

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. pingpiensis*
 - 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, exfoliating. 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, thin 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), persis-

tent, 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.

叶薯核果茶 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. *camelliflora* (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, oblate 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 scarious and ciliolate. Petals 5, pale yellow, obovate to oblong-obovate, 2–25 × 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 flavescens 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 tomentose; 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 thinly 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 semi-orbicular, 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. An-

hui, 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 oblate, 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.

Flora of China 12: 412–417. 2007.