, 2–2.5 mm; ovary ovoid, densely pubescent, 3-loculed; style 3–4 mm, 3-parted almost to base. Fruit purplish black when mature, globose to ovoid, 4–5 mm in diam., pubescent, many seeded. Seeds brown, rounded reniform, shiny. Fl. Oct–Dec, fr. Jun–Jul.

Forests on mountain slopes or along streams; 200–1500 m. S and SW Fujian, Guangdong, E and S Guangxi, S Hunan, S Jiangxi [Vietnam].

4. *Eurya auriformis* Hung T. Chang, Acta Phytotax. Sin. 3: 21. 1954.

耳叶柃 er ye ling

Shrubs 1–2 m tall. Young branches grayish brown, glabrous or glabrescent; current year branchlets terete, densely yellowish brown spreading villous; terminal buds densely villous. Petiole very short to subsessile; leaf blade ovate-lanceolate, 1.5–2.5 × 0.6–1 cm, leathery, abaxially pale green and appressed villous, adaxially green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5–7 on each side of midvein and obscure on both surfaces, base auriculate and amplexicaul, margin entire, apex obtuse to rounded and with a retuse tip. Flowers axillary, solitary or paired. Pedicel ca. 1 mm, villous. Male flowers: bracteoles ovate, very small; sepals ovate, ca. 2 mm, outside pubescent, apex acute; petals oblong, ca. 3 mm; stamens 10 or 11; anthers 4- or 5-locellate; pistillode densely pubescent. Female flowers: bracteoles and sepals similar but slight smaller than those of male flowers; petals lanceolate, ca. 2.5 mm; ovary globose densely pubescent, 3-loculed; style ca. 2 mm, apically 3-lobed. Fruit globose, ca. 3 mm in diam., pubescent. Fl. Oct–Nov, fr. May.

• Forests in valleys; 600–700 m. Guangdong, E Guangxi.

5. *Eurya disticha* Chun, Sunyatsenia 2: 52. 1934.

秃小耳柃 tu xiao er ling

Shrubs 1–2 m tall. Young branches grayish brown to dark brown, slender, terete; current year branchlets densely spreading villous; terminal buds densely villous. Petiole ca. 1 mm, sparsely villous; leaf blade oblong, 2–3.5 × 0.7–1.2 cm, papery, abaxially pale green and villous along midvein, adaxially green, shiny, and glabrous, midvein abaxially raised and adaxially impressed, secondary veins ca. 12 on each side of midvein and obscure on both surfaces, base obliquely auriculate and slightly amplexicaul, margin obtusely serrulate, apex shortly acute to shortly acuminate and with an obtuse to emarginate tip. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 1 mm, glabrous. Male flowers: bracteoles very small, broadly ovate, glabrous; sepals ovate to oblong-ovate, ca. 1.5 mm, glabrous, apex obtuse and mucronulate; petals lanceolate, 3–4 mm; stamens 5–10; anthers 3- or 4-locellate; pistillode sparsely pubescent. Female flowers: bracteoles, sepals, and petals similar but slightly smaller than those of male flowers; ovary globose, very sparsely pubescent when young, soon glabrescent, 3-loculed; style 2–2.5 mm, apically 3-lobed. Fruit dark blue when mature, ovoid to

ovoid-globose, ca. 4.5 mm, glabrous. Seeds brown, obliquely ovoid, shiny. Fl. Oct–Nov, fr. Mar–Apr.

• Forests on mountain slopes, bamboo forests; 800–1200 m. S Guangdong.

6. *Eurya strigilosa* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 25(19): 61. 1908.

台湾毛柃 tai wan mao ling

Small trees. Young branchlets grayish brown, glabrous or glabrescent; current year branchlets terete, densely yellowish brown spreading villous; terminal buds yellowish brown villous. Petiole less than 1 mm, densely strigillose; leaf blade lanceolate, 6–11 × 1.5–2.5 cm, thinly leathery to leathery, abaxially pale green, strigillose, and becoming pale brown when dry, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–12 on each side of midvein and obscure on both surfaces, base obtuse, margin serrulate, apex acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 0.5 mm. Male flowers: bracteoles and sepals similar but slightly larger than those of female flowers; stamens ca. 15; anthers several-locellate; pistillode pubescent. Female flowers: bracteoles ovate, pubescent; sepals suborbicular, ca. 1 mm, outside pubescent, apex rounded and mucronate; petals obovate to obovate-oblong, ca. 2.5 mm; ovary globose, densely pubescent, 3-loculed; styles 3, distinct, ca. 1.5 mm. Fruit globose, 3–4 mm in diam., densely yellowish brown pubescent. Fl. Oct, fr. May–Jun.

Forests on mountain slopes; 200–2200 m. Taiwan [Japan (Ryukyu Islands)].

7. *Eurya velutina* Chun, Sunyatsenia 2: 57. 1934.

信宜毛柃 xin yi mao ling

Trees 12–25 m tall. Young branches grayish brown to purplish brown, glabrous or subglabrous; current year branchlets terete, yellowish brown velutinous; terminal buds yellowish brown velutinous. Petiole 2–4 mm, abaxially velutinous, adaxially grooved and glabrous; leaf blade oblong-elliptic, 12–15 × 4–5.2 cm, leathery, abaxially pale green, yellowish brown appressed pubescent, and densely villous along midvein, adaxially dark green, slightly shiny, and glabrous, midvein abaxially elevated and adaxially slightly impressed, secondary veins 16–20 on each side of midvein, slender, and slightly raised on both surfaces, base broadly cuneate, margin serrulate, apex acuminate to long acuminate. Flowers axillary, solitary or to 4 in a cluster. Pedicel ca. 1 mm, velutinous. Male flowers not seen. Female flowers: bracteoles ovate, velutinous; sepals ovate-oblong, ovate, or suborbicular, ca. 3 mm, leathery, outside velutinous, apex rounded; petals oblong-lanceolate, ca. 5 mm; ovary globose, densely villous, 5-loculed; styles ca. 4 mm, 3–5-parted apically or rarely to middle. Immature fruit ellipsoid to ellipsoid-globose, ca. 6 × 5 mm in diam., densely villous. Seeds brown, ca. 1.2 mm, shiny. Fl. Jan–Mar, fr. Jun–Jul.

• Forests on mountain slopes; ca. 1000 m. Guangdong (Xinyi).

8. *Eurya pittosporifolia* Hu, Bull. Fan Mem. Inst. Biol., Bot. 8: 150. 1938.

海桐叶柃 hai tong ye ling

Eurya austroyunnanensis T. L. Ming & H. Chu.

Trees 6–10 m tall. Young branches grayish brown, glabrous; current year branchlets terete, purplish brown, sparsely pubescent when young, soon glabrescent; terminal buds densely pubescent. Petiole ca. 3 mm, glabrous; leaf blade oblong to narrowly oblanceolate, 9–15 × 2–4 cm, thinly leathery to papery, abaxially pale green, sparsely appressed pubescent when young, and glabrescent, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 14–18 on each side of midvein, secondary and reticulate veins visible on both surfaces, base cuneate to broadly cuneate, margin serrulate or entire toward basal part, apex long acuminate to caudate. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 3 mm, sparsely pubescent. Male flowers: bracteoles ovate, ca. 1 mm, outside sparsely pubescent; sepals suborbicular, 2–2.5 mm in diam., outside glabrous or puberulent; petals elliptic, ca. 2.5 mm; stamens 15–20; anthers oblong, not locellate; pistillode apically villous. Female flowers: bracteoles and sepals similar to those of male flowers; petals oblong, ca. 3 mm; ovary globose, densely pubescent, 4- or 5-loculed; styles 4 or 5, distinct or parted to base, 2.5–3 mm. Fruit globose, densely pubescent, ca. 4.5 mm in diam. Seeds blackish brown, subreniform, shiny. Fl. Oct–Dec, fr. May–Jun.

- Forests in valleys; 700–2000 m. Yunnan (Jinghong, Mengla).

9. *Eurya rugosa* Hu, Bull. Fan Mem. Inst. Biol., Bot. 8: 151. 1938.

皱叶柃 *zhou ye ling*

Shrubs 2–4 m tall. Young branches grayish brown, slightly 2-ribbed, glabrous; current year branchlets brown, terete, yellowish brown villous when young but glabrescent; terminal buds densely yellowish brown villous. Petiole 3–4 mm, pubescent; leaf blade oblong to oblong-elliptic, 7–9.6 × 2–3.5 cm, thickly leathery, abaxially pale green and sparsely appressed pubescent, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–12 on each side of midvein, secondary and reticulate veins impressed on both surfaces, base obtuse to subrounded, margin closely serrulate, apex abruptly shortly caudate. Flowers not seen. Fruit solitary in axils, globose, ca. 3.5 mm in diam., sparsely pubescent; pedicel ca. 3 mm, pubescent; persistent bracteoles ovate, pubescent; persistent sepals ovate to suborbicular, ca. 2.5 mm, densely pubescent outside, margin ciliolate; persistent styles 3 or 4, distinct, ca. 2 mm. Fr. Jun–Jul.

- Dense forests; ca. 1600 m. Sichuan (Pingshan).

Although the flowers are unknown, the sparsely pubescent fruit places this species in *Eurya* sect. *Meristotheca*.

10. *Eurya trichocarpa* Korthals, Verh. Nat. Gesch. Ned. Bezitt. Bot. 114. 1841.

毛果柃 *mao guo ling*

Eurya trichogyna Blume.

Shrubs or trees, 2–13 m tall. Young branches grayish brown, glabrous; current year branchlets reddish brown, terete, densely appressed pubescent; terminal buds pubescent. Petiole 2–3 mm; leaf blade oblong to oblong-oblanceolate, 6–10 × 2–3 cm, papery to thinly leathery, abaxially pale green, sparsely ap-

pressed pubescent when young, and soon glabrescent, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, slender, and obscure on both surfaces or abaxially slightly raised, base cuneate to broadly cuneate, margin serrulate, apex caudate-acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 1–2 mm, sparsely pubescent or glabrous. Male flowers: bracteoles ovate, pubescent; sepals orbicular, ca. 1.5 mm in diam., outside pubescent, apex rounded and with a retuse tip; petals obovate-oblong, ca. 3 mm; stamens ca. 15; anthers multi-locellate; pistillode pubescent. Female flowers: bracteoles and sepals similar to those of male flowers; petals ovate-oblong; ovary globose, densely pubescent, 3-loculed; style 2–2.5(–3) mm, apically 3-parted. Fruit purplish black when mature, globose, 5–6 mm in diam. Seeds brown, reniform, shiny. Fl. Oct–Nov, fr. Jul–Aug.

Forests in valleys or on mountain slopes; 700–2200 m. NW Guangdong, Guangxi, Hainan, SE Xizang, NW and S Yunnan [NE India, Indonesia, Laos, Myanmar, Nepal, Philippines, Thailand, Vietnam].

11. *Eurya acutisepala* Hu & L. K. Ling, Acta Phytotax. Sin. 11: 191. 1966.

尖萼毛柃 *jian e mao ling*

Shrubs or trees, 2–7 m tall. Young branches grayish brown to brown, sparsely pubescent or glabrescent; current year branchlets terete, densely pubescent; terminal buds sericeous-pubescent. Petiole 2–3.5 mm, abaxially pubescent, adaxially grooved and glabrous; leaf blade oblong to oblanceolate-oblong, 5–8 × 1.5–1.8 cm, thinly leathery, abaxially pale green and sparsely pubescent, adaxially green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–12, slender, abaxially slightly raised, and adaxially visible to obscure, base cuneate to broadly cuneate, margin closely serrulate, apex long acuminate. Flowers axillary, 2 or 3 in a cluster. Pedicel 1.5–2.5 mm, sparsely pubescent. Male flowers: bracteoles ovate, ca. 1.5 mm; sepals ovate to long ovate, ca. 2 mm, membranous, outside and margins glabrous, apex acute; petals obovate-oblong, ca. 4 mm; stamens ca. 15; anthers narrowly oblong, 5–7-locellate, apex mucronulate; pistillode densely pubescent. Female flowers: sepals ca. 1.5 mm; petals narrowly oblong, ca. 3 mm; ovary ovoid, densely pubescent, 3-loculed; style 2.5–3 mm, apically 3-lobed. Fruit purplish black when mature, ovate-ellipsoid to rarely elliptic-globose, ca. 4.5 × 3.5–4 mm, sparsely pubescent. Seeds blackish brown, orbicular-reniform, shiny. Fl. Oct–Nov, fr. Jun–Aug.

- Forests on mountain slopes or along streams; 500–2000 m. Fujian, N Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, SE Yunnan, S Zhejiang.

12. *Eurya acuminatissima* Merrill & Chun, Sunyatsenia 1: 72. 1930.

尖叶毛柃 *jian ye mao ling*

Shrubs or trees, 1–7 m tall. Young branches grayish brown to purplish brown, glabrous; current year branchlets reddish brown, terete, sparsely appressed pubescent when young but glabrescent; terminal buds densely pubescent. Petiole 2–3 mm; leaf blade ovate-elliptic, 5–9 × 1.2–2.5 cm, papery to thinly leathery, abaxially pale green, adaxially dark green and shining,

both surfaces glabrous or abaxially sparsely appressed pubescent when young but glabrescent, midvein abaxially elevated and adaxially impressed, secondary veins ca. 9 on each side of midvein and obscure on both surfaces, base cuneate, margin closely serrulate, apex caudate-acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 1–3 mm, glabrous or subglabrous. Male flowers: bracteoles orbicular; sepals pale green, suborbicular, 2.5–3 mm, membranous, apex rounded and with a mucronate or emarginate tip; outer 2 sepals \pm pubescent; inner 3 sepals glabrous; petals oblong, ca. 4 mm; stamens 14–16; anthers not locellate; pistillode densely pubescent. Female flowers: bracteoles and sepals similar to those of male flowers; petals oblong-lanceolate, ca. 3 mm; ovary ovoid, densely pubescent, 3-loculed; style 3–3.5 mm, apically 3-lobed. Fruit ellipsoid-ovoid to globose, ca. 5 mm, sparsely pubescent. Fl. Sep–Nov, fr. Jul–Aug.

• Forests on mountain slopes or in valleys; 200–1200 m. Guangdong, Guangxi, S Guizhou, S Hunan, S Jiangxi.

13. *Eurya gnaphalocarpa* Hayata, Icon. Pl. Formosan. 8: 7. 1919.

灰毛柃 hui mao ling

Shrubs or small trees. Young branches purplish brown to grayish brown, glabrous; current year branchlets reddish brown, slightly 2-ribbed, sparsely appressed pubescent; terminal buds densely appressed pubescent. Petiole 3–5 mm; leaf blade elliptic to elliptic-lanceolate, 4–7 \times 1.5–2 cm, leathery, abaxially yellowish green and appressed pubescent when young but glabrescent, adaxially green, glabrous, and shiny, midvein abaxially elevated and adaxially impressed, secondary veins 6–8 on each side of midvein and slightly visible on both surfaces or abaxially obscure, base cuneate, margin serrate or serrulate except basally entire, apex acuminate to rarely subcaudate and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 2 mm, pubescent. Male flowers: bracteoles ovate; sepals ovate to orbicular, 1.5–2 mm, outside pubescent, apex rounded; petals oblong to oblong-lanceolate, ca. 3 mm; stamens 10–15; anthers multi-locellate; pistillode pubescent. Female flowers: bracteoles, sepals, and petals similar to those of male flowers but slightly smaller; ovary globose, densely pubescent, 3-loculed; style ca. 2 mm, apically 3- or 4-parted. Fruit globose, 3–4 mm in diam., sparsely pubescent. Fl. Nov–Dec, fr. Apr–May.

Forests; 2300–3500 m. E Taiwan [Philippines].

14. *Eurya megatrichocarpa* Hung T. Chang, Acta Phytotax. Sin. 3: 16. 1954.

大果毛柃 da guo mao ling

Shrubs or trees, 6–8 m tall. Young branches dark brown, glabrous; current year branchlets terete, sparsely appressed pubescent; terminal buds pubescent. Petiole 4–6 mm, pubescent; leaf blade oblong to oblong-elliptic, 7–11 \times 2–3 cm, thinly leathery, abaxially yellowish green when dry, sparsely appressed pubescent, and later glabrescent, adaxially dark green, glabrous, and shiny, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, slender, abaxially raised, and adaxially obscure, base cuneate to

broadly cuneate, margin closely serrulate, apex acuminate to acute. Flowers axillary, usually 2–5 in a cluster. Pedicel 3–4 mm, sparsely pubescent. Male flowers: sepals suborbicular, 1.5–2 mm, outside sparsely pubescent, apex rounded; petals ovate, ca. 3 mm; stamens ca. 16; anthers not locellate; pistillode pubescent. Female flowers: sepals similar to those of male flowers but slightly smaller; petals oblong, ca. 2.5 mm; ovary globose, sparsely pubescent, 5-loculed; style ca. 1.5 mm, 4- or 5-parted almost to base. Fruit dark purple when mature, globose, ca. 5 mm in diam., sparsely pubescent. Fl. Nov–Dec, fr. Jul–Aug.

Forests on mountain slopes or tops; 300–1200 m. Guangxi (Shiwan Dashan) [N Vietnam].

15. *Eurya kueichowensis* P. T. Li, J. S. China Agric. Univ. 21(4): 60. 2000.

贵州毛柃 gui zhou mao ling

Shrubs or trees, 2–6 m tall. Young branches grayish brown to reddish brown, glabrous or subglabrous; current year branchlets terete, densely yellowish brown spreading villous; terminal buds yellowish brown villous. Petiole 2–3 mm, pubescent; leaf blade oblong-lanceolate to oblong, 6.5–9 \times 1.5–2.5 cm, leathery to rigidly leathery, abaxially pale yellowish green and sparsely appressed pubescent but densely pubescent along midvein, adaxially green, glabrous, and yellowish green when dry, midvein abaxially elevated and adaxially impressed, secondary veins 10–13 on each side of midvein and slightly visible on both surfaces when young but abaxially obscure when older, base broadly cuneate to obtuse, margin closely serrulate except basally, apex acuminate to caudate-acuminate and with a 1–1.5 cm acumen. Flowers axillary, solitary or to 3 in a cluster. Pedicel 2–3 mm, sparsely pubescent to subglabrous. Male flowers: bracteoles ovate, very small; sepals suborbicular to broadly ovate, ca. 2 mm, membranous, outside sparsely pubescent to subglabrous, apex rounded and mucronate; petals obovate-oblong, 3.5–4 mm; stamens 15–18; anthers 4–6-locellate; pistillode densely pubescent. Female flowers: similar to male flowers but slightly smaller; ovary ovoid, pubescent, 3-loculed; style 3.5–4.5 mm, apically 3-parted. Fruit ovoid-ellipsoid, ca. 5 \times 4 mm, with 10–12 seeds per locule, sparsely pubescent. Seeds blackish brown, shiny. Fl. Sep–Oct, fr. Apr–Jul.

• Forests on mountain slopes or along streams; 600–1800 m. N Guangxi, Guizhou, W Hubei, E and SE Sichuan, NE and SE Yunnan.

16. *Eurya henryi* Hemsley, Hooker's Icon. Pl. 28: sub t. 2761. 1903.

披针叶毛柃 pi zhen ye mao ling

Eurya distichophylla Hemsley var. *henryi* (Hemsley) Kobuski.

Shrubs 2–5 m tall. Young branches grayish brown, slender, spreading, glabrous or subglabrous; current year branchlets terete, densely spreading villous; terminal buds densely yellowish brown villous. Petiole ca. 1.5 mm; leaf blade lanceolate to oblong-lanceolate, 3.5–5(–7) \times 1–1.4(–1.8) cm, thinly leathery, abaxially pale green and appressed pubescent, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–12 on each side of midvein, sec-

ondary and reticulate veins abaxially slightly raised and adaxially impressed, base rounded, margin closely serrulate, apex caudate-acuminate. Flowers axillary, solitary or paired. Pedicel ca. 2.5 mm, glabrous. Male flowers: bracteoles ovate, glabrous; sepals suborbicular, ca. 1.5 mm, membranous, glabrous, apex rounded and mucronate; petals ovate-oblong, ca. 4 mm; stamens 15–19; anthers 2- or 3-locellate; pistillode densely pubescent. Female flowers: similar to male flowers but slightly smaller; petals narrowly lanceolate; ovary globose, densely pubescent, 3-loculed; style ca. 3 mm, apically 3-lobed. Immature fruit ellipsoid to globose, densely pubescent. Fl. Nov–Dec, fr. Jun–Aug.

Forests, thickets; 1700–2300 m. NE and SE Yunnan [Vietnam].

17. *Eurya subcordata* Hu & L. K. Ling, Acta Phytotax. Sin. 11: 296. 1966.

微心叶毛柃 wei xin ye mao ling

Shrubs or trees, 1–5 m tall. Older branches grayish brown, subglabrous; young branches spreading, blackish brown pubescent; current year branchlets terete, densely yellowish brown spreading villous; terminal buds densely pubescent. Petiole to 1 mm, pubescent; leaf blade oblong, ovate-oblong, or ovate-lanceolate, 2.5–3.5 × 1–1.3 cm, leathery, abaxially pale green and pubescent particularly along midvein, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6–9 on each side of midvein, slender, abaxially raised, and adaxially impressed, base slightly cordate, margin closely serrulate, apex obtuse to acute. Flowers axillary, solitary or to 3 in a cluster. Pedicel 2–3 mm, sparsely pubescent. Male flowers: bracteoles small, ovate; sepals broadly ovate to suborbicular, ca. 1.5 mm, membranous, outside pubescent, margin ciliolate, apex rounded and with a black mucro; petals obovate to obovate-oblong, ca. 3.5 mm; stamens 15 or 16; anthers not locellate; pistillode densely pubescent. Female flowers: bracteoles, sepals, and petals similar to those of male flowers; ovary ovoid, densely pubescent, 3-loculed; style ca. 3 mm, apically 3-lobed. Immature fruit ovoid, 3–3.5 × ca. 3 mm, with ca. 10 seeds per locule, sparsely pubescent. Fl. Nov–Dec, fr. May–Jun.

• Forests on mountain slopes or in valleys; 1200–2100 m. SE Yunnan.

18. *Eurya pseudocerasifera* Kobuski, J. Arnold Arbor. 34: 135. 1953.

肖樱叶柃 xiao ying ye ling

Shrubs or trees, 3–8 m tall. Young branches grayish brown, glabrous; current year branchlets terete, appressed pubescent; terminal buds densely silvery sericeous. Petiole ca. 5 mm, sparsely pubescent to subglabrous; leaf blade oblong-elliptic, 9–13 × 2.5–5 cm, leathery, abaxially pale green and sparsely appressed pubescent when young but soon glabrescent, adaxially green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–14 on each side of midvein, abaxially raised, and adaxially slightly impressed, base cuneate, margin entire or rarely several serrations near apex, apex acuminate. Flowers axillary, solitary or to 3 in a cluster at leafless nodes. Pedicel 3–4 mm, pubescent. Male flowers: brac-

teoles ovate to orbicular, ca. 1 mm, pubescent, margin ciliolate; sepals orbicular, ca. 2 × 2.5 mm, membranous, outside pubescent, margin ciliolate, apex rounded and retuse with a mucronate tip; petals oblong to obovate-oblong, 4–4.5 mm; stamens 15–17; anthers 5–10-locellate; pistillode pubescent. Female flowers: bracteoles, sepals, and petals similar to those of male flowers but slightly smaller; ovary globose, glabrous or very sparsely pubescent, 3-loculed; style ca. 5 mm, apically 3-parted. Fruit globose, 4–5 mm in diam., glabrous. Seeds subreniform, ca. 1 mm, shiny. Fl. Oct–Nov, fr. Jun–Aug.

Forests on mountain slopes or in valleys; 1800–2800 m. SE Xizang, Yunnan [Myanmar].

19. *Eurya luchunensis* J. H. Wang & H. Wang, Novon 15: 490. 2005.

绿春柃 lü chun ling

Shrubs or small trees, 2–5 m tall. Young branches brown; current year branchlets terete, glabrous or sparsely pubescent; terminal buds pubescent. Petiole 1–1.3 cm, abaxially pubescent, adaxially grooved; leaf blade narrowly oblong-lanceolate to lanceolate, (9–)11–18 × 2–4 cm, leathery, abaxially pale green and villous along midvein, adaxially dark green, midvein abaxially raised and adaxially impressed, secondary veins 11–13 on each side of midvein, secondary and reticulate veins raised on both surfaces, base broadly cuneate, margin entire or sparsely serrate near apex, apex falcately acuminate to caudate-acuminate. Flowers axillary, solitary or to 4 in clusters at leafless nodes. Pedicel 4–6 mm, sparsely pubescent. Male flowers: bracteoles 2 or 3, broadly ovate to orbicular, outside glabrous, margin ciliolate; sepals orbicular, ca. 4 mm, membranous, outside glabrous, inside sparsely pubescent, margin ciliolate; petals not seen open; stamens ca. 16; anthers 20–24-locellate. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals not seen open; ovary globose, ca. 2 mm in diam., glabrous; style apically 3-lobed. Fruit globose, 5–6 mm in diam., globose; persistent style ca. 4 mm, apically 3-lobed. Fl. Oct–Dec, fr. Aug.

• Tropical broad-leaved secondary forests, montane rain forests; 800–1900 m. Yunnan (Lüchun).

20. *Eurya magniflora* P. I. Mao & P. X. He, Acta Bot. Yunnan. 6: 67. 1984.

大华柃 da hua ling

Trees to 8 m tall. Current year branchlets terete, stout, glabrous; terminal buds glabrous or puberulent. Petiole 5–8 mm, glabrous, adaxially grooved; leaf blade elliptic to oblong, 8–15 × 3.5–7.5 cm, leathery, abaxially pale green, adaxially green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins ca. 25 on each side of midvein, abaxially raised, and adaxially impressed, base cuneate, margin basal 1/2 entire and apical 1/2 serrulate, apex acuminate to shortly caudate. Flowers axillary, 2–4 in a cluster. Pedicel 3–5 mm. Male flowers: bracteoles orbicular; sepals suborbicular, ca. 4 mm, outside and inside pubescent; petals oblong, ca. 9 × 4 mm; stamens 33–35; filaments ca. 5 mm; anthers ca. 3 mm, 4–8-locellate; pistillode glabrous. Female flowers: sepals suborbicular, 3–3.2 mm, pubescent; petals oblong, ca. 7

× 3 mm; ovary globose, glabrous, 3-loculed; style 5–5.5 mm, apically 3-parted. Fruit not seen. Fl. Nov–Dec.

- Forests on mountain slopes; 1700–1800 m. Yunnan (Maguan).

21. *Eurya bifidostyla* K. M. Feng & P. I. Mao, *Acta Bot. Yunnan.* 6: 68. 1984.

双柱柃 *shuang zhu ling*

Trees to 8 m tall. Young branches glabrous; current year branchlets terete, sparsely yellowish brown pubescent; terminal buds densely pubescent. Petiole 5–8 mm, abaxially pubescent, adaxially grooved; leaf blade elliptic to elliptic-lanceolate, 6–12 × 2–4 cm, leathery, abaxially pale green and sparsely pubescent along midvein, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 20–24 on each side of midvein, secondary and reticulate veins raised on both surfaces, base cuneate, margin sparsely serrate on apical 1/2, apex shortly acuminate. Male flowers not seen. Female flowers axillary, solitary to 4 in a cluster; pedicel ca. 2 mm, pubescent; bracteoles suborbicular, ca. 1 mm, outside pubescent, margin ciliolate, apex rounded and retuse with a mucronate tip; sepals suborbicular, ca. 2 mm, outside pubescent, margin ciliolate, apex rounded and retuse; petals oblong, ca. 4 mm, basally slightly connate; ovary globose, glabrous, 2- or 3-loculed; ovules ca. 12 per locule; style ca. 3 mm, apically 2- or 3-parted. Fruit not seen. Fl. Nov–Dec.

- Forests; 2200–2300 m. Yunnan (Shuangjiang).

22. *Eurya persicifolia* Gagnepain, *Notul. Syst. (Paris)* 10: 118. 1942 [*“persicaefolia”*].

坚桃叶柃 *jian tao ye ling*

Eurya chienii P. S. Hsu.

Shrubs or trees, 3–7 m tall. Young branches grayish brown to brown, glabrous, 2-ribbed; current year branchlets yellowish green, 2-ribbed, glabrous; terminal buds densely grayish white pubescent. Petiole 8–10 mm, glabrous; leaf blade lanceolate to narrowly oblong-lanceolate, 12–19 × 3–4 cm, leathery, abaxially pale green and sparsely appressed pubescent when young but glabrescent, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 15–18 on each side of midvein, abaxially raised, and adaxially impressed, base obtuse, margin slightly revolute when dry, basally entire, and apically closely serrulate, apex caudate-acuminate. Flowers axillary, 2 or to several in a cluster. Pedicel 2–3 mm, sparsely pubescent. Male flowers: bracteoles ovate, ca. 1 mm, pubescent; sepals orbicular, ca. 3 mm, outside pubescent, margin ciliolate; petals obovate, 4–5 mm; stamens ca. 18; anthers multi-locellate; pistillode sparsely pubescent. Female flowers: bracteoles, sepals, and petals similar to those of male flowers; ovary ovoid, very sparsely pubescent when young but glabrescent, 3-loculed; style 3–3.5 mm, apically 3-parted. Immature fruit globose to ovoid, ca. 5 mm in diam., glabrous. Fl. Oct–Dec, fr. May–Jun.

Dense forests on mountain slopes or in valleys; 1300–2000 m. SE Yunnan [Vietnam].

23. *Eurya jintungensis* Hu & L. K. Ling, *Acta Phytotax. Sin.* 11: 299. 1966.

景东柃 *jing dong ling*

Shrubs or trees, 2–10 m tall. Young branches yellowish brown to grayish brown, 2-ribbed, glabrous; current year branchlets pale green, 2-ribbed, sparsely pubescent when young but glabrescent or subglabrous; terminal buds yellowish brown pubescent. Petiole 2–5 mm, abaxially sparsely pubescent or glabrous, adaxially grooved; leaf blade oblong-elliptic, elliptic, or oblong-oblong-lanceolate, 6–9 × 2–3.2 cm, leathery, abaxially pale green, adaxially green and shiny, both surfaces glabrous or abaxially sparsely pubescent along midvein, midvein abaxially elevated and adaxially impressed, secondary veins 7–10 on each side of midvein and slightly raised on both surfaces, base cuneate, margin closely serrulate, apex abruptly shortly acuminate to acute and with an obtuse tip. Flowers axillary, 2 or 3 in a cluster. Pedicel 2–2.5 mm, glabrous. Male flowers: bracteoles ovate; sepals suborbicular, 2–2.5 mm, membranous, margin brown glandular; petals obovate-oblong, ca. 4 mm; stamens 15–18; anthers 3–5-locellate; pistillode glabrous. Female flowers: sepals similar to those of male flowers but slightly smaller; petals oblong, 2–2.5 mm; ovary globose, glabrous; style 3–3.5 mm, apically 3-lobed. Fruit globose, ca. 4.5 mm in diam., with 4–7 seeds per locule. Seeds brown, shiny. Fl. Dec–Jan, fr. Jun–Jul.

- Forests; 1400–2400 m. C and S Yunnan.

24. *Eurya tetragonoclada* Merrill & Chun, *Sunyatsenia* 1: 71. 1931.

四角柃 *si jiao ling*

Shrubs or trees, 2–14 m tall. Young branches grayish brown; current year branchlets reddish brown, 4-ribbed, glabrous; terminal buds glabrous. Petiole ca. 5 mm, glabrous; leaf blade oblong, oblong-elliptic, oblong-lanceolate, or oblong-oblong-lanceolate, 5–10 × 1.5–3.5 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, abaxially raised, and adaxially visible to slightly raised, base cuneate, margin serrulate, apex acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 2 mm, glabrous. Male flowers: bracteoles ovate, ca. 1 mm, apex mucronulate; sepals suborbicular, 2–2.5 mm, glabrous, apex rounded; petals oblong-obovate, ca. 4 mm; stamens ca. 15; anthers locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong, ca. 2.5 mm; ovary ovoid, glabrous, 3-loculed; style ca. 2 mm, apically 3-lobed. Fruit purplish black when mature, globose, ca. 4 mm in diam. Seeds brown, orbicular-reniform, shiny. Fl. Nov–Dec, fr. May–Aug.

- Dense forests or thickets; 500–1900 m. N and SW Guangdong, Guangxi, N Guizhou, S Henan, W Hubei, S and W Hunan, SW Jiangxi, E Sichuan, SE Yunnan.

25. *Eurya hupehensis* P. S. Hsu, *Acta Phytotax. Sin.* 9: 97. 1964.

鄂柃 *e ling*

Trees to 4 m tall. Young branches grayish brown; current year branchlets brown, 4-ribbed, glabrous; terminal buds glabrous. Petiole ca. 1 mm, glabrous; leaf blade elliptic to obovate-

elliptic, 3–4.5 × ca. 2 cm, leathery, abaxially pale green, adaxially green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 7 or 8 on each side of midvein and adaxially obscure to slightly raised, secondary and reticulate veins abaxially visible to slightly raised, base broadly cuneate, margin serrulate, apex abruptly shortly caudate and with an obtuse tip. Male flowers axillary, solitary or to 3 in a cluster; pedicel ca. 2 mm, glabrous; bracteoles orbicular, ca. 0.5 mm, apex mucronulate; sepals suborbicular, 1.5–2.5 mm, glabrous, apex rounded and mucronate; stamens ca. 15; anthers locellate; pistillode glabrous. Female flowers and fruit not seen. Fl. Nov–Dec.

- Forests on mountain slopes; 1900–2000 m. W Hubei.

26. *Eurya impressinervis* Kobuski, J. Arnold Arbor. 20: 367. 1939.

凹脉柃 *ao mai ling*

Eurya pseudopolyneura Hung T. Chang.

Shrubs or trees, 3–10 m tall. Young branches grayish brown; current year branchlets 4-ribbed, glabrous; terminal buds glabrous. Petiole 3–5 mm, glabrous; leaf blade oblong to oblong-elliptic, 7–14 × 2–3.4 cm, papery, abaxially pale green, adaxially green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–13 on each side of midvein, abaxially raised, and adaxially conspicuously impressed, base cuneate, margin serrulate, apex acuminate. Flowers axillary, solitary or to 4 in a cluster. Pedicel 2–3 mm, glabrous. Male flowers: bracteoles orbicular, ca. 1 mm, glabrous; sepals orbicular, ca. 2 mm, membranous, glabrous, apex rounded and mucronate; petals obovate, ca. 5 mm; stamens 15–19; anthers several-locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong, ca. 3 mm; ovary long ovate, glabrous, 3-loculed; style 2–2.5 mm, apically 3-parted. Fruit purplish black when mature, ovoid, 4–5 mm in diam. Seeds reddish brown, orbicular-reniform, shiny. Fl. Nov–Dec, fr. Aug–Oct.

- Forests on mountain slopes or in valleys; 600–1600 m. NW and SW Guangdong, Guangxi, SE Guizhou, S Hunan, S Jiangxi, NW and SE Yunnan.

27. *Eurya muricata* Dunn, J. Bot. 48: 324. 1910.

格药柃 *ge yao ling*

Shrubs or trees, 2–6 m tall. Young branches grayish brown; current year branchlets yellowish green, terete, glabrous or sparsely pubescent; terminal buds glabrous or pubescent. Petiole 4–5 mm, glabrous or pubescent; leaf blade oblong-elliptic to elliptic, 5.5–11.5 × 2–4.3 cm, leathery, abaxially pale green to yellowish green, adaxially dark green and shiny, both surfaces glabrous or slightly pubescent, midvein abaxially elevated and adaxially impressed, secondary veins 9–11 on each side of midvein and obscure on both surfaces or abaxially slightly visible, base cuneate to broadly cuneate, margin serrulate, apex acuminate. Flowers axillary, solitary or to 5 in a cluster. Pedicel 1–1.5 mm, glabrous. Male flowers: bracteoles suborbicular, 1–1.5 mm, glabrous; sepals suborbicular, 2–2.5 mm, leathery, outside glabrous, margin ciliolate, apex rounded and

retuse with a mucronate tip; petals oblong to oblong-obovate, 4–5 mm; stamens 15–22; anthers multi-locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers; petals ovate-lanceolate, ca. 3 mm; ovary globose, glabrous, 3-loculed; style ca. 1.5 mm, apically 3-lobed. Fruit purplish black when mature, globose, 4–5 mm in diam. Seeds reddish brown, reniform compressed globose, shiny. Fl. Sep–Dec, fr. Jun–Sep.

- Forest or thickets; 300–1300 m. S Anhui, Fujian, Guangdong, Guizhou, SE Hubei, Hunan, S Jiangsu, Jiangxi, SE and W Sichuan, S and SE Yunnan, Zhejiang.

- 1a. Current year branchlets, terminal buds, petioles, and abaxial surface of leaf blades glabrous 27a. var. *muricata*
- 1b. Current year branchlets, terminal buds, petioles, and abaxial surface of leaf blades pubescent or at least terminal buds pubescent 27b. var. *huana*

27a. *Eurya muricata* var. *muricata*

格药柃(原变种) *ge yao ling* (yuan bian zhong)

Eurya gigantifolia Y. K. Li; *E. huana* Kobuski f. *glaberrima* Hung T. Chang.

Current year branchlets, terminal buds, petioles, and abaxial surface of leaf blades glabrous. Fl. Sep–Nov, fr. Jun–Aug.

- Forest or thickets; 300–1300 m. S Anhui, Fujian, Guangdong, NW Guizhou, SE Hubei, E and S Hunan, S Jiangsu, Jiangxi, W Sichuan, Zhejiang.

27b. *Eurya muricata* var. *huana* (Kobuski) L. K. Ling, Acta Phytotax. Sin. 11: 303. 1966 [*“huiana”*].

毛枝格药柃 *mao zhi ge yao ling*

Eurya huana Kobuski, J. Arnold Arbor. 20: 366. 1939 [*“huiana”*].

Current year branchlets, terminal buds, petioles, and abaxial surface of leaf blades pubescent or at least terminal buds pubescent. Fl. Nov–Dec, fr. Jul–Sep.

- Forest or thickets; 300–1300 m. Guizhou, SW and W Hunan, S Jiangxi, SE Sichuan, S and SE Yunnan, S Zhejiang.

28. *Eurya wuliangshanensis* T. L. Ming, Acta Bot. Yunnan. 19: 223. 1997.

无量山柃 *wu liang shan ling*

Trees 5–9 m tall. Young branches brown, glabrous; current year branchlets terete, pubescent; terminal buds densely grayish yellow pubescent. Petiole 2–3 mm, abaxially pubescent, adaxially grooved; leaf blade oblong to oblong-elliptic, 6–9.5 × 2–3 cm, thinly leathery, abaxially pale green and pubescent along midvein, adaxially green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially visible to slightly raised, base cuneate to broadly cuneate, margin serrulate, apex acuminate and with an obtuse tip. Flowers axillary, solitary or to 4 in a cluster.

Pedicle 2–2.5 mm, sparsely pubescent. Male flowers: bracteoles ovate, ca. 0.5 mm, outside sparsely pubescent, margin ciliolate; sepals ovate, 2–2.5 mm, membranous, outside pubescent, margin ciliolate; petals oblong to obovate-oblong, 5–6 mm; stamens ca. 15; anthers oblong, ca. 2 mm, 4- or 5-locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers; petals obovate, 3–4 mm; ovary globose, glabrous, 3-loculed; style ca. 2.5 mm, 3-parted to near base. Fruit not seen. Fl. Nov.

- Forests on mountain slopes; ca. 1900 m. Yunnan (Jingdong).

29. *Eurya emarginata* (Thunberg) Makino, Bot. Mag. (Tokyo) 18: 19. 1904.

滨柃 bin ling

Ilex emarginata Thunberg in Murray, Syst. Veg., ed. 14, 168. 1784; *Eurya littoralis* Siebold & Zuccarini.

Shrubs 1–2 m tall. Young branches grayish brown, glabrous or subglabrous; current year branchlets reddish brown, terete, rarely slightly 2-ribbed, densely yellowish brown pubescent; terminal buds pubescent to subglabrous. Petiole 2–3 mm, glabrous; leaf blade obovate to obovate-lanceolate, 2–3 × 1.2–1.8 cm, thickly leathery, abaxially pale green to yellowish green, adaxially green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5 or 6 on each side of midvein and slender, secondary and reticulate veins abaxially slightly raised and adaxially impressed, base cuneate, margin serrulate and slightly revolute, apex rounded and retuse. Flowers axillary, solitary or paired. Pedicel ca. 2 mm, glabrous. Male flowers: bracteoles suborbicular; sepals suborbicular, 1–1.5 mm, subleathery, glabrous, apex rounded and with a mucronate tip; petals oblong to oblong-obovate, ca. 3.5 mm; stamens ca. 20; anthers locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flower; petals ovate, ca. 3 mm; ovary globose, glabrous, 3-loculed; style ca. 1 mm, apically 3-lobed. Fruit black when mature, globose, 3–4 mm in diam. Fl. Oct–Nov, fr. Jun–Aug, $2n = 84$.

Thickets on mountain slopes, rock crevices along seacoasts. E Fujian, Taiwan, E Zhejiang [Japan, Korea].

30. *Eurya glaberrima* Hayata, Icon. Pl. Formosan. 8: 8. 1919.

光柃 guang ling

Pseudoeurya Yamamoto.

Current year branchlets terete or 2- or 4-ribbed. Anthers not locellate. Ovary glabrous, with 5–10 or rarely more ovules per locule; style 0.5–4 mm.

Fifty-two species: Bhutan, Cambodia, China, India, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Vietnam; 52 species (41 endemic) in China.

1a. Style 2–4 mm (ca. 1.5 mm in *E. japonica*, ca. 1 mm in *E. acuminoides*, and ca. 0.4 mm in *E. taitungensis*).

2a. Sepals membranous, pale green when dry; current year branchlets 2- or 4-ribbed, terminal buds glabrous (except pubescent in *E. chinensis*, *E. lanciformis*, and *E. stenophylla* var. *pubescens*).

3a. Fruit ovate-ellipsoid or long ovoid.

4a. Current year branchlets 2-ribbed; leaf blade to 10 cm, 1.5–2.5 cm wide.

Shrubs or small trees. Young branches reddish brown, glabrous; current year branchlets yellowish green, slightly 2-ribbed, glabrous; terminal buds glabrous. Petiole 2–4 mm, glabrous; leaf blade lanceolate to oblong-lanceolate, 4–8 × 1.2–2.4 cm, leathery, abaxially yellowish green and glabrous, adaxially dark green and shiny, midvein abaxially elevated and adaxially impressed, secondary veins 6–8 on each side of midvein and slightly raised on both surfaces, base cuneate, margin closely serrulate and slightly revolute when dry, apex acute and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster. Pedicel 1.5–2 mm, glabrous. Male flowers: bracteoles very small; sepals suborbicular, ca. 2 mm, outside glabrous, margin ciliolate, apex rounded; petals obovate to obovate-oblong, ca. 3 mm; stamens 6–10; anthers locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals obovate, ca. 2.5 mm; ovary ovoid, glabrous; style ca. 1 mm, 3-parted to base. Immature fruit globose, ca. 3 mm in diam., glabrous. Fl. Oct–Dec.

- Forests on mountain slopes; 1500–3300 m. Taiwan.

31. *Eurya septata* Chi C. Wu et al., Bot. Bull. Acad. Sin. 44: 67. 2003.

台湾格柃 tai wan ge ling

Shrubs or small trees. Current year branchlets slightly 2-ribbed, sparsely pubescent; terminal buds pilose. Petiole 5–10 mm, sparsely pubescent, glabrescent; leaf blade elliptic, 2.5–10 × 1.8–4 cm, firmly membranous to leathery, abaxially paler green, both surfaces glabrous except pilose adaxially along midvein, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, abaxially elevated, and adaxially obscure, base cuneate to attenuate, margin crenulate, apex acuminate and with a retuse tip. Flowers axillary, solitary or to 6 in a cluster. Pedicel 0.4–1 mm. Sepals ovate, 1–1.2 mm, subequal, outside glabrous or with scattered short trichomes. Petals white, oblong, 2–2.5 mm, glabrous. Male flowers: stamens 14–16; anthers 3–6-locellate; pistillode reduced. Female flowers: ovary glabrous; style ca. 1 mm, apically 3-cleft. Fruit globose, ca. 4 mm in diam., glabrous. Fl. Oct–Jan, fr. May–Jun.

- Secondary forests with bamboo, along roads; below 100–2200 m. Taiwan.

2. *Eurya* sect. *Eurya*

真柃组 zhen ling zu

- 5a. Leaf blade narrowly lanceolate to oblanceolate, 3–6(–11) cm, apex acute, shortly acuminate, or caudate-acuminate 51. *E. stenophylla*
- 5b. Leaf blade ovate, ovate-elliptic, or ovate-lanceolate, 2–3.5 cm, apex obtuse, emarginate, or sometimes subrounded 52. *E. metcalfiana*
- 4b. Current year branchlets 4-ribbed; leaf blade 15–20 cm, more than 3 cm wide.
- 6a. Leaf blade oblong-lanceolate, 15–20 cm, secondary veins ca. 20 on each side of midvein, reticulate veins obscure, base rounded; flowers solitary or to 3 in a cluster 53. *E. polyneura*
- 6b. Leaf blade oblong-elliptic, 7–15 cm, secondary veins 11–13 on each side of midvein, reticulate veins adaxially impressed, base cuneate; flowers solitary or to 7 in a cluster 54. *E. gungshanensis*
- 3b. Fruit globose.
- 7a. Sepal margins glandular.
- 8a. Current year branchlets and terminal buds pubescent when young but glabrescent; leaf blade lanceolate to oblong-lanceolate, 1.3–2.5 cm wide 49. *E. lanciformis*
- 8b. Current year branchlets and terminal buds glabrous; leaf blade oblong-elliptic, 2.5–5 cm wide 50. *E. subintegra*
- 7b. Sepal margins not glandular.
- 9a. Leaf blade thickly leathery, secondary veins adaxially impressed.
- 10a. Leaf blade obovate to obovate-elliptic, 3–7 cm, margin not revolute and sparsely obtusely serrate, apex obtuse, subrounded, or rarely acute and with an obtuse and sometimes retuse tip; style ca. 1.5 mm 47. *E. japonica*
- 10b. Leaf blade elliptic, 7–8(–11) cm, margin revolute, basal 1/2 entire, and apical 1/2 serrulate, apex caudate-acuminate and with an obtuse tip; style ca. 2 mm 48. *E. rengechiensis*
- 9b. Leaf blade leathery or thinly leathery, secondary veins adaxially visible or obscure.
- 11a. Current year branchlets and terminal buds glabrous; leaf blade elliptic, oblong-elliptic, or obovate-oblong 46. *E. nitida*
- 11b. Current year branchlets and terminal buds pubescent or glabrous; leaf blade obovate, obovate-elliptic, or oblong-lanceolate.
- 12a. Style 1.5–2 mm, apically 3-lobed; pedicel ca. 2 mm, glabrous 44. *E. chinensis*
- 12b. Style less than 0.4 mm, 4-parted almost to base; pedicel 1–2 mm, hirsute 45. *E. taitungensis*
- 2b. Sepals leathery or subleathery, brown when dry; current year branchlets terete, terminal buds spreading villous, pubescent, or puberulent.
- 13a. Sepals orbicular or ovate-orbicular, glabrous; current year branchlets almost glabrous.
- 14a. Style 3–5-lobed; fruit ovoid; current year branchlets blackish brown 41. *E. prunifolia*
- 14b. Style 3-parted; fruit globose; current year branchlets yellowish brown.
- 15a. Sepal margins glandular; stamens 18–20; style 3–4 mm; leaf blade margin densely serrulate 42. *E. hainanensis*
- 15b. Sepals margins not glandular; stamens 16–18; style ca. 2 mm; leaf blade margin entire or apically with several serrations 43. *E. cuneata*
- 13b. Sepals ovate to ovate-orbicular, pubescent to puberulent; current year branchlets pubescent.
- 16a. Styles 5, distinct 32. *E. pentagyna*
- 16b. Styles 3(–5), ± connate.
- 17a. Leaf blade base rounded, obliquely cordate, or subauriculate.
- 18a. Style apically 5-parted 38. *E. quinquelocularis*
- 18b. Style apically 3- or 4-parted.
- 19a. Stamens 12–15; leaf blade base slightly cordate to obliquely cordate 39. *E. inaequalis*
- 19b. Stamens ca. 15; leaf blade base obliquely cordate to subauriculate 40. *E. obliquifolia*
- 17b. Leaf blade base cuneate or obtuse.
- 20a. Stamens ca. 20; style 2–3 mm.
- 21a. Current year branchlets densely spreading villous; petiole ca. 1 mm, densely villous; petals 2.5–3.5 mm 33. *E. groffii*
- 21b. Current year branchlets densely pubescent; petiole 3–6 mm, pubescent; petals 3.5–4 mm 34. *E. acuminata*
- 20b. Stamens 10–15; style 1.5–3 mm.
- 22a. Style ca. 1 mm 35. *E. acuminoides*
- 22b. Style 2–3 mm.
- 23a. Current year branchlets terete; terminal buds puberulent 36. *E. loquaiana*
- 23b. Current year branchlets 2-ribbed; terminal buds sparsely pubescent .. 37. *E. tsingpienensis*
- 1b. Style 0.4–1 mm (ca. 1.5 mm in *E. handel-mazzettii* and 1.5–2 mm in *E. macartneyi*).
- 24a. Sepals rigidly leathery, brown.

- 25a. Styles distinct.
- 26a. Current year branchlets terete; leaf blade margin apical 1/2 sparsely obtusely serrate; stamens 17–24; styles 1.5–2 mm 55. *E. macartneyi*
- 26b. Current year branchlets 2-ribbed; leaf blade margin densely serrulate; stamens 13–15; styles ca. 1 mm 56. *E. oblonga*
- 25b. Style 3-lobed.
- 27a. Current year branchlets and terminal buds densely spreading villous.
- 28a. Leaf blade base cuneate to cordate, abaxially black glandular punctate 61. *E. glandulosa*
- 28b. Leaf blade base auriculate-amplexicaul, abaxially not glandular punctate 62. *E. weissiae*
- 27b. Current year branchlets and terminal buds glabrous.
- 29a. Leaf blade base cuneate, rounded, or slightly cordate.
- 30a. Current year branchlets terete; stamens 11 or 12 57. *E. ovatifolia*
- 30b. Current year branchlets 2-ribbed; stamens ca. 15 58. *E. rubiginosa*
- 29b. Leaf blade base auriculate-amplexicaul.
- 31a. Current year branchlets stout, 2-ribbed; leaf blade thickly leathery, abaxially reddish brown when dry; sepals pubescent 59. *E. amplexifolia*
- 31b. Current year branchlets slender, terete; leaf blade thinly leathery, abaxially pale green; sepals glabrous 60. *E. lunglingensis*
- 24b. Sepals membranous or submembranous, pale green or yellowish green when dry.
- 32a. Stamens 5–8.
- 33a. Current year branchlets terete, densely pubescent.
- 34a. Fruit ovoid; sepal margins glandular; leaf blade obovate to obovate-spatulate, apex obtuse to rounded 78. *E. pyracanthifolia*
- 34b. Fruit globose; sepal margins not glandular; leaf blade not obovate to obovate-spatulate (may be obovate-oblong in *E. crenatifolia*), apex acute to acuminate (sometimes obtuse in *E. wenshanensis*).
- 35a. Sepals pubescent.
- 36a. Sepal margins ciliolate; leaf blade 2–6 cm, secondary veins 9–11 on each side of midvein; pedicel 1–2 mm; sepals orbicular 74. *E. yunnanensis*
- 36b. Sepal margins not ciliolate; leaf blade 1.5–2.7 cm, secondary veins 6–8 on each side of midvein; pedicel 2–3 mm; sepals ovate to broadly elliptic 75. *E. wenshanensis*
- 35b. Sepals glabrous.
- 37a. Leaf blade lanceolate, 2.5–3.5 cm, thinly leathery; stamens 7 or 8 76. *E. leptophylla*
- 37b. Leaf blade elliptic to obovate-oblong, 1–2.5 cm, leathery; stamens ca. 5 77. *E. crenatifolia*
- 33b. Current year branchlets 2-ribbed (rarely terete in *E. crassilimba*), glabrous.
- 38a. Fruit long ellipsoid, to 13 mm; sepals ovate to long ovate, outside pubescent or glabrescent 83. *E. chuekiangensis*
- 38b. Fruit globose, 3–4 mm; sepals orbicular, outside glabrous.
- 39a. Sepal margins not glandular.
- 40a. Style 3-parted; sepal margins not ciliolate; leaf blade thickly leathery, secondary veins adaxially impressed 79. *E. saxicola*
- 40b. Style 2-parted; sepals margins ciliolate; leaf blade thinly leathery, secondary veins adaxially obscure 80. *E. marlipoensis*
- 39b. Sepal margins glandular.
- 41a. Current year branchlets terete; leaf blade oblong, 9–12 cm, base rounded, apex acute 81. *E. crassilimba*
- 41b. Current year branchlets 2-ribbed; leaf blade narrowly elliptic to suboblong, 3–7 cm, base cuneate, apex slightly obtuse 82. *E. cavinervis*
- 32b. Stamens (8–)10–15(or 16).
- 42a. Styles 3 and distinct or 3- or 4-parted to base.
- 43a. Stamens 8–10 66. *E. fangii*
- 43b. Stamens 11–16 (ca. 10 in *E. obtusifolia* and 10–16 in *E. semiserrulata*).
- 44a. Current year branchlets terete; terminal buds pubescent; sepals outside pubescent 63. *E. handel-mazzettii*
- 44b. Current year branchlets 2- or 4-ribbed; terminal buds glabrous; sepals outside glabrous.
- 45a. Current year branchlets 2-ribbed; sepal margins ciliolate 64. *E. brevistyla*
- 45b. Current year branchlets 4-ribbed; sepal margins not ciliolate 65. *E. paratetragonoclada*

- 42b. Style 3-lobed.
- 46a. Terminal bud and petiole glabrous 72. *E. alata*
- 46b. Terminal bud and petiole pubescent.
- 47a. Leaf blade 14–20 × 4–6 cm, margin with teeth 1.5–2 mm 70. *E. perserrata*
- 47b. Leaf blade 2–10 × 1–3.5 mm, margin serrulate or basally entire and with teeth less than 1.5 mm.
- 48a. Leaf blade apex obtuse; sepal margin not ciliolate or glandular 73. *E. obtusifolia*
- 48b. Leaf blade apex acute or acuminate.
- 49a. Pedicel 2–4 mm; sepals 2.5–3 mm 71. *E. hebeclados*
- 49b. Pedicel 1–2 mm; sepals 1.5–2 mm.
- 50a. Leaf blade secondary veins 6–8 on each side of midvein; sepals outside glabrous 69. *E. semiserrulata*
- 50b. Leaf blade secondary veins 10–20 on each side of midvein; sepals outside pubescent.
- 51a. Petiole 2–3 mm; leaf blade 4–10 cm; sepal margins glandular and sometimes also ciliolate; style ca. 1.5 mm, apically 3-parted 67. *E. tsaii*
- 51b. Petiole 1.5–2 mm; leaf blade 2–8.5 cm; sepal margins ciliolate but not glandular; style ca. 1 mm, 3-parted to base 68. *E. taronensis*

32. *Eurya pentagyna* Hung T. Chang, Acta Phytotax. Sin. 3: 21. 1954.

五柱柃 *wu zhu ling*

Shrubs or trees, 4–10 m tall. Young branches purplish brown to dark brown, glabrous or subglabrous; current year branchlets terete, densely yellowish brown spreading villous; terminal buds densely yellowish brown pubescent. Petiole 3–4 mm, pubescent; leaf blade oblong to oblong-oblancoate, 5–9 × 1.2–2 cm, thinly leathery, abaxially yellowish green, sparsely appressed pubescent, and densely pubescent along midvein, adaxially green, glabrous, and shiny, midvein abaxially elevated and adaxially impressed, secondary veins 6–8 on each side of midvein, abaxially raised, and adaxially obscure to slightly visible, base broadly cuneate, margin closely serrulate, apex abruptly long acuminate to caudate-acuminate. Flowers axillary, solitary or paired. Pedicel ca. 3 mm, sparsely pubescent. Male flowers: bracteoles ovate, ca. 1 mm, outside densely pubescent, apex obtuse; sepals brown when dry, ovate to oblong-ovate, 2.5–3 mm, subleathery, outside pubescent, apex obtuse to subrounded and mucronate; petals oblong, ca. 4 mm; stamens ca. 14; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers; petals ovate-lanceolate, ca. 3.5 mm; ovary ovoid, glabrous, 5-loculed; styles 5, distinct, ca. 3 mm. Immature fruit globose. Fl. Oct–Nov.

• Forests on mountain slopes or in valleys; 400–1000 m. Hainan (Baoting).

33. *Eurya groffii* Merrill, Philipp. J. Sci. 15: 247. 1919.

岗柃 *gang ling*

Shrubs or trees, 2–7 m tall. Young branches grayish brown, pubescent or glabrescent; current year branchlets terete, densely yellowish brown spreading villous; terminal buds densely yellowish brown villous. Petiole ca. 1 mm, densely villous; leaf blade lanceolate to oblong-lanceolate, 4.5–10 × 1.5–2.2 cm, leathery to thinly leathery, abaxially yellowish green, appressed

pilose, and spreading villous along midvein, adaxially dark green and glabrous, midvein, abaxially elevated and adaxially impressed, secondary veins 10–14 on each side of midvein, abaxially raised, and adaxially obscure to slightly impressed, base obtuse to broadly cuneate, margin closely serrulate, apex acuminate to long acuminate. Flowers axillary, solitary or to 9 in a cluster. Pedicel 1–1.5 mm, densely pubescent. Male flowers: bracteoles ovate, ca. 1 mm; sepals brown when dry, ovate, 1.5–2 mm, leathery, outside yellowish brown pubescent, apex obtuse and mucronate; petals oblong to obovate-oblong, ca. 3.5 mm; stamens ca. 20; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong-lanceolate, ca. 2.5 mm; ovary ovoid, glabrous or sparsely pubescent, 3-loculed; style 2–2.5 mm, 3-parted to base. Fruit purplish black when mature, globose, ca. 4 mm in diam. Fl. Sep–Nov, fr. Dec–Apr.

Forests, thickets; 300–2700 m. S Fujian, Guangdong, Guangxi, S Guizhou, Hainan, E and W Sichuan, SE Xizang, NW, SE, and SW Yunnan [Myanmar, N Vietnam].

- 1a. Leaf blade secondary veins adaxially obscure to slightly impressed; ovary glabrous 33a. var. *groffii*
- 1b. Leaf blade secondary veins adaxially impressed; ovary sparsely pubescent 33b. var. *zhenkangensis*

33a. *Eurya groffii* var. *groffii*

岗柃(原变种) *gang ling* (*yuan bian zhong*)

Eurya acuminata Candolle var. *groffii* (Merrill) Kobuski; *Myrsine cavaleriei* H. Léveillé (1912), not *E. cavaleriei* H. Léveillé (1911).

Leaf blade secondary veins adaxially obscure to slightly impressed. Ovary glabrous. Fl. Sep–Nov, fr. Apr.

Forests or thickets; 300–2700 m. S Fujian, Guangdong, Guangxi, S Guizhou, Hainan, E and W Sichuan, SE Xizang, NW and SE Yunnan [Myanmar, N Vietnam].

33b. *Eurya groffii* var. *zhenkangensis* T. L. Ming, Acta Bot. Yunnan. 19: 223. 1997 [*“zhengkangensis”*].

镇康岗柃 zhen kang gang ling

Leaf blade secondary veins adaxially obviously impressed. Ovary sparsely pubescent. Fr. Dec.

- Thickets; ca. 900 m. SW Yunnan (Zhenkang).

34. *Eurya acuminata* Candolle, Mém. Soc. Phys. Genève 1: 418. 1822.

尖叶柃 jian ye ling

Eurya acuminata var. *multiflora* (Candolle) Blume; *E. acuminata* var. *wallichiana* (Steudel) Dyer; *E. euprista* Korthals; *E. japonica* Thunberg var. *phyllanthoides* (Blume) Dyer; *E. multiflora* Candolle; *E. phyllanthoides* Blume; *E. wallichiana* Steudel.

Shrubs or small trees. Young branches grayish brown, glabrous; current year branchlets reddish brown, densely pubescent; terminal buds densely pubescent. Petiole 3–6 mm, pubescent; leaf blade lanceolate, oblong-lanceolate, or rarely ovate-oblong, 5.5–9.5 × 1.5–2.5 cm, papery to thinly leathery, abaxially pale green and pubescent, adaxially green, shiny, and glabrous, midvein abaxially elevated and adaxially slightly impressed, secondary veins more than 15 on each side of midvein and visible or slightly raised on both surfaces, base cuneate, obtuse, or rounded, margin serrulate, apex caudate-acuminate and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster. Pedicel 2–3 mm, pubescent. Male flowers: bracteoles orbicular, ca. 1 mm; sepals 2–2.5 mm, subleathery, outside pubescent, apex obtuse; petals oblong to ovate, 3.5–4 mm; stamens 15–20; anthers not locellate; pistillode glabrous. Female flowers: bracteoles, sepals, and petals similar to those of male flowers but slightly smaller; ovary globose, glabrous, 3-loculed; style 2–3 mm, apically 3–5-lobed or parted. Fruit globose, 3–4 mm in diam. Fl. Nov–Dec, fr. Jun–Aug. *2n* = 58.

Forests or thickets on mountain slopes; 700–3000 m. SE Xizang, NW and SE Yunnan [Bhutan, India, Indonesia, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam].

35. *Eurya acuminoides* Hu & L. K. Ling, Acta Phytotax. Sin. 11: 306. 1966.

川黔尖叶柃 chuan qian jian ye ling

Shrubs 1–3 m tall. Young branches grayish brown, glabrous or subglabrous; current year branchlets yellowish brown, terete, densely pubescent; terminal buds densely pubescent. Petiole 2–5 mm, abaxially pubescent; leaf blade elliptic to oblong-elliptic, 7–12 × 2.5–3.5 cm, leathery, abaxially pale green, sparsely pubescent when young, and soon glabrescent, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6–9 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially visible or obscure, base cuneate, margin serrulate on apical 1/2 and entire on basal portion, apex acuminate to abruptly shortly caudate. Flowers axillary, solitary or paired. Pedicel 1–1.5 mm, pubescent. Male flowers: bracteoles ovate, ca. 1 mm; sepals ovate to suborbicular, 2–3 mm, leathery, outside densely pubescent, margin ciliolate; petals oblong to obovate-oblong,

3–4 mm; stamens 12–15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers; petals oblong, ca. 3 mm; ovary globose, glabrous, 3-loculed; style ca. 1 mm, apically 3-parted. Fruit purplish black when mature, globose, ca. 6 mm in diam., with 23–25 seeds per locule. Seeds brown, orbicular-reniform, shiny. Fl. Sep–Nov, fr. May–Jun.

- Forests or thickets on mountain slopes; 600–1500 m. NW Guizhou, SW Sichuan.

36. *Eurya loquaiana* Dunn, J. Linn. Soc., Bot. 38: 355. 1908.

细枝柃 xi zhi ling

Shrubs or trees, 2–10 m tall. Young branches grayish brown, glabrous or subglabrous; current year branchlets yellowish green, terete, slender, puberulent; terminal buds puberulent and pubescent. Petiole 2–4 mm, puberulent; leaf blade oblong-elliptic, oblong-lanceolate, ovate-lanceolate, ovate, ovate-elliptic, or elliptic, (2–)4–9 × 1.5–2.5 cm, thinly leathery to papery, abaxially pale green, sparsely puberulent to puberulent only along midvein, and purplish red when dry, adaxially dark green to yellowish green, glabrous, and sometimes golden yellow glandular, midvein abaxially elevated and adaxially impressed, secondary veins (8–)10–20 on each side of midvein, slender, and visible on both surfaces, base cuneate to broadly cuneate, margin serrulate, apex long acuminate. Flowers axillary, solitary or to 4 in a cluster. Pedicel 2–3 mm, puberulent. Male flowers: bracteoles ovate, ca. 1 mm; sepals ovate to suborbicular, ca. 3 mm, outside puberulent to subglabrous, inside sericeous; petals obovate, 5–6 mm; stamens 10–15; anthers not locellate; pistillode glabrous or sparsely pubescent, 3-loculed. Female flowers: bracteoles, sepals, and petals similar to those of male flowers; style (1–)2–3 mm, apically 3-lobed. Fruit black when mature, globose, 3–4 mm in diam. Seeds blackish brown, reniform, shiny. Fl. Oct–Dec, fr. Jul–Sep.

- Forests or thickets on mountain slopes or in valleys; 400–2000 m. S Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, W Hubei, S and SW Hunan, Jiangxi, S Sichuan, Taiwan, SE Yunnan, S Zhejiang.

- 1a. Leaf blade oblong-elliptic, oblong-lanceolate, or ovate-lanceolate, 4–9 × 1.5–2.5 cm, adaxially not golden yellow glandular punctate; stamens ca. 15; style 2–3 mm 36a. var. *loquaiana*
- 1b. Leaf blade ovate, ovate-elliptic, or elliptic, 2–4 × 1–2 cm, adaxially golden yellow glandular punctate; stamens ca. 10; style 1–1.5 mm 36b. var. *aureopunctata*

36a. *Eurya loquaiana* var. *loquaiana*

细枝柃(原变种) xi zhi ling (yuan bian zhong)

Eurya acuminata Candolle var. *arisanensis* (Hayata) H. Keng; *E. acuminata* var. *suzukii* (Yamamoto) H. Keng; *E. arisanensis* Hayata; *E. matsudae* Hayata; *E. suzukii* Yamamoto; *Sakakia matsudae* (Hayata) Masamune.

Leaf blade oblong-elliptic, oblong-lanceolate, or ovate-lanceolate, 4–9 × 1.5–2.5 cm. Stamens of male flowers ca. 15. Style of female flowers 2–3 mm.

• Forests or thickets on mountain slopes or in valleys; 400–2000 m. S Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, W Hubei, S and SW Hunan, Jiangxi, S Sichuan, Taiwan, SE Yunnan, S Zhejiang.

36b. *Eurya loquaiana* var. *aureopunctata* Hung T. Chang, Acta Phytotax. Sin. 3: 34. 1954.

金叶细枝柃 *jin ye xi zhi ling*

Eurya hebeclados Y. Ling var. *aureopunctata* (Hung T. Chang) L. K. Ling.

Leaf blade ovate, ovate-elliptic, or elliptic, 2–4 × 1–2 cm, adaxially golden yellow glandular punctate. Stamens of male flowers ca. 10. Style of female flowers 1–1.5 mm.

• Forests on mountain slopes or in valleys; 800–1700 m. Fujian, Guangdong, Guangxi, Guizhou, S Hunan, Jiangxi, SE Yunnan, S Zhejiang.

37. *Eurya tsingpiensis* Hu, Bull. Fan Mem. Inst. Biol., Bot. 8: 152. 1938.

屏边柃 *ping bian ling*

Shrubs to 4 m tall. Young branches grayish brown, glabrous or subglabrous; current year branchlets 2-ribbed, slender, sparsely pubescent; terminal buds pubescent. Petiole ca. 3 mm, sparsely pubescent; leaf blade oblong, oblong-lanceolate, or ovate-lanceolate, 5–8 × 1.8–2.5 cm, papery to thinly leathery, abaxially pale green and sparsely pubescent along midvein, adaxially green and glabrous, secondary veins ca. 10 on each side of midvein and slightly raised on both surfaces, base obtuse to subrounded, margin serrulate, apex caudate-acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 1–2 mm, pubescent. Male flowers: bracteoles ovate, ca. 1 mm, outside pubescent; sepals ovate, 1.5–2 mm, outside pubescent, apex subrounded; petals obovate-oblong, ca. 3.5 mm; stamens ca. 12; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals spatulate, 2–2.5 mm; ovary globose, glabrous, 3-lobed; style ca. 2.5 mm, apically 3-lobed. Fruit globose, ca. 3.5 mm in diam. Fl. Oct–Nov, fr. Jun–Jul.

Forests on mountain slopes or along streams; 1200–1700 m. SE Yunnan [N Vietnam].

38. *Eurya quinquelocularis* Kobuski, J. Arnold Arbor. 20: 372. 1939.

大叶五室柃 *da ye wu shi ling*

Eurya annamensis Gagnepain.

Shrubs or trees, 3–10(–20) m tall. Young branches grayish brown, glabrous; current year branchlets terete, slender and spreading, spreading villous; terminal buds densely pubescent. Petiole 2–3 mm, pubescent; leaf blade oblong to oblong-ovate, 7–13 × 2–3.5 cm, membranous to papery, abaxially pale green and appressed pubescent when young but glabrescent or becoming subglabrous, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 12–14 on each side of midvein, abaxially raised, and adaxially slightly impressed, secondary and reticulate veins visible on both surfaces, base cuneate to broadly cuneate, margin closely

serrulate, apex acuminate to caudate-acuminate. Flowers axillary, solitary or to several in a cluster. Pedicel 2–3 mm, pubescent. Male flowers: bracteoles ovate-triangular, ca. 1 mm; sepals broadly ovate to suborbicular, ca. 2.5 mm, subleathery, outside pubescent, apex rounded and retuse; petals oblong-obovate to ovate, 4–5 mm; stamens 17–18; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong, ca. 3 mm; ovary globose, glabrous, (4 or)5-lobed; style apically (4 or)5-parted. Fruit black when mature, globose, 5–6 mm in diam. Fl. Nov–Dec, fr. Jun–Jul.

Forests on mountain slopes or in valleys; 800–1500 m. Guangxi, NW Guizhou, SE Yunnan [Vietnam].

39. *Eurya inaequalis* P. S. Hsu, Acta Phytotax. Sin. 9: 87. 1964.

偏心叶柃 *pian xin ye ling*

Shrubs or trees, 2–5 m tall. Young branches reddish brown to grayish brown, glabrous or subglabrous; current year branchlets terete, densely yellowish brown spreading villous; terminal buds densely yellowish brown villous. Petiole ca. 1 mm, villous; leaf blade oblong to oblong-lanceolate, 5–10 × 1.5–3 cm, leathery to thinly leathery, abaxially yellowish brown when dry, sparsely pubescent, and villous along midvein, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–14 on each side of midvein, abaxially raised, and adaxially impressed, base obliquely rounded to subcordate, margin closely serrulate, apex acuminate. Flowers axillary, solitary or to 4 in a cluster. Pedicel 1.5–3 mm, pubescent. Male flowers: bracteoles ovate, ca. 1 mm, apex obtuse; sepals ovate to suborbicular, ca. 2 mm, leathery, outside pubescent, apex subrounded; petals oblong, ca. 4 mm; stamens 12–15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers; petals oblong-obovate, ca. 4 mm; ovary ovoid, glabrous; style ca. 2 mm, apically 3-lobed. Fruit not seen. Fl. Nov–Dec.

• Forests or thickets on mountain slopes; 1200–2600 m. SE Yunnan.

40. *Eurya obliquifolia* Hemsley, Hooker's Icon. Pl. 28: sub t. 2761. 1903.

斜基叶柃 *xie ji ye ling*

Shrubs or trees, 4.5–8.5 m tall. Young branches grayish brown, glabrous or subglabrous; current year branchlets terete, densely grayish brown spreading villous; terminal buds densely villous. Petiole ca. 1 mm, villous; leaf blade oblong-lanceolate to oblong-ovate, 5–10 × 2–2.7 cm, thinly leathery, abaxially pale green and sparsely pubescent but villous along midvein, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins, 10–12 on each side of midvein, abaxially raised, and adaxially impressed, base unequally cordate, margin closely serrulate, apex long acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 1 mm, densely villous. Male flowers: bracteoles ovate-orbicular, 2–3 mm, apex rounded and mucronate, outside densely pubescent, margin ciliolate; petals white, obovate-oblong, 4–5 mm; stamens ca. 15; anthers not locellate; pistillode glabrous. Female

flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals white, ovate, ca. 3 mm; ovary ovoid, glabrous, 3-loculed; style 4–4.5 mm, apically 3-lobed. Fruit purplish black when mature, globose to ovoid, 5–6 × 4–5 mm, glabrous. Seeds blackish brown, reniform to orbicular-reniform, shiny. Fl. Nov–Dec, fr. Jul–Sep.

• Forests on mountain slopes or in valleys; 1500–2900 m. S and SE Yunnan.

41. *Eurya prunifolia* P. S. Hsu, Acta Phytotax. Sin. 9: 87. 1964.

桃叶桉 tao ye ling

Trees to 8 m tall. Young branches grayish brown, glabrous; current year branchlets terete, appressed pubescent when young, soon glabrescent; terminal buds densely grayish white pubescent. Petiole 3–4 mm, glabrous; leaf blade oblong to oblong-elliptic, (4–)7–12.5 × (1.2–)2.5–4.5 cm, thinly leathery, abaxially yellowish green and sparsely appressed pubescent or only pubescent along midvein, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, abaxially raised, and adaxially visible, base broadly cuneate, margin closely serrulate, apex abruptly shortly acuminate. Flowers axillary, solitary or to 4 in a cluster. Pedicel 2.5–3.5 mm. Male flowers not seen. Female flowers: bracteoles ovate, ca. 1 mm, glabrous, apex rounded and mucronate; sepals suborbicular, 2–2.5 mm, outside glabrous, inside puberulent, apex rounded to retuse and mucronate; petals elliptic; ovary ovoid, glabrous, (3–)5-loculed; style ca. 2 mm, apically (3–)5-lobed. Fruit ovoid, ca. 7 × 4 mm, glabrous. Fl. Nov–Dec, fr. Aug.

• Forests; 100–300 m. Yunnan (Hekou, Pingbian).

42. *Eurya hainanensis* (Kobuski) Hung T. Chang, Acta Phytotax. Sin. 3: 37. 1954.

海南桉 hai nan ling

Eurya macartneyi Champion var. *hainanensis* Kobuski, Ann. Missouri Bot. Gard. 25: 307. 1938.

Shrubs or trees, 3–10 m tall. Young branches grayish brown; current year branchlets yellowish green, terete, glabrous; terminal buds sparsely pubescent when young, soon glabrescent. Petiole 5–8 mm, glabrous; leaf blade elliptic to oblong-elliptic, 6–10 × 2–4.5 cm, leathery, abaxially grayish brown, adaxially shiny and yellowish green when dry, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 9–11 on each side of midvein, abaxially slightly raised, and adaxially visible, base cuneate to broadly cuneate, margin closely serrulate, apex acuminate to abruptly shortly caudate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 3–4 mm, glabrous. Male flowers: bracteoles orbicular to suborbicular, apex rounded and mucronate; sepals suborbicular, 2–2.5 mm, glabrous, apex rounded to retuse and mucronate; outer 2 or 3 sepal margins sparsely glandular; petals oblong, ca. 3.5 mm; stamens ca. 20; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals lanceolate, ca. 2.5 mm; ovary globose, glabrous, 3-loculed; style ca. 3(–4)

mm, apically 3-lobed. Fruit black when mature, globose, 4–5 mm in diam. Seeds dark brown, rounded reniform, shiny. Fl. Nov–Dec, fr. Jul–Aug.

• Forests on mountain slopes or in valleys; 500–800 m. Hainan.

43. *Eurya cuneata* Kobuski, Ann. Missouri Bot. Gard. 25: 317. 1938.

楔叶桉 xie ye ling

Shrubs or trees, 3–15 m tall. Young branches grayish brown, glabrous; current year branchlets reddish brown, terete, sparsely pubescent when young, soon glabrescent; terminal buds pubescent or glabrous. Petiole 3–5 mm, glabrous; leaf blade oblong-obovate, 6–9 × 1.5–3.5 cm, leathery, abaxially olive green, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6–9 on each side of midvein and visible on both surfaces or abaxially slightly raised, base cuneate, margin entire or apically with several serrations, apex obtuse to emarginate. Flowers axillary, solitary or to 4 in a cluster. Male flowers: pedicel 2–3 mm; bracteoles orbicular; sepals leathery, suborbicular, 2–2.5 mm, glabrous; petals obovate, ca. 4 mm; stamens 16–18; anthers not locellate; pistillode glabrous. Female flowers: pedicel ca. 1.5 mm; bracteoles orbicular; sepals ovate, 1.5–2 mm, apex rounded to obtuse; petals ovate, ca. 3 mm; ovary ovoid, glabrous, 3-loculed; style 1.5–2 mm, apically 3-lobed. Fruit globose, 3.5–4 mm in diam. Fl. Nov–Dec, fr. Jun–Jul.

Forests on mountain slopes; 500–1300 m. Hainan [Vietnam].

- 1a. Terminal buds and current year branchlets pubescent 43a. var. *cuneata*
 1b. Terminal buds and current year branchlets glabrous 43b. var. *glabra*

43a. *Eurya cuneata* var. *cuneata*

楔叶桉(原变种) xie ye ling (yuan bian zhong)

Terminal buds and current year branchlets ± pubescent.

• Forests on mountain slopes; 500–1300 m. Hainan.

43b. *Eurya cuneata* var. *glabra* Kobuski, Ann. Missouri Bot. Gard. 25: 318. 1938.

光枝楔叶桉 guang zhi xie ye ling

Terminal buds and current year branchlets glabrous.

Forests on mountain slopes; 500–1300 m. Hainan [Vietnam].

44. *Eurya chinensis* R. Brown in C. Abel, Narr. Journey China, 379. 1818.

米碎花 mi sui hua

Shrubs 1–3 m tall. Young branches grayish brown, 2-ribbed, glabrous; current year branchlets yellowish green to yellowish brown, 2-ribbed, pubescent or glabrous; terminal buds densely yellowish brown pubescent or glabrous. Petiole 2–3 mm; leaf blade obovate to obovate-elliptic, 2–5.5 × 1–2 cm, thinly leathery, abaxially pale green, glabrous or sparsely pubescent when young, and glabrescent, adaxially bright green and glabrous, midvein abaxially elevated and adaxially im-

pressed, secondary veins 6–8 on each side of midvein and obscure on both surfaces, base cuneate, margin closely serrulate, apex obtuse, slightly emarginate, or rarely subrounded. Flowers axillary, solitary or to 4 in a cluster. Pedicel ca. 2 mm, glabrous. Male flowers: bracteoles very small, glabrous; sepals ovate-orbicular to ovate, glabrous, 1.5–2 mm, apex subrounded; petals obovate, 3–3.5 mm, glabrous; stamens ca. 15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals ovate, 2–2.5 mm; ovary ovoid, glabrous, 3-loculed; style 1.5–2 mm, apically 3-lobed. Fruit purplish black when mature, globose to rarely ovoid, 3–4 mm in diam. Seeds blackish brown, reniform, shiny. Fl. Nov–Dec, fr. Jun–Jul.

• Thickets on hilly land or along streams; below 1000 m. E and S Fujian, Guangdong, S Guangxi, S Hunan, S Jiangxi, SE Sichuan, Taiwan.

- 1a. Current year branchlets and terminal buds pubescent 44a. var. *chinensis*
 1b. Current year branchlets and terminal buds glabrous 44b. var. *glabra*

44a. *Eurya chinensis* var. *chinensis*

米碎花(原变种) mi sui hua (yuan bian zhong)

Current year branchlets and terminal buds pubescent.

• Thickets on hilly land or along streams; below 1000 m. S Fujian, Guangdong, S Guangxi, S Hunan, S Jiangxi, Taiwan.

44b. *Eurya chinensis* var. *glabra* Hu & L. K. Ling, Acta Phytotax. Sin. 11: 314. 1966.

光枝米碎花 guang zhi mi sui hua

Current year branchlets and terminal buds glabrous.

• Thickets on hilly land; lower elevations. E Fujian, Guangdong, SE Sichuan.

45. *Eurya taitungensis* C. E. Chang, Bull. Taiwan Prov. Pingtung Inst. Agric. 4: 174. 1962.

清水山柃 qing shui shan ling

Shrubs. Young branches grayish brown; current year branchlets pubescent; terminal bud pubescent. Petiole 2–5 cm, decurrent on stem; leaf blade oblong-lanceolate, 4.5–6.5 × 1.5–2.5 cm, leathery, abaxially hirsute along midvein, adaxially glabrous, base attenuate, margin basally entire and apically finely serrulate, apex acute and with an obtuse tip. Flowers axillary or on leafless branches, in clusters of 2 or 3. Male flowers not seen. Female flowers: pedicel 1–2 mm, hirsute; bracteoles triangular, apically on pedicel; sepals 5, imbricate, triangular-ovate, ca. 1.5 mm, outside pubescent; petals 5, oblong, ca. 2.5 × 1.5 mm, glabrous, basally slightly contracted, connate at base, apex rounded; ovary ovoid, ca. 1 mm, glabrous, 3-loculed; style less than 0.4 mm, usually 4-parted almost to base.

• Taiwan (Hualian).

No specimens of this species have been seen by the authors. The description is based on that in Fl. Taiwan (2: 684. 1996). The species appears to be close to *Eurya chinensis*, but as no male flowers have been seen, the placement in *E. sect. Eurya* is only tentative.

46. *Eurya nitida* Korthals, Verh. Nat. Gesch. Ned. Bezitt. Bot. 115. 1841.

细齿叶柃 xi chi ye ling

Eurya aurescens (Rehder & E. H. Wilson) Handel-Mazzetti; *E. hayatae* Yamamoto; *E. japonica* Thunberg var. *aurescens* Rehder & E. H. Wilson; *E. japonica* var. *nitida* (Korthals) Dyer; *E. japonica* var. *thunbergii* Thwaites; *E. nitida* var. *aurescens* (Rehder & E. H. Wilson) Kobuski; *E. nitida* var. *nanjenshanensis* F. C. Hsieh et al.; *Rapanea aurea* H. Léveillé, p.p. as to *Cavalerie* 841.

Shrubs or trees, 2–5 m tall. Young branches grayish brown; current year branchlets yellowish green, slender, 2-ribbed, glabrous; terminal buds to 1 cm, glabrous. Petiole 2–5 mm, glabrous; leaf blade elliptic, oblong-elliptic, or obovate-oblong, (3–)4–6(–7) × 1.5–2.5 cm, thinly leathery to leathery, abaxially pale green to yellowish green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially slightly impressed, secondary veins 9–12 on each side of midvein, abaxially slightly visible, and adaxially obscure, base cuneate to rounded, margin closely serrulate, crenulate, or subentire, apex obtuse, acute, or shortly acuminate and sometimes with an emarginate tip. Flowers axillary, solitary or to 4 in a cluster. Pedicel 2–3 mm, slender, glabrous. Male flowers: bracteoles suborbicular, ca. 1 mm, glabrous; sepals suborbicular to ovate, 1.5–2.5 mm, submembranous, glabrous, apex rounded; petals obovate, 3.5–4 mm; stamens 14–20; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers; petals oblong, 2–2.5 mm; ovary ovoid, glabrous, 3-loculed; style 1.5–3 mm, apically 3-lobed. Fruit bluish black when mature, globose, 3–4 mm in diam. Seeds brown, reniform to globose-reniform, shiny. Fl. Nov–Jan, fr. Jul–Sep.

Forests, thickets; 500–1500(–2600) m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, W Hubei, S and SW Hunan, S Jiangxi, Sichuan, Taiwan, Yunnan, S Zhejiang [Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam].

47. *Eurya japonica* Thunberg, Nov. Gen. Pl. 68. 1783.

柃木 ling mu

Eurya japonica var. *multiflora* Miquel.

Shrubs 1–3.5 m tall. Young branches grayish brown to brown; current year branchlets yellowish green to pale brown, 2-ribbed, glabrous; terminal buds glabrous. Petiole 2–3 mm, glabrous; leaf blade obovate, obovate-elliptic, or oblong-elliptic, 3–7 × 1.5–3 cm, thickly leathery to leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5–7 on each side of midvein, abaxially raised, and adaxially impressed, base cuneate, margin sparsely and obtusely serrate, apex obtuse, subrounded, or rarely acute and with an obtuse and sometimes retuse tip. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 2 mm, glabrous. Male flowers: bracteoles suborbicular, ca. 0.5 mm, glabrous; sepals ovate to suborbicular, ca. 2 mm, glabrous, apex rounded and mucronate; petals oblong-obovate, ca. 4 mm; stamens 12–15; anthers not

locellate; pistillode glabrous. Female flowers: bracteoles suborbicular, very small; sepals ovate, ca. 1.5 mm, glabrous; petals oblong, 2.5–3 mm; ovary globose, glabrous, 3-loculed; style ca. 1.5 mm, apically 3-lobed. Fruit globose, ca. 5 mm in diam. Fl. Feb–Mar, fr. Sep–Oct. $2n = 42$.

Thickets on mountain slopes or in valleys; 300–2500 m. Anhui, E Zhejiang [Japan, Korea].

48. *Eurya rengechiensis* Yamamoto, J. Soc. Trop. Agric. 5: 55. 1933.

莲华铃 *lian hua ling*

Shrubs or small trees. Branchlets pale grayish brown, ribbed, glabrous. Petiole 5–6 mm, glabrous; leaf blade oblong, elliptic, or oblanceolate, 7–8(–11) × 2.5–3.5 cm, leathery, abaxially pale green, adaxially green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 12–15 on each side of midvein, abaxially raised, and adaxially impressed, base broadly cuneate to obtuse, margin revolute when dry, entire in basal 1/2, and apically serrulate, apex caudate-acuminate and with an obtuse tip. Flowers axillary, 2–4 in a cluster. Pedicel 1–3 mm, glabrous. Male flowers: bracteoles very small; sepals suborbicular, ca. 3.5 mm, glabrous; petals oblong, 4–5 mm; stamens ca. 10; anthers not locellate; pistillode glabrous. Female flowers: bracteoles very small; sepals ovate to ovate-orbicular, ca. 2 mm, glabrous; petals obovate, apex rounded; ovary globose, glabrous, 3-loculed; style ca. 2 mm, apically 3-lobed. Fruit globose, ca. 5 mm in diam., glabrous. Fl. Oct–Nov, fr. Feb–Apr.

• Forests. Taiwan (Taizhong).

49. *Eurya lanciformis* Kobuski, J. Arnold Arbor. 20: 368. 1939.

披针叶铃 *pi zhen ye ling*

Trees to 10 m tall. Current year branchlets 2-ribbed, pubescent when young, soon glabrescent; terminal buds sparsely pubescent when young, soon glabrescent. Petiole 3–5 mm, glabrous; leaf blade lanceolate to oblong-lanceolate, 7–10 × 1.3–2.5 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, secondary and reticulate veins raised on both surfaces, base cuneate, margin basally entire and apically undulate-serrate, apex acuminate. Flowers not seen. Fruit purplish black when mature, globose to ovoid, 4–5 mm in diam.; pedicel 3–4 mm, glabrous; persistent bracteoles 2, sepals; persistent sepals suborbicular, 1.5–2 mm, outside glabrous, margin glandular; style ca. 2 mm, apically 3-lobed. Fr. Oct–Nov.

• Forests; 700–800 m. Guangxi (Nanning, Shiwan Dashan).

50. *Eurya subintegra* Kobuski, J. Arnold Arbor. 20: 373. 1939.

假杨桐 *jia yang tong*

Shrubs or trees, 2–7 m tall. Young branches gray to reddish brown, glabrous; current year branchlets pale brown, slender, 2-ribbed, glabrous; terminal buds glabrous. Petiole 6–9 mm, glabrous; leaf blade elliptic to oblong-elliptic, 7–14 × 2.5–5 cm, leathery, abaxially pale green, adaxially dark green and

shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, slender, abaxially slightly raised, and adaxially visible, base cuneate to broadly cuneate, margin sparsely serrate at least on apical 1/2 to rarely subentire, apex acuminate to acute. Flowers axillary, solitary or to 3 in a cluster. Pedicel 2–3 mm, glabrous. Male flowers: bracteoles very small; sepals ovate to suborbicular, ca. 2 mm, outside glabrous, membranous, margin of outer 1 or 2 sparsely glandular; petals oblong-obovate, 4–5 mm; stamens 13–15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals ovate, ca. 2.5 mm; ovary ovoid, glabrous; style ca. 2 mm, apically 3-lobed. Fruit globose, ca. 4 mm in diam. Fl. Oct–Dec, fr. Jun–Jul.

Forests on mountain slopes; 200–700 m. W Guangdong, S Guangxi [N Vietnam].

51. *Eurya stenophylla* Merrill, Philipp. J. Sci. 21: 502. 1922.

窄叶铃 *zhai ye ling*

Shrubs 0.5–2 m tall. Young branches grayish brown, glabrous; current year branchlets yellowish green, 2-ribbed, glabrous or pubescent; terminal buds glabrous or pubescent. Petiole 1–4 mm, glabrous or pubescent; leaf blade narrowly lanceolate to oblanceolate, 3–6(–11) × 1–1.5 cm, leathery to thinly leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6–8 on each side of midvein, abaxially slightly raised, and adaxially obscure or slightly impressed, base cuneate to broadly cuneate, margin obtusely serrate, apex acute, shortly acuminate, or caudate-acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 3–4 mm, glabrous or pubescent. Male flowers: bracteoles orbicular, ca. 0.5 mm, glabrous or pubescent, apex rounded and mucronate; sepals suborbicular, ca. 3 mm, glabrous, apex rounded; petals obovate, 5–6 mm; stamens 14–16; anthers not locellate; pistillode glabrous. Female flowers: bracteoles similar to those of male flowers; sepals ovate, ca. 1.5 mm, glabrous; petals ovate, ca. 5 mm; ovary glabrous, 3-loculed; style ca. 2.5 mm, apically 3-lobed. Fruit long ovoid, 5–6 × 3–4 mm. Fl. Oct–Feb, fr. Jul–Sep.

Thickets on mountain slopes or in valleys; 200–1500 m. Guangdong, Guangxi, SW and W Guizhou, W Hubei, S Sichuan [N Vietnam].

- 1a. Current year branchlets and terminal buds ferruginous villous; petioles, pedicels, and sepals pubescent 51c. var. *pubescens*
- 1b. Current year branchlets and terminal buds glabrous; petioles, pedicels, and sepals glabrous.
 - 2a. Leaf blade 3–6 × 1–1.5 cm, apex acute to shortly acuminate; petiole ca. 1 mm 51a. var. *stenophylla*
 - 2b. Leaf blade 7–11 × 1–1.5 cm, apex caudate-acuminate; petiole 3–4 mm 51b. var. *caudata*

51a. *Eurya stenophylla* var. *stenophylla*

窄叶铃(原变种) *zhai ye ling (yuan bian zhong)*

Eurya longistyla Hung T. Chang.

Current year branchlets and terminal buds glabrous. Petioles, pedicels, and sepals glabrous. Petiole ca. 1 mm; leaf blade 3–6 × 1–1.5 cm, apex acute to shortly acuminate. Fl. Oct–Dec, fr. Jul–Aug.

• Thickets on mountain slopes or in valleys; 200–1500 m. W Guangdong, Guangxi, SW and W Guizhou, W Hubei, S Sichuan.

51b. *Eurya stenophylla* var. *caudata* Hung T. Chang, Acta Phytotax. Sin. 3: 55. 1954.

长尾窄叶柃 chang wei zhai ye ling

Current year branchlets and terminal buds glabrous. Petioles, pedicels, and sepals glabrous. Petiole 3–4 mm; leaf blade 7–11 × 1–1.5 cm, apex caudate-acuminate. Fr. Sep.

Thickets on mountain slopes or in valleys. C and W Guangdong, NE and S Guangxi [N Vietnam].

51c. *Eurya stenophylla* var. *pubescens* (Hung T. Chang) T. L. Ming, Fl. Yunnan. 8: 372. 1997.

毛窄叶柃 mao zhai ye ling

Eurya stenophylla f. *pubescens* Hung T. Chang, Acta Phytotax. Sin. 3: 55. 1954.

Current year branchlets and terminal buds ferruginous villos. Petioles, pedicels, and sepals pubescent. Fl. Feb, fr. Aug.

• Thickets on mountain slopes or in valleys. E Guangdong, NE and S Guangxi.

52. *Eurya metcalfiana* Kobuski, J. Arnold Arbor. 20: 368. 1939.

从化柃 cong hua ling

Shrubs 1–2 m tall. Young branches grayish brown, 2-ribbed; current year branchlets yellowish brown, 2-ribbed, glabrous; terminal buds glabrous. Petiole 1–2 mm, glabrous; leaf blade ovate, ovate-elliptic, or ovate-lanceolate, 2–3.5 × 1–1.5 cm, leathery, abaxially yellowish green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 7–10 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially impressed, base cuneate, margin serrulate, apex obtuse, emarginate, or sometimes subrounded. Flowers axillary, solitary or paired. Pedicel 2–3 mm, glabrous. Male flowers: bracteoles suborbicular, ca. 1 mm; sepals ovate to orbicular, ca. 3 mm, glabrous; petals obovate, ca. 5 mm; stamens ca. 15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles similar to those of male flowers; sepals suborbicular, 1.5–2 mm, glabrous; petals long ovate, ca. 3 mm; ovary long ovoid, glabrous; style 2–3 mm, apically 3-lobed. Fruit purplish brown when mature, long ovoid, 4–5 × 2–3 mm, glabrous. Fl. Nov–Dec, fr. Jul–Sep.

• Forests or thickets on mountain slopes or along streams in valleys; 100–1600 m. S Anhui, Fujian, Guangdong, SE Guizhou, S Hunnan, S Jiangsu, S Jiangxi, S Zhejiang.

53. *Eurya polyneura* Chun, Sunyatsenia 2: 54. 1934.

多脉柃 duo mai ling

Shrubs to 4 m tall. Young branches grayish brown, 2-ribbed; current year branchlets green, stout, 2-ribbed; terminal buds glabrous. Petiole ca. 1.5 mm, glabrous; leaf blade oblong-lanceolate, 15–20 × 3–5.5 cm, leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins more than 20 on each side of midvein, abaxially raised, and adaxially impressed, base obtuse to cuneate, margin serrulate, apex acuminate to shortly acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 2–3 mm, glabrous. Male flowers: bracteoles small, ovate-triangular, glabrous; sepals suborbicular, 3–4 mm, glabrous, apex rounded; petals oblong to elliptic, ca. 7 mm; stamens 18–20; anthers not locellate; pistillode glabrous. Female flowers: bracteoles similar to those of male flowers; sepals ovate to ovate-orbicular, ca. 1.5 mm; petals not seen; ovary ovoid, glabrous; style ca. 5 mm, apically 3-lobed. Fruit black when mature, ovoid-ellipsoid, 8–10 × ca. 5 mm. Seeds brown, obliquely ovate-reniform, shiny. Fl. Nov–Dec, fr. Jun–Jul.

• Forests on mountain slopes; ca. 700 m. W Guangdong, E Guangxi.

54. *Eurya gunshanensis* Hu & L. K. Ling, Acta Phytotax. Sin. 11: 319. 1966.

贡山柃 gong shan ling

Trees 4–6 m tall. Young branches brown, 4-ribbed; current year branchlets pale green, stout, 4-ribbed, glabrous; terminal buds ca. 1.5 cm, glabrous. Petiole 1.2–1.5 cm, glabrous, adaxially grooved; leaf blade oblong-elliptic to narrowly elliptic, 7–15 × 2.5–4.5 cm, rigidly leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 11–13 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially very impressed, base cuneate to rarely broadly cuneate, margin closely serrulate, apex acuminate. Flowers axillary, solitary or 3–7 in a cluster. Pedicel 2–4 mm, glabrous. Male flowers: bracteoles ovate-orbicular, ca. 1 mm, glabrous; sepals orbicular to suborbicular, 2–3 mm, glabrous; petals obovate-oblong, ca. 4 mm; stamens ca. 19; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals ovate-oblong, ca. 2.5 mm; ovary globose, glabrous, 3-loculed; style ca. 0.5 mm, apically 3-parted. Fruit purplish red to purplish black when mature, subglobose, 6–6.5 × ca. 5 mm. Fl. Oct–Nov, fr. Jun–Jul.

• Forests, thickets; 1300–2200(–2900) m. Xizang (Médog), Yunnan (Gongshan).

This species is expected to be found in N Myanmar.

55. *Eurya macartneyi* Champion, Proc. Linn. Soc. London 2: 99. 1850.

黑柃 hei ling

Shrubs or trees, 2–7 m tall. Bark blackish brown, smooth. Young branches grayish brown to brown; current year branchlets pale reddish brown, stout, terete, glabrous; terminal buds glabrous. Petiole 3–4 mm, glabrous; leaf blade oblong-elliptic

to elliptic, 6–14 × 2–4.5 cm, leathery, abaxially reddish brown when dry, adaxially yellowish green, both surfaces glabrous, midvein abaxially slightly raised and adaxially impressed, secondary veins 12–14 on each side of midvein, slender, and visible on both surfaces, base broadly cuneate to obtuse, margin subentire to apically serrulate, apex shortly acuminate. Flowers axillary, solitary or to 4 in a cluster. Pedicel 1–1.5 mm, glabrous. Male flowers: bracteoles suborbicular, ca. 1 mm, glabrous; sepals orbicular, ca. 3 mm, leathery, glabrous, apex rounded and retuse with a mucronate tip; petals oblong-obovate, 4–5 mm; stamens 17–24; anthers not locellate; pistillode glabrous. Female flowers: bracteoles similar to those of male flowers; sepals ovate to ovate-orbicular, 2–2.5 mm, glabrous; petals obovate-lanceolate, ca. 4 mm; ovary ovoid, glabrous, 3-loculed; styles 3, distinct, 1.5–2 mm. Fruit purplish black when mature, globose, ca. 5 mm in diam. Seeds dark brown, reniform, shiny. Fl. Nov–Jan, fr. Jun–Aug.

• Forests on mountain slopes or in valleys; 200–1000 m. N Fujian, Guangdong, E and S Guangxi, Hainan, Hunan, E and S Jiangxi.

56. *Eurya oblonga* Y. C. Yang, Contr. Biol. Lab. Sci. Soc. China, Bot. Ser. 12: 133. 1941.

矩圆叶柃 *ju yuan ye ling*

Shrubs or trees, 2–8 m tall. Young branches grayish brown, subterete; current year branchlets pale brown, glabrous, 2-ribbed; terminal buds glabrous. Petiole 5–10 mm, glabrous; leaf blade oblong, rarely oblong-lanceolate or oblong-elliptic, 6–13.5 × 2.5–4 cm, leathery to thinly leathery, abaxially pale green becoming reddish brown when dry, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–14 on each side of midvein, abaxially raised, and adaxially slightly impressed, base cuneate to subrounded, margin closely serrulate, apex acuminate to caudate-acuminate and with a retuse tip. Flowers axillary, solitary or to 3 in a cluster. Pedicel 1–1.5 mm, glabrous. Male flowers: bracteoles orbicular, ca. 1 mm, glabrous; sepals orbicular, 2.5–3 mm, subleathery, glabrous, apex rounded and retuse; petals oblong-obovate, 4–5 mm; stamens 13–15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong to obovate, ca. 3.5 mm; ovary globose, glabrous, 3-loculed; style ca. 1 mm, 3(or 4)-parted to middle or base. Fruit black when mature, globose, 5–6 mm in diam. Fl. Nov–Dec, fr. Jun–Aug.

• Forests; 1100–2500 m. NW Guangxi, N Guizhou, Sichuan, NE and SE Yunnan.

1a. Style parted to base 56a. var. *oblonga*

1b. Style parted only to middle 56b. var. *stylosa*

56a. *Eurya oblonga* var. *oblonga*

矩圆叶柃(原变种) *ju yuan ye ling* (*yuan bian zhong*)

Eurya szechuanensis Hung T. Chang.

Style parted to base.

• Forests on mountain slopes or tops; 1100–2500 m. NW Guangxi, N Guizhou, SW and W Sichuan, NE and SE Yunnan.

56b. *Eurya oblonga* var. *stylosa* Y. C. Yang, Contr. Biol. Lab. Sci. Soc. China, Bot. Ser. 12: 133. 1941.

合柱矩圆叶柃 *he zhu ju yuan ye ling*

Style parted only to middle.

• Forests; 1100–2500 m. Sichuan (Hongya).

57. *Eurya ovatifolia* Hung T. Chang, Acta Phytotax. Sin. 3: 40. 1954.

卵叶柃 *luan ye ling*

Shrubs or trees, to 4 m tall. Branchlets and current year branchlets grayish brown, terete, glabrous; terminal buds 1–1.3 cm, glabrous. Petiole 2–2.5 mm, glabrous; leaf blade ovate, 4–7 × 2–4 cm, leathery, abaxially reddish brown when dry, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, abaxially raised, and adaxially slightly visible, base rounded, margin closely serrulate, apex abruptly shortly caudate. Male flowers axillary, solitary or to 3 in a cluster; pedicel 1–1.5 mm, glabrous; bracteoles ovate-orbicular, very small; sepals suborbicular, 1.5–2 mm, glabrous, apex rounded and retuse; petals obovate, ca. 4 mm; stamens 11 or 12; anthers not locellate; pistillode glabrous. Female flowers not seen. Fruit ovoid, ca. 4.5 × 3.5 mm, glabrous, 3-loculed; persistent style ca. 1 mm, apically 3-lobed. Fl. Nov–Dec, fr. Jun–Jul.

• Forests on mountain slopes or tops. Hainan.

58. *Eurya rubiginosa* Hung T. Chang, Acta Phytotax. Sin. 3: 45. 1954.

红褐柃 *hong he ling*

Shrubs 2.5–3.5 m tall. Older branches grayish white; young branches grayish brown, 2-ribbed; current year branchlets yellowish green, 2-ribbed, glabrous; terminal buds glabrous. Petiole ca. 2 mm or less; leaf blade ovate-lanceolate to sometimes oblong-lanceolate, 6–12 × 1.5–4 cm, leathery, abaxially reddish brown when dry, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially slightly impressed, secondary veins 13–15 on each side of midvein and slightly raised on both surfaces, base cuneate, broadly cuneate, rounded, or rarely subcordate, apex acute to shortly acuminate and with an obtuse tip, margin closely serrulate and revolute. Flowers axillary, solitary or to 3 in a cluster. Pedicel 1–1.5 mm, glabrous. Male flowers: bracteoles ovate to ovate-orbicular, ca. 0.5 mm, apex acute to subrounded and mucronate; sepals suborbicular, ca. 2 mm, subleathery, outside pubescent or glabrous, apex rounded and retuse; petals obovate, 3–4 mm; stamens ca. 15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong-lanceolate, ca. 3 mm; ovary ovoid, glabrous, 3-loculed; style 1–1.5 mm, apically 3-parted to almost distinct. Fruit purplish black when mature, globose to ovoid, ca. 4 mm. Fl. Oct–Nov, fr. Apr–Aug.

• Forests, thickets; 400–800 m. S Anhui, Fujian, Guangdong, Guangxi, S Hunan, S Jiangsu, Jiangxi, SE Yunnan, Zhejiang.

1a. Leaf blade ovate-lanceolate, 8–12 × 2.5–4 cm, base rounded to subcordate; petiole

very short; sepals outside pubescent;
style apically 3-parted 58a. var. *rubiginosa*

- 1b. Leaf blade oblong-lanceolate,
6–8 × 1.5–2.2 cm, base cuneate to
broadly cuneate; petiole ca. 2 mm;
sepals outside glabrous; style apically
3-parted to almost distinct 58b. var. *attenuata*

58a. *Eurya rubiginosa* var. *rubiginosa*

红褐柃(原变种) hong he ling (yuan bian zhong)

Petiole very short; leaf blade ovate-lanceolate, 8–12 × 2.5–4 cm, base rounded to rarely subcordate. Sepals outside pubescent. Style apically 3-parted. Fl. Oct–Nov, fr. Apr–May.

• Forests on mountain slopes or in valleys; 600–800 m. C and W Guangdong.

58b. *Eurya rubiginosa* var. *attenuata* Hung T. Chang, Acta Phytotax. Sin. 3: 46. 1954.

窄基红褐柃 zhai ji hong he ling

Eurya nitida Korthals var. *rigida* Hung T. Chang.

Petiole ca. 2 mm; leaf blade oblong-lanceolate, 6–8 × 1.5–2.2 cm, base cuneate to broadly cuneate. Sepals outside glabrous. Style apically 3-parted to almost distinct. Fl. Oct–Nov, fr. May–Aug.

• Forests, thickets; 400–800 m. S Anhui, Fujian, Guangdong, Guangxi, S Hunan, S Jiangsu, Jiangxi, SE Yunnan, Zhejiang.

59. *Eurya amplexifolia* Dunn, Bull. Misc. Inform. Kew, Addit. Ser. 10: 44. 1912.

穿心柃 chuan xin ling

Shrubs or trees, 3–5 m tall. Young branches grayish brown; current year branchlets pale green to reddish brown, 2-ribbed, glabrous; terminal buds glabrous. Petiole very short; leaf blade ovate-lanceolate, 6–18 × 2.5–5 cm, rigidly leathery to leathery, abaxially reddish brown when dry, adaxially dark yellowish green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 14–16 on each side of midvein and visible or slightly raised on both surfaces, base auriculate-amplexicaul, margin closely serrulate and slightly revolute, apex acuminate. Flowers axillary, 2 or more in a cluster. Pedicel ca. 1 mm, glabrous. Male flowers: bracteoles orbicular, ca. 1 mm, glabrous; sepals suborbicular, 2–3 mm, leathery, outside pubescent, apex rounded and retuse; petals broadly ovate, ca. 4 mm; stamens numerous; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong-obovate, ca. 3 mm; ovary ovoid, glabrous, 3-loculed; style ca. 1 mm, apically 3-lobed. Fruit ovoid, to 11 × ca. 7 mm. Fl. Nov–Dec, fr. Jul–Aug.

• Forests on mountain slopes; 600–800 m. C and SW Fujian, N Guangdong.

60. *Eurya lunglingensis* Hu & L. K. Ling, Acta Phytotax. Sin. 11: 323. 1966.

隆林耳叶柃 long lin er ye ling

Shrubs to 2 m tall. Young branches grayish brown to brown; current year branchlets pale green, terete, slender, glabrous; terminal buds 8–10 mm, glabrous. Leaves sessile; leaf blade lanceolate to oblong-lanceolate, 6–9.5 × 1.5–2.7 cm, thinly leathery, abaxially pale green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–12 on each side of midvein, secondary and reticulate veins abaxially slightly raised and adaxially obscure, base auriculate-amplexicaul, margin closely serrulate, apex acuminate. Male flowers not seen. Female flowers axillary, 2 or 3 in a cluster; pedicel 1.5–2 mm, glabrous; bracteoles ovate, very small; sepals pale green, ovate to suborbicular, 1–1.5 mm, submembranous, glabrous, apex rounded and mucronate; petals oblong, 2–2.5 mm; ovary globose, ca. 1.2 mm in diam., glabrous, 3-loculed; style ca. 1 mm, apically 3-lobed. Fruit not seen. Fl. Oct–Nov.

• Forests on mountain tops; ca. 1500 m. Guangxi (Longlin).

61. *Eurya glandulosa* Merrill, Philipp. J. Sci. 12: 107. 1917.

腺柃 xian ling

Shrubs 2–3 m tall. Young branches grayish brown, glabrous or glabrescent; current year branchlets terete, densely yellowish brown spreading villous; terminal buds densely yellowish brown pubescent. Petiole 1–6 mm or leaves subsessile, pubescent; leaf blade oblong, oblong-elliptic, or elliptic, 4–6(–10) × 1.5–2.5(–3.5) cm, leathery to subleathery, abaxially yellowish green, black glandular punctate, and villous along midvein, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, abaxially slightly raised, and adaxially slightly impressed, base rounded to cordate and ± amplexicaul or sometimes cuneate, margin closely serrulate, apex acute to obtuse and sometimes with a retuse tip. Male flowers not seen. Female flowers axillary, solitary or to 4 in a cluster; pedicel very short; bracteoles very small; sepals ovate, 1–1.5 mm, subleathery, outside brown pubescent, margin glandular, apex obtuse; petals narrowly oblong, ca. 3 mm; ovary ovoid to globose, glabrous, 3-loculed; style 1–1.5 mm, apically 3-lobed. Fruit globose, 3–4 mm in diam. Fl. Oct–Nov, fr. Apr–Jun.

• Forests or thickets on mountain slopes or in valleys; 200–1300 m. Fujian, Guangdong.

- 1a. Petiole 4–6 mm; leaf blade elliptic to oblong-elliptic, base cuneate to broadly cuneate, apex obtuse to subrounded and with a retuse tip 61c. var. *cuneiformis*
1b. Petiole 3 mm or less; leaf blade oblong to oblong-elliptic, base cordate, slightly cordate, or rounded, apex acute.
2a. Petiole ca. 0.5 mm to leaves subsessile; leaf blade 4–6 × 1.5–2.5 cm, base cordate and ± amplexicaul 61a. var. *glandulosa*
2b. Petiole 1–3 mm; leaf blade 5–10 × 2.5–3.5 cm, base rounded to slightly cordate 61b. var. *dasyclados*

61a. *Eurya glandulosa* var. *glandulosa*

腺柃(原变种) xian ling (yuan bian zhong)

Petiole very short, ca. 0.5 mm, to leaves subsessile; leaf blade oblong to oblong-elliptic, 4–6 × 1.5–2.5 cm, base cordate and ± amplexicaul, apex acute.

- Forests on mountain slopes or in valleys. C Guangdong.

61b. *Eurya glandulosa* var. *dasyclados* (Kobuski) Hung T. Chang, Acta Phytotax. Sin. 3: 25. 1954.

粗枝腺柃 cu zhi xian ling

Eurya dasyclados Kobuski, J. Arnold Arbor. 20: 364. 1939.

Petiole 1–3 mm; leaf blade oblong to oblong-elliptic, 5–10 × 2.5–3.5 cm, base slightly cordate to rounded, apex acute.

- Forests or thickets on mountain slopes or in valleys; 600–1300 m. Fujian, Guangdong.

61c. *Eurya glandulosa* var. *cuneiformis* Hung T. Chang, Acta Phytotax. Sin. 3: 25. 1954.

楔基腺柃 xie ji xian ling

Petiole 4–6 mm; leaf blade oblong-elliptic to elliptic, 3.5–5.5 × 1.5–2.5 cm, base cuneate to broadly cuneate, apex obtuse and with a retuse tip.

- Forests on mountain slopes or in valleys; 200–600 m. E Guangdong.

62. *Eurya weissiae* Chun, J. Arnold Arbor. 9: 128. 1928.

单耳柃 dan er ling

Shrubs 1–3 m tall. Young branches grayish white to brown, glabrescent; current year branchlets terete, densely yellowish brown spreading villous; terminal buds densely yellowish brown villous. Petiole ca. 1 mm, villous; leaf blade oblong to oblong-elliptic, 4–8 × 1.5–3.2 cm, leathery, abaxially yellowish green and sparsely villous but more densely so along midvein, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 9–11 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially impressed, base obliquely auriculate and amplexicaul with larger auricle 4–7 mm, margin closely serrulate and revolute when dry, apex abruptly shortly acuminate and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster, wrapped by a small leaflike involucre bract; involucre bract ovate, 7–10 mm, villous, base auriculate. Pedicel ca. 1 mm, pubescent. Male flowers: bracteoles elliptic, very small, pubescent; sepals ovate, 1.5–2 mm, outside villous, apex obtuse; petals narrowly oblong, ca. 4 mm; stamens ca. 10; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong-lanceolate, ca. 3 mm; ovary ovoid, glabrous, 3-loculed; style 1–1.5 mm, apically 3-lobed. Fruit bluish black when mature, globose, 4–5 mm in diam. Fl. Sep–Oct, fr. Nov–Jan.

- Forests on mountain slopes; 300–1200 m. Fujian, C and N Guangdong, N Guangxi, SE Guizhou, S Hunan, E and S Jiangxi, S Zhejiang.

63. *Eurya handel-mazzettii* Hung T. Chang, Acta Phytotax. Sin. 3: 29. 1954.

丽江柃 li jiang ling

Eurya cavinervis Vesque var. *strigillosa* (Handel-Mazzetti) Kobuski; *E. nitida* Korthals var. *strigillosa* Handel-Mazzetti.

Shrubs or trees, 1.5–10 m tall. Young branches brown to dark brown, glabrous; current year branchlets reddish brown, terete, densely pubescent; terminal buds densely pubescent. Petiole ca. 2 mm, pubescent; leaf blade oblong-elliptic to elliptic, 4–7 × 1.5–2.5 cm, thinly leathery, abaxially yellowish green and villous along midvein, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 9–12 on each side of midvein, abaxially raised, and adaxially visible or slightly impressed, base cuneate, margin serrulate, apex acute to shortly acuminate and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster. Pedicel 1.5–3 mm, pubescent. Male flowers: bracteoles ovate-orbicular, ca. 1 mm, outside pubescent, apex obtuse; sepals ovate to suborbicular, 2–2.8 mm, membranous, outside pubescent, margin ciliolate, apex rounded; petals obovate-oblong, ca. 5 mm; stamens 13–15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles similar to those of male flowers but slightly smaller; sepals suborbicular, 1–1.5 mm, membranous, outside pubescent, margin ciliolate; petals ovate to oblong, 2–2.5 mm; ovary globose, glabrous, 3-loculed; style ca. 1.5 mm, 3-parted to base. Fruit bluish black when mature, globose, ca. 4 mm in diam. Fl. Oct–Dec, fr. Jun–Aug.

Forests or thickets on mountain slopes or in valleys; 1000–3200 m. NW Guangxi, W Guizhou, SW Sichuan, SE Xizang, Yunnan [NE India].

This species is expected to be found in N Myanmar.

64. *Eurya brevistyla* Kobuski, J. Arnold Arbor. 20: 363. 1939.

短柱柃 duan zhu ling

Shrubs or trees, 1.5–8(–12) m tall. Young branches grayish brown; current year branchlets slightly 2-ribbed, glabrous; terminal buds glabrous or rarely scale margins ciliolate. Petiole 3–6 mm, glabrous; leaf blade obovate, elliptic, or oblong-elliptic, 5–9 × 2–3.5 cm, leathery, abaxially pale yellowish green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 9–11 on each side of midvein, slender, and visible on both surfaces, base broadly cuneate to cuneate, margin serrulate, apex shortly acuminate to acute. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 1.5 mm, glabrous. Male flowers: bracteoles ovate-orbicular; sepals suborbicular, 1.5–2 mm, membranous, outside pubescent, margin ciliolate, apex rounded and retuse with a mucronate tip; petals oblong to ovate, ca. 4 mm; stamens 13–15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers; petals ovate 2–2.5 mm; ovary globose, glabrous, 3-loculed; styles 3, distinct, ca. 1 mm. Fruit bluish black when mature, globose, 3–4 mm in diam. Fl. Oct–Nov, fr. Jun–Aug.

- Forests or thickets on mountain slopes or in valleys; 800–2600 m. Anhui, C and N Fujian, NW Guangdong, N Guangxi, Guizhou, Henan, W Hubei, W Hunan, N Jiangxi, S Shaanxi, Sichuan, NE and SE Yunnan.

65. *Eurya paratragonoclada* Hu, Bull. Fan Mem. Inst. Biol., Bot. 8: 149. 1938.

滇四角桫 dian si jiao ling

Shrubs or trees, 2–7 m tall. Young branches grayish brown; current year branchlets purplish brown, 4-ribbed, glabrous; terminal buds glabrous. Petiole 5–7 mm, glabrous; leaf blade narrowly oblong to oblong-oblancoate, 8–11 × 2–3 cm, leathery to thinly leathery, abaxially yellowish green, adaxially dark green, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 9–11 on each side of midvein, slender, abaxially slightly raised, and adaxially obscure, base cuneate, margin closely serrulate, apex acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 2.5–3.5 mm, glabrous. Male flowers: bracteoles suborbicular, ca. 1 mm, glabrous; sepals orbicular, ca. 2 mm, membranous, glabrous; petals obovate-oblong, ca. 3.5 mm; stamens 11–15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong, ca. 3 mm; ovary globose, glabrous, 3(or 4)-loculed; style ca. 1.5 mm, 3(or 4)-parted to base. Fruit black when mature, globose, 5–6 mm in diam. Fl. May–Aug, fr. Oct.

• Forests or thickets on mountain slopes or tops; 2500–3400 m. SE Xizang, NW and SE Yunnan.

This species is expected to be found in N Myanmar.

66. *Eurya fangii* Rehder, J. Arnold Arbor. 11: 165. 1930.

川桫 chuan ling

Shrubs or trees, 2–8 m tall. Young branches grayish brown, subglabrous; current year branchlets terete and densely yellowish brown pubescent or 2-ribbed and pubescent only along ribs; terminal buds glabrous. Petiole 2–3 mm, glabrous; leaf blade elliptic to oblong-elliptic, 3–8.5 × 1–3.5, leathery, midvein abaxially elevated and adaxially impressed, secondary veins 6–8 on each side of midvein, secondary and reticulate veins abaxially slightly raised and adaxially impressed, base cuneate to broadly cuneate, margin serrate, apex acute to acuminate and with an obtuse tip, abaxially yellowish green, adaxially dark green and shiny, both surfaces glabrous. Flowers axillary, solitary or paired. Pedicel 2–2.5 mm, glabrous. Male flowers: bracteoles suborbicular, ca. 1 mm, glabrous, apex rounded and mucronate; sepals suborbicular, ca. 1.5 mm, outside glabrous, margin ciliolate, apex rounded to obtuse; petals obovate-oblong, ca. 4 mm; stamens 8–10; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals ovate, 2–2.5 mm; ovary globose, glabrous, 3- or 4-loculed; styles 3 or 4, distinct, ca. 0.5 mm. Fruit bluish black when mature, globose, ca. 4 mm in diam. Fl. Nov–Mar, fr. May–Sep.

• Forests on mountain slopes; 1100–2800 m. E, SW, and W Sichuan, NE Yunnan.

- 1a. Current year branchlets terete, densely pubescent; leaf blade 3–5 × 1–2 cm 66a. var. *fangii*
 1b. Current year branchlets 2-ribbed, pubescent only along ribs; leaf blade 5.5–8.5 × 2–3.5 cm 66b. var. *megaphylla*

66a. *Eurya fangii* var. *fangii*

川桫(原变种) chuan ling (yuan bian zhong)

Current year branchlets terete, densely pubescent. Leaf blade 3–5 × 1–2 cm. Fl. Nov–Mar, fr. Jul–Sep.

• Forests on mountain slopes; 1100–2800 m. E and W Sichuan.

66b. *Eurya fangii* var. *megaphylla* P. S. Hsu, Acta Phytotax. Sin. 9: 94. 1964.

大叶桫 da ye ling

Eurya changii P. S. Hsu.

Current year branchlets 2-ribbed, pubescent only along ribs. Leaf blade 5.5–8.5 × 2–3.5 cm. Fl. Nov–Mar, fr. May–Aug.

• Forests on mountain slopes; 1800–2800 m. SW Sichuan, NE Yunnan.

67. *Eurya tsaii* Hung T. Chang, Acta Phytotax. Sin. 3: 30. 1954.

怒江桫 nu jiang ling

Shrubs or trees, 2–9 m tall. Young branches grayish brown, glabrous; current year branchlets terete, densely yellowish brown pubescent; terminal buds densely pubescent. Petiole 2–3 mm, pubescent; leaf blade oblong-elliptic to oblong, 4–10 × 1.8–3.2 cm, leathery, abaxially yellowish green and pubescent along midvein, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–14 on each side of midvein, slender, abaxially slightly raised, and adaxially impressed, base cuneate, margin serrulate, apex acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 1–1.5 mm, pubescent. Male flowers: bracteoles orbicular, ca. 1 mm, outside pubescent; sepals orbicular, ca. 1.5 mm, leathery, outside pubescent, margin glandular and sometimes also ciliolate, apex rounded; petals oblong-obovate, ca. 3 mm; stamens 12–15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals ovate, ca. 2.5 mm; ovary ovoid, glabrous, 3-loculed; style ca. 1.5 mm, apically 3-parted. Fruit globose, 5–6 mm in diam. Fl. Oct–Nov, fr. Jun–Aug.

• Forests or thickets on mountain slopes; 2300–2800 m. SE Xizang, NW Yunnan.

This species is expected to be found in N Myanmar.

68. *Eurya taronensis* Hu & L. K. Ling, Acta Phytotax. Sin. 11: 328. 1966.

独龙桫 du long ling

Shrubs or trees, 2–9 m tall. Current year branchlets terete, pubescent when young, soon glabrescent; terminal buds 6–11 mm, pubescent. Petiole 1.5–2 mm, pubescent; leaf blade oblong to oblong-elliptic, 2–8.5 × 1.7–3 cm, leathery, abaxially pale green and sparsely pubescent but more densely so along midvein, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 14–20 on each side of midvein, abaxially raised, and adaxially impressed, base broadly cuneate to subrounded, margin serrulate, apex acuminate to long acuminate. Flowers axillary, solitary or paired.

Pedicle ca. 1.5 mm, pubescent. Male flowers: bracteoles ovate, ca. 1 mm; sepals brown when dry, suborbicular, ca. 2 mm, leathery, outside pubescent, margin ciliolate, apex rounded; petals ovate-orbicular to subobovate, ca. 3 mm; stamens ca. 15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but smaller; petals oblong-ovate, ca. 2.5 mm; ovary glabrous, 3-loculed; style ca. 1 mm, 3-parted to base. Fruit purplish black when mature, subglobose, ca. 5 mm in diam. Fl. Oct–Dec, fr. Jun–Aug.

- Forests; 2000–2400 m. Xizang (Médog), Yunnan (Gongshan).

This species is expected to be found in N Myanmar.

69. *Eurya semiserrulata* Hung T. Chang, Acta Phytotax. Sin. 3: 29. 1954.

半持柃 ban chi ling

Shrubs or trees, 2–10 m tall. Young branches grayish brown, glabrous; current year branchlets terete, yellowish brown pubescent; terminal buds yellowish brown pubescent. Petiole 2–3 mm, pubescent; leaf blade oblong to oblong-obovate, 4–7.5 × 1.2–2.3 cm, leathery to thinly leathery, abaxially yellowish green and pubescent along midvein, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6–8 on each side of midvein, secondary and reticulate veins abaxially slightly raised and adaxially impressed, base broadly cuneate to obtuse, margin entire on basal 1/2 and serrulate on apical 1/2, apex acuminate to caudate-acuminate. Flowers axillary, solitary or 3 in a cluster. Pedicel 1–1.5 mm, glabrous. Male flowers: bracteoles suborbicular, ca. 1 mm; sepals suborbicular, 1.5–2 mm, membranous, outside glabrous, margin ciliolate, apex rounded; petals oblong to ovate-oblong, ca. 3 mm; stamens 10–16; anthers not locellate; pistillode glabrous. Female flowers: bracteoles similar to those of male flowers but slightly smaller; sepals 1–1.5 mm; petals ovate, ca. 2.5 mm; ovary globose, glabrous; style ca. 0.5 mm, apically 3-lobed. Fruit bluish black when mature, globose, 3–4 mm in diam. Fl. Oct–Nov, fr. Jun–Jul.

- Forests on mountain slopes, thickets at forest margins; 600–2600 m. NE Guangxi, Guizhou, S Hunan, W Jiangxi, SE and SW Sichuan, NE Yunnan.

70. *Eurya perserrata* Kobuski, J. Arnold Arbor. 34: 134. 1953.

尖齿叶柃 jian chi ye ling

Shrubs to 3 m tall. Young branchlets grayish white, glabrous; current year branchlets terete, densely ferruginous-brown pubescent; terminal buds grayish brown pubescent. Petiole ca. 1 mm, pubescent; leaf blade oblong-elliptic to oblong-ovate, 14–20 × 4–6 cm, leathery to thickly leathery, abaxially pale brown and sparsely pubescent, adaxially glabrous and yellowish green when dry, midvein abaxially elevated and adaxially impressed, secondary veins 13–16 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially impressed, base broadly cuneate to obtuse, margin closely spinescent serrulate with teeth 1.5–2 mm, apex acuminate. Flowers axillary, 2 or 3 in a cluster. Pedicel 1.5–2 mm. Male flowers: bracteoles ovate, ca. 1 mm; sepals orbicular, 3–3.5 mm, outside pubescent, margin ciliolate, apex rounded and retuse; petals obovate-oblong,

5–6 mm; stamens ca. 15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong, ca. 5 mm; ovary globose, glabrous, 3-loculed; style apically 3-parted. Fruit globose, 5–6 mm in diam. Fl. Nov–Jan, fr. May–Jul.

- Forests; 1300–2600 m. Yunnan (Gongshan).

This species is expected to be found in N Myanmar.

71. *Eurya hebeclados* Y. Ling, Acta Phytotax. Sin. 1: 208. 1951.

微毛柃 wei mao ling

Eurya linearis Hu & L. K. Ling.

Shrubs or trees, 1.5–5 m tall. Young branches grayish brown, glabrous or glabrescent; current year branchlets yellowish green to pale brown, terete, densely gray puberulent; terminal buds 3–7 mm, densely gray puberulent. Petiole 2–4 mm, puberulent; leaf blade oblong-elliptic, elliptic, or oblong-obovate, 4–9 × 1.5–3.5 cm, leathery, abaxially yellowish green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, slender, abaxially slightly raised, and adaxially obscure, base cuneate, margin serrulate, apex acute and with an obtuse tip. Flowers axillary, 4–7 in a cluster. Pedicel ca. 1 mm, puberulent. Male flowers: bracteoles orbicular, very small; sepals suborbicular, 2.5–3 mm, membranous, outside puberulent, margin ciliolate, apex rounded and mucronate; petals oblong-obovate, ca. 3.5 mm; stamens ca. 15; anthers not locellate. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller and glabrous; petals obovate to spatulate, ca. 2.5 mm; ovary ovoid, glabrous, 3-loculed; style ca. 1 mm, apically 3-parted. Fruit bluish black when mature, globose, 4–5 mm in diam., with 10–12 seeds per locule. Seeds dark brown, reniform. Fl. Dec–Jan, fr. Aug–Oct.

- Forests or thickets on mountain slopes; 200–1700 m. S Anhui, Fujian, N Guangdong, Guangxi, SE Guizhou, Henan, W Hubei, Hunan, S Jiangsu, Jiangxi, SE Sichuan, Zhejiang.

72. *Eurya alata* Kobuski, J. Arnold Arbor. 20: 361. 1939.

翅柃 chi ling

Shrubs 1–3 m tall. Young branches grayish brown, 4-ribbed; current year branchlets pale brown, 4-ribbed, glabrous; terminal buds glabrous. Petiole ca. 4 mm, glabrous; leaf blade oblong to elliptic, 4–7.5 × 1.5–2.5 cm, leathery, abaxially yellowish green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6–8 on each side of midvein, abaxially slightly raised, and adaxially obscure to rarely slightly impressed, base cuneate, margin closely serrulate, apex abruptly shortly caudate to rarely acuminate and with an obtuse tip. Flowers axillary, solitary or 3 in a cluster. Pedicel 2–3 mm, glabrous. Male flowers: bracteoles suborbicular, glabrous; sepals suborbicular, ca. 2 mm, membranous, glabrous, apex obtuse; petals obovate-oblong, 3–3.5 mm; stamens ca. 15; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers; petals oblong, ca. 2.5 mm; ovary globose, glabrous, 3-loculed; style ca. 1.5 mm, apically 3-lobed.

Fruit bluish black when mature, globose, ca. 4 mm in diam. Fl. Oct–Nov, fr. Jun–Aug.

• Forests on mountain slopes or in valleys; 300–1600 m. S Anhui, Fujian, N Guangdong, N Guangxi, E Guizhou, Henan, W Hubei, Hunan, E Jiangxi, S Shaanxi, E Sichuan, S Zhejiang.

73. *Eurya obtusifolia* Hung T. Chang, Acta Phytotax. Sin. 3: 34. 1954.

钝叶柃 *dun ye ling*

Shrubs 1–3 m tall. Young branches grayish brown, glabrous or glabrescent; current year branchlets terete or 2-ribbed, puberulent; terminal buds puberulent and yellow pubescent. Petiole 1–1.5 mm, puberulent; leaf blade oblong to oblong-elliptic, 3–5.5(–7) × 1–2.2(–3) cm, leathery, abaxially yellowish green, adaxially dark green or golden yellow, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5–7 on each side of midvein and obscure on both surfaces, base cuneate, margin basally entire and apically sparsely serrate, apex obtuse, subrounded, or rarely acuminate. Flowers axillary, solitary or to 4 in a cluster. Pedicel 1–1.5 mm, puberulent to sparsely pubescent. Male flowers: bracteoles suborbicular, ca. 0.5 mm, puberulent to sparsely pubescent; sepals suborbicular, 1–1.5 mm, membranous, outside puberulent to sparsely pubescent, apex rounded and mucronate; petals oblong to elliptic, ca. 3 mm; stamens ca. 10; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals ovate to elliptic, ca. 2 mm; ovary globose, glabrous, 3-loculed; style ca. 1 mm, apically 3-lobed. Fruit bluish black when mature, globose, 3–4 mm in diam. Fl. Nov–Mar, fr. Aug–Oct.

• Forests, thickets; 400–2600 m. N Guangxi, Guizhou, W Hubei, NW Hunan, S Shaanxi, Sichuan, NE Yunnan.

- 1a. Current year branchlets terete; leaf blade adaxially dark green 73a. var. *obtusifolia*
 1b. Current year branchlets 2-ribbed; leaf blade adaxially golden yellow 73b. var. *aurea*

73a. *Eurya obtusifolia* var. *obtusifolia*

钝叶柃(原变种) *dun ye ling* (*yuan bian zhong*)

Current year branchlets terete. Leaf blade adaxially dark green. Fl. Feb–Mar, fr. Aug–Oct.

• Forests, thickets; 400–1500 m. Guizhou, W Hubei, NW Hunan, S Shaanxi, Sichuan, NE Yunnan.

73b. *Eurya obtusifolia* var. *aurea* (H. Léveillé) T. L. Ming, Fl. Yunnan. 8: 371. 1997.

金叶柃 *jin ye ling*

Rapanea aurea H. Léveillé, Repert. Spec. Nov. Regni Veg. 10: 376. 1912, p.p. as to *Cavalerie 839*; *Eurya aurea* (H. Léveillé) Hu & L. K. Ling.

Current year branchlets 2-ribbed. Leaf blade adaxially golden yellow. Fl. Nov–Feb, fr. Jul–Sep.

• Forests, thickets; 500–2600 m. N Guangxi, Guizhou, W Hubei, E Sichuan, NE Yunnan.

74. *Eurya yunnanensis* P. S. Hsu, Acta Phytotax. Sin. 9: 91. 1964.

云南柃 *yun nan ling*

Shrubs 2–3 m tall. Young branches grayish brown, pubescent or glabrescent; current year branchlets terete, densely yellowish brown pubescent; terminal buds pubescent. Petiole ca. 1 mm, pubescent; leaf blade oblong, oblong-elliptic, oblong-ovate, 2–6 × 1–2.5 cm, leathery, abaxially yellowish green and pubescent along midvein, adaxially dark green, shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 9–11 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially impressed, base cuneate to broadly cuneate, margin basal 1/2 entire and apical 1/2 serrulate, apex acuminate to shortly acuminate and with an obtuse to retuse tip. Flowers axillary, solitary or paired. Pedicel 1–2 mm, glabrescent. Male flowers: bracteoles suborbicular, ca. 0.5 mm, outside pubescent, margin ciliolate, apex rounded; sepals orbicular, ca. 2 mm, membranous, outside pubescent, margin ciliolate, apex rounded; petals obovate, ca. 4 mm; stamens 5 or 6; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong-ovate; ovary ovoid, glabrous, 3-loculed; style ca. 1.5 mm, apically 3-lobed. Fruit globose, ca. 4 mm in diam. Fl. Oct–Nov, fr. May–Jul.

• Forests or thickets on mountain slopes; 1900–3100 m. SE and W Yunnan.

75. *Eurya wenshanensis* Hu & L. K. Ling, Acta Phytotax. Sin. 11: 335. 1966.

文山柃 *wen shan ling*

Shrubs 2–3 m tall. Young branches grayish brown, pubescent or glabrescent; current year branchlets terete, densely yellowish brown pubescent; terminal buds pubescent. Petiole ca. 1 mm, pubescent; leaf blade elliptic to oblong-elliptic, 1.5–2.7 × 0.7–1.2 cm, leathery, abaxially pale green and pubescent along midvein, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 6–8 on each side of midvein, abaxially raised, and adaxially impressed, base cuneate, margin basally entire and apical 1/2 obtusely serrate, apex acute to obtuse and with a retuse tip. Flowers axillary, solitary or paired. Pedicel 2–3 mm, sparsely pubescent. Male flowers: bracteoles ovate, ca. 0.5 mm, outside pubescent; sepals ovate to broadly elliptic, ca. 2 mm, outside pubescent, margin ciliolate, apex rounded and mucronate; petals ovate, 3–3.5 mm; stamens 5–8; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong, ca. 2 mm; ovary ovoid, glabrous; style ca. 1 mm, 3-parted to near base. Fruit globose, ca. 3.5 mm in diam., with 3 or 4 seeds per locule. Seeds blackish brown, reniform. Fl. May, fr. Oct–Nov.

• Forests or thickets on mountain slopes; 1800–2200 m. NE and SE Yunnan.

76. *Eurya leptophylla* Hayata, Icon. Pl. Formosan. 9: 5. 1920.

菠叶柃 *bo ye ling*

Eurya leptophylla var. *tsushanensis* Y. C. Liu & F. Y. Lu.

Shrubs. Young branches grayish brown, glabrous or glabrescent; current year branchlets terete, slender, densely yellowish brown pubescent; terminal buds pubescent. Petiole 1–2 mm, glabrous; leaf blade oblong, oblong-lanceolate, or elliptic-lanceolate, 2.5–3.5 × 1–1.5 cm, thinly leathery, abaxially pale green and pubescent along midvein or glabrescent, adaxially dark green, slightly shiny, and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5–7 on each side of midvein, abaxially ± visible, and adaxially obscure, base cuneate, margin obtusely serrate, apex acuminate to acute and with an obtuse tip. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 2 mm, slender, glabrous. Male flowers: bracteoles very small; sepals suborbicular, 1.5–2 mm, glabrous, apex rounded and retuse with a mucronate tip; petals oblong, ca. 3 mm; stamens 7 or 8; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong to ovate, ca. 2 mm; ovary ovoid, glabrous, 3-loculed; style ca. 1 mm, apically 3-lobed. Fruit globose, 2–3 mm in diam. Fl. Feb–Mar, fr. Jun–Sep.

• Forests or thickets on mountain slopes; 1300–3000 m. C and E Taiwan.

77. *Eurya crenatifolia* (Yamamoto) Kobuski, Ann. Missouri Bot. Gard. 25: 332. 1938.

钝齿柃 *dun chi ling*

Pseudoeurya crenatifolia Yamamoto, J. Soc. Trop. Agric. 5: 351. 1933.

Shrubs. Young branches grayish brown to grayish white, glabrous; current year branchlets terete, pubescent; terminal buds sparsely pubescent. Petiole 1–1.5 mm, pubescent or glabrescent; leaf blade elliptic to obovate-oblong, 1–2.5 × 0.8–1.5 cm, leathery, abaxially pale green and glabrous or sparsely pubescent along midvein when young, adaxially green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5 or 6 on each side of midvein, abaxially raised, and adaxially obscure to slightly impressed, base cuneate to broadly cuneate, margin crenate-serrate, apex acute and with an obtuse to retuse tip. Flowers axillary, solitary or to 4 in a cluster. Pedicel 1.5–2 mm, glabrous. Male flowers: bracteoles ovate to suborbicular, ca. 0.5 mm, outside sparsely pubescent; sepals ovate to suborbicular, 1–1.5 mm, glabrous, apex obtuse to rounded; petals obovate to ovate, ca. 1.5 mm; stamens 5; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers; petals ovate, ca. 1.5 mm; ovary globose, glabrous, 3-loculed; style ca. 1 mm, apically 3-parted. Fruit globose, ca. 3 mm in diam., with 1–4 seeds per locule. Seeds dark brown, reniform. Fl. Feb–Mar, fr. Jun–Sep.

• Forests on mountain slopes; 700–2300 m. E and N Taiwan.

78. *Eurya pyracanthifolia* P. S. Hsu, Acta Phytotax. Sin. 9: 90. 1964.

火棘叶柃 *huo ji ye ling*

Shrubs 1–3 m tall. Young branches brown to grayish brown, pubescent to subglabrous; current year branchlets terete,

densely yellowish brown pubescent; terminal buds yellowish brown pubescent. Petiole ca. 1.5 mm; leaf blade obovate to obovate-spatulate, 2–3.5 × 1–1.5 cm, leathery, abaxially pale green, glabrous or sparsely pubescent along midvein, and becoming yellowish green when dry, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 4 or 5 on each side of midvein, secondary and reticulate veins abaxially slightly raised and adaxially slightly impressed, base broadly cuneate, margin crenate-serrulate, apex rounded to obtuse and with a retuse tip. Flowers axillary, 2–4 in a cluster. Pedicel 1.5–2 mm, glabrous. Male flowers: bracteoles ovate, ca. 0.7 mm; sepals ovate, ca. 2 mm, outside glabrous, margin ciliolate and ± glandular or sometimes only glandular, apex rounded and mucronate; petals obovate, 2–2.5 mm; stamens 5(or 6); anthers not locellate; pistillode glabrous. Female flowers: bracteoles, sepals, and petals similar to those of male flowers; ovary ovoid, glabrous, 3-loculed; style ca. 0.7 mm, apically 3-lobed. Fruit ovoid, ca. 4 × 3 mm. Fl. Nov–Dec, fr. Jul–Aug.

• Forests or thickets on mountain slopes; 1200–2600 m. E and W Yunnan.

79. *Eurya saxicola* Hung T. Chang, Acta Phytotax. Sin. 3: 27. 1954.

岩柃 *yan ling*

Eurya hwangshanensis P. S. Hsu; *E. saxicola* f. *puberula* Hung T. Chang.

Shrubs 1.2–4 m tall. Young branches grayish brown; current year branchlets terete or 2-ribbed, glabrous or densely puberulent; terminal buds glabrous or puberulent. Petiole 2–3 mm, glabrous; leaf blade obovate, obovate-elliptic, obovate-oblong, or oblanceolate, 1.5–3 × 0.8–1.5 cm, thickly leathery, abaxially yellowish green, adaxially dark green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5–7, secondary and reticulate veins abaxially slightly raised and adaxially impressed, base broadly cuneate, margin closely serrulate, apex rounded to obtuse and with a retuse tip. Flowers axillary, solitary or to 4 in a cluster. Pedicel 1.5–2 mm, glabrous. Male flowers: bracteoles very small, glabrous; sepals suborbicular, ca. 1.2 mm, outside glabrous, apex rounded and mucronate; petals obovate, ca. 1.5 mm; stamens 5(or 6); anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers; petals obovate to ovate, ca. 1.5 mm, apex rounded; ovary globose, glabrous, 3-loculed; style 0.5–1 mm, apically 3-lobed. Fruit purplish black when mature, globose, 3–4 mm in diam. Fl. Sep–Oct, fr. Jun–Aug.

• Forests or thickets on mountaintops or sheer precipices and overhanging cliffs; 1500–2100 m. SE Anhui, C, N, and W Fujian, N Guangdong, N Guangxi, S Hunan, Jiangxi, S Zhejiang.

80. *Eurya marlipoensis* Hu, Acta Phytotax. Sin. 11: 338. 1966.

麻栗坡柃 *ma li po ling*

Shrubs 1.5–2 m tall. Young branches grayish brown, slightly 2-ribbed; current year branchlets pale brown, 2-ribbed, glabrous; terminal buds glabrous. Petiole 1–1.5 mm, glabrous;

leaf blade obovate to obovate-oblong, 1.5–2.8 × 0.8–1.3 cm, thinly leathery, abaxially pale green, adaxially green and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 5 or 6 on each side of midvein, abaxially raised, and adaxially obscure to slightly impressed, base cuneate, margin obtusely serrate, apex rounded and with a retuse tip. Male flowers not seen. Female flowers axillary, solitary or paired; pedicel ca. 1 mm, slender, glabrous; bracteoles ovate, very small, apex acute; sepals ovate to suborbicular, 1–1.3 mm, outside glabrous, margin ciliolate, apex rounded and mucronate; petals oblong to obovate-elliptic, 2–2.3 mm; ovary ovoid, glabrous, 2(or 3)-loculed, with 2 ovules per locule; style ca. 1 mm, apically 2(or 3)-lobed. Fruit ovoid, ca. 3.5 mm in diam. Fl. Nov.

- Forests on mountain slopes; 1400–1800 m. Yunnan (Malipo).

81. *Eurya crassilimba* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 22(3): 66. 1983.

厚叶柃 *hou ye ling*

Shrubs 1.5–4 m tall. Young branches grayish brown; current year branchlets dark brown, terete, glabrous; terminal buds 6–9 mm, glabrous. Petiole 4–6 mm, glabrous; leaf blade oblong, 9–12 × 3–4 cm, thickly leathery, abaxially pale yellowish green, adaxially yellowish green when dry, golden yellow glandular punctate, and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–13 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially impressed, base rounded, margin closely serrulate, apex acute and with an obtuse tip. Male flowers axillary, solitary or paired; pedicel 2–3 mm, glabrous; bracteoles ovate, very small, glabrous; sepals suborbicular, ca. 2 mm, leathery, glabrous; petals ovate, 3–4 mm; stamens 5; anthers not locellate; pistillode glabrous. Female flowers and fruit not seen. Fl. Sep–Oct.

- Forests on mountain slopes; 2200–2500 m. Xizang (Médog).

82. *Eurya cavinervis* Vesque, Bull. Soc. Bot. France 42: 158. 1895.

云南凹脉柃 *yun nan ao mai ling*

Eurya cavinervis f. *laevis* Hung T. Chang; *E. fangii* Rehder var. *glaberrima* P. S. Hsu; *E. handeliana* Kobuski.

Shrubs or trees, 1–8 m tall. Young branches grayish brown, slightly 2-ribbed; current year branchlets reddish brown, 2-ribbed, glabrous; terminal buds glabrous. Petiole 2–5 mm, glabrous; leaf blade narrowly elliptic, oblong, or oblong-oblan- ceolate, 3–7 × 1–2.5 cm, thickly leathery to leathery, abaxially

pale green, adaxially yellowish green to dark green, sometimes golden yellow glandular punctate, and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 8–10 on each side of midvein, secondary and reticulate veins abaxially slightly raised and adaxially im- pressed or level, base cuneate, margin closely serrulate, apex acute and with an obtuse to retuse tip. Flowers axillary, solitary or to 3 in a cluster. Pedicel ca. 2 mm, glabrous. Male flowers: bracteoles suborbicular, ca. 0.5 mm, glabrous; sepals subor- bicular, 1.5–2 mm, outside glabrous, margin brown glandular, apex rounded; petals obovate, ca. 4 mm; stamens 5–7; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals ca. 2.5 mm; ovary globose, glabrous; style 0.5–1 mm, apically 3-lobed. Fruit globose, 3–4 mm in diam. Fl. Nov–Jan, fr. Jul–Sep.

Forests or thickets on mountain slopes; 600–3500 m. NE and S Guangxi, SE Xizang, NW and W Yunnan [Bhutan, India (Sikkim), Myanmar, Nepal].

83. *Eurya chuekiangensis* Hu, Bull. Fan Mem. Inst. Biol., Bot. 8: 147. 1938.

大果柃 *da guo ling*

Shrubs 1–3.5 m tall. Young branches grayish brown; cur- rent year branchlets pale green, 2-ribbed, glabrous; terminal buds glabrous. Petiole 3–4 mm, glabrous; leaf blade oblong to oblong-lanceolate, 6–10 × 1.6–3 cm, leathery, abaxially pale brown, adaxially yellowish green, golden yellow glandular punctate, and shiny, both surfaces glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 12–14 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially impressed, base broadly cuneate to sub- rounded, margin closely serrulate, apex acuminate. Flowers axillary, solitary or to 3 in a cluster. Pedicel 2–3 mm, glabrous. Male flowers: bracteoles suborbicular, ca. 1 mm, outside pubes- cent, margin ciliolate; sepals ovate to oblong-ovate, 3–4 mm, leathery, outside pubescent or glabrescent, margin ciliolate, apex obtuse to subrounded; petals obovate-oblong to oblong, ca. 4 mm; stamens 5; anthers not locellate; pistillode glabrous. Female flowers: bracteoles and sepals similar to those of male flowers but slightly smaller; petals oblong, 2.5–3 mm; ovary long ovoid, glabrous, 3-loculed; style ca. 1 mm, apically 3- parted. Fruit purplish brown when mature, long ovoid to ovoid- ellipsoid, ca. 13 × 6 mm. Fl. Nov–Dec, fr. Jul–Sep.

- Forests or thickets on mountain slopes or in valleys; 2200–3000 m. Xizang (Médog), Yunnan (Gongshan).

This species is expected to be found in N Myanmar.

ADDENDUM

Adinandra angustifolia (S. H. Chun ex H. G. Ye) B. M. Bartholomew & T. L. Ming, **comb. nov.**

狭叶杨桐 *xia ye yang tong*

Basionym: *Cleyera angustifolia* S. H. Chun ex H. G. Ye, J. Trop. Subtrop. Bot. 9: 313. 2001.

Shrubs. Branchlets slender; terminal buds glabrous. Petiole 3–8 mm, glabrous; leaf blade narrowly lanceolate, 3.5–7.5 × 0.4–0.7 cm, both surfaces glabrous, midvein elevated on both surfaces, secondary veins 6–9 on each side of midvein, base narrowly cuneate, margin entire and revolute, apex acuminate and with a black mucro. Flowers solitary. Pedicel 2.4–2.7 cm;

bracteoles 2, ovate, ca. 2 mm. Sepals ovate, 3–4 × 2–3 mm, margin ciliate, apex obtuse. Petals white, obovate-oblong, 9–19 × 5–7 mm, apex acute. Stamens ca. 25, in 3 whorls, 6–7 mm; filaments 4–5 mm; anthers ca. 2 mm, with filiform trichomes, apex mucronate. Ovary ovoid-globose, glabrous; style ca. 5.5 mm, simple, glabrous. Fruit and seeds unknown. Fl. Apr.

- Hainan (Jianfeng Ling).

The stamens in three whorls and a simple style place this species in *Adinandra* rather than in *Cleyera*. However, the seeds of the two genera are quite different and need to be examined when appropriate material becomes available.