

4. BERCHEMIA Necker ex Candolle, Prodr. 2: 22. 1825, nom. cons.

勾儿茶属 *gou er cha shu*

Oenoplea Michaux ex R. Hedwig.

Shrubs climbing or erect, evergreen to deciduous, rarely small trees, unarmed. Leaves alternate; stipules connate at base, persistent, rarely caducous; leaf blade mostly papery, margin entire, venation pinnate, with 4–18 pairs of strongly parallel secondary and mostly strongly parallel tertiary veins. Flowers bisexual, pedicellate, 5-merous, glabrous, in thyrses composed of mainly few flowered, terminal or axillary, pedunculate to sessile, corymblike cymes. Calyx tube disk- to cup-shaped or hemispherical. Sepals triangular, rarely linear or narrowly lanceolate, adaxially ± distinctly keeled. Petals spatulate to lanceolate, shorter than or ca. as long as sepals, shortly clawed. Stamens dorsifixed, equaling petals or slightly shorter. Disk mainly fleshy, filling calyx tube, with 10 irregular lobes, free at margin. Ovary superior, ± deeply immersed in disk, 2-loculed, with 1 ovule per locule; styles cylindrical, short, undivided; stigma large, entire, emarginate, or 2-fid. Drupe single-stoned, purple-red or purple-black, often turning black at maturity, mostly cylindrical, rarely obovate, base with persistent calyx tube and disk remnants, apex often with rudimentary style; mesocarp fleshy, thin, sometimes sweet-tasting; endocarp stiffly cartilaginous, 2-loculed, locules 1-seeded.

About 32 species: mainly in temperate and tropical areas of E to SE Asia; 19 species (12 endemic) in China.

Berchemia alnifolia H. Léveillé (Repert. Spec. Nov. Regni Veg. 10: 433. 1912) is the basionym of *Corylopsis alnifolia* (H. Léveillé) C. K. Schneider in the Hamamelidaceae (see Fl. China 9: 37. 2003).

Berchemia sessiliflora Benth (Fl. Hongk. 68. 1861), described from Hong Kong, could not be treated here because no material was seen by the authors.

The roots, stems, and leaves in some species are used medicinally. The young leaves are used as a substitute for tea.

- 1a. Flowers few, solitary or 2- or 3-fascicled in leaf axils; leaves relatively small, not more than 2 × 1.3 cm, lateral veins 4–6 pairs; low shrubs (*B. sect. Axilliflorae* Y. L. Chen & P. K. Chou).
 - 2a. Leaves uniform, papery, 4–10 × 3–6 mm, petioles 1–2 mm; pedicels to 4 mm; petals oblong-spatulate, apex obtuse 1. *B. edgeworthii*
 - 2b. Leaves dimorphic, thinly papery, 12–20 × 8–13 mm, petioles 3–7 mm; pedicels to 9 mm; petals triangular-ovate, apex acute 2. *B. longipedicellata*
- 1b. Flowers numerous, usually in terminal or axillary, cymose racemes or cymose panicles; leaves relatively large, lateral veins 8–18 pairs (except *B. lineata*); scandent shrubs (*B. sect. Berchemia*).
 - 3a. Flowers usually in simple, cymose racemes.
 - 4a. Flowers 3–12 in terminal or axillary, cymose racemes 8. *B. longipes*
 - 4b. Flowers few in pedunculate cymes.
 - 5a. Rachis, branchlets, and petioles pubescent.
 - 6a. Leaves 0.5–2 × 0.4–1.2 cm, lateral veins 4 or 5 (or 6) pairs, petioles to 2 mm; flowers usually few to 10 in terminal, cymose racemes; sepals linear or narrowly lanceolate-linear 3. *B. lineata*
 - 6b. Leaves to 5.5 × 3 cm, lateral veins 7–9 pairs, petioles 3–6 mm; flowers more numerous, in terminal or axillary, cymose racemes; sepals ovate-triangular 4. *B. polyphylla*
 - 5b. Rachis and branchlets glabrous; petioles glabrous or pubescent.
 - 7a. Petioles abaxially pubescent 4. *B. polyphylla*
 - 7b. Petioles glabrous.
 - 8a. Leaves to 3 × 1.5 cm 5. *B. formosana*
 - 8b. Leaves to 6.5 × 3 cm.
 - 9a. Leaves apically rounded-obtuse, rarely acute, abaxially grayish white when dry; drupe basally with cup-shaped remnants of disk 6. *B. kulingensis*
 - 9b. Leaves apically acute to obtuse, finely mucronate, abaxially turning yellow when dry; drupe basally with shallow dish-shaped remnants of calyx tube and disk 7. *B. yunnanensis*
 - 3b. Flowers in racemose or cymose panicles.
 - 10a. Rachis usually densely pubescent, rarely glabrous.
 - 11a. Drupe obovoid-globose; leaf blade to 20 cm, both surfaces glabrous, abaxially pubescent on veins 9. *B. annamensis*
 - 11b. Drupe cylindrical; leaf blade distinctly smaller, to 10 cm, adaxially pubescent.
 - 12a. Drupe 1.1–1.4 cm; leaves apically acuminate or shortly acuminate; young branches and petioles ± densely pubescent 10. *B. hirtella*
 - 12b. Drupe to 1 cm; leaves apically obtuse or rounded, rarely acute; young branches and petioles glabrous.
 - 13a. Leaves thinly papery to papery, lateral veins 10–14 pairs, petioles to 2.5 cm 11. *B. huana*
 - 13b. Leaves papery to subleathery, lateral veins 12–17 pairs, petioles to 4 cm 12. *B. hispida*
 - 10b. Rachis glabrous, rarely sparsely puberulent.

- 14a. Leaves abaxially pubescent in vein axils, grayish white when dry, lateral veins 7–13 pairs.
 15a. Flowers in racemose, broadly cymose panicles; leaves subleathery, apex shortly acuminate; drupe 10–13 mm 15. *B. omeiensis*
 15b. Flowers in racemose, narrowly cymose panicles; leaves papery, apex obtuse or rounded; drupe 5–9 mm.
 16a. Stem without short shoots; leaves exclusively alternate, thinly papery, abaxially densely pubescent in vein axils 13. *B. barbiger*
 16b. Stem with long and short shoots; leaves alternate or fascicled on short shoots, thickly papery, abaxially sparsely pubescent in vein axils 14. *B. sinica*
 14b. Leaves glabrous or abaxially sparsely pubescent on veins, not grayish white when dry, lateral veins (9–)12–18 pairs.
 17a. Leaves glabrous or abaxially sparsely pubescent on veins, lateral veins 9–12 pairs; flowers in elongated racemose or broadly cymose panicles 19. *B. floribunda*
 17b. Leaves glabrous, lateral veins 12–18 pairs; flowers in short racemose, narrowly cymose panicles.
 18a. Leaves abaxially turning golden-yellow when dry; drupe ripening in May–Jun of following year 18. *B. flavescens*
 18b. Leaves abaxially not turning yellow when dry; drupe ripening in Sep–Dec of current year.
 19a. Leaf blade thickly papery or subleathery, abaxially reddish when dry, both surfaces glabrous; drupe 6–7 mm, ripening in Sep–Oct of current year 16. *B. brachycarpa*
 19b. Leaf blade papery, abaxially gray-green, puberulous; drupe 7–12 mm, ripening in Nov–Dec of current year 17. *B. medogensis*

1. *Berchemia edgeworthii* M. A. Lawson in J. D. Hooker, Fl. Brit. India 1: 638. 1875.

腋花勾儿茶 ye hua gou er cha

Berchemia axilliflora W. C. Cheng; *B. nana* W. W. Smith.

Shrubs erect, ca. 2 m tall, branched. Branchlets smooth, glabrous. Stipules narrowly lanceolate, ca. as long as petioles or slightly longer, persistent; petiole 1–2 mm, glabrous; leaf blade abaxially greenish, adaxially green, ovate, oblong, or suborbicular, very small, 4–10 × 3–6 mm, thinly papery, adaxially glabrous, lateral veins 4 or 5 pairs, base rounded, apex obtuse, mucronulate. Flowers white, 2.5–3 mm in diam., glabrous, solitary or 2- or 3-fascicled in axils of leaves. Pedicel 2–4 mm. Sepals ovate-triangular. Petals oblong-spatulate, ca. as long as stamens, apically obtuse or acute. Drupe orange or purple at maturity, cylindrical, 7–9 mm, 3–4 mm in diam., with inconspicuous remnants of disk and calyx tube at base; mesocarp sweet; fruiting pedicel 2–4 mm, glabrous. Fl. Jul–Oct, fr. Apr–Jul of following year.

Subalpine thickets, cliffs; 2100–4500 m. SW and W Sichuan, S and SE Xizang, NW Yunnan [Bhutan, India (Sikkim), Kashmir, Nepal].

2. *Berchemia longipedicellata* Y. L. Chen & P. K. Chou, Acta Phytotax. Sin. 18: 249. 1980.

细梗勾儿茶 xi geng gou er cha

Shrubs erect, low, ca. 1 m tall. Branchlets yellow-green, smooth, glabrous. Leaves dimorphic; stipules lanceolate, ca. 4 mm, membranous, persistent; petiole 3–7 mm, slender, glabrous; leaf blade abaxially greenish, adaxially green, oblong-elliptic or ovate-oblong, larger ones 12–20 × 8–13 mm, smaller ones 6–10 × 4–6 mm, thinly papery, both surfaces glabrous, lateral veins 5 or 6 (or 7) pairs, base rounded or subrounded, apex obtuse, mucronulate. Flowers yellow-green, glabrous, solitary

or 2- or 3-fascicled in axils of leaves. Pedicel 4–9 mm, slender. Sepals triangular, ca. 2 mm, apex acuminate. Petals white, subovate, very small, apex acuminate, rarely 2-fid. Stamens slightly shorter than petals. Drupe subcylindric, 5–6 mm, ca. 3 mm in diam., with persistent disk and calyx tube at base; fruiting pedicel 7–11 mm. Fl. Jun, fr. Jul–Oct.

- Sparse forests on slopes; 2100–3100 m. S and SE Xizang.

3. *Berchemia lineata* (Linnaeus) Candolle, Prodr. 2: 23. 1825.

铁包金 tie bao jin

Rhamnus lineata Linnaeus, Cent. Pl. 2: 11. 1756.

Shrubs, prostrate or procumbent, rarely to 2 m tall. Branchlets yellow-green, densely pubescent; older branches glabrescent. Stipules remarkable, reddish, lanceolate, 3–5 mm, persistent; petiole 1–3 mm, pubescent; leaf blade abaxially greenish and with minute dark pits, adaxially dark green, broadly elliptic or oblong-ovate, 5–20 × 4–12 mm, papery, both surfaces glabrous, lateral veins 4–6 pairs, base rounded, apex rounded or obtuse, with a mucro 1–2 mm, often slightly emarginate. Flowers white, very small, 4–5 mm in diam., in terminal cymose racemes or in fascicles of few to 10 in leaf axils. Pedicel 2.5–4 mm, glabrous. Calyx tube campanulate; lobes triangular-lanceolate, ca. 1.5 mm. Petals lanceolate, ca. 2.5 mm. Stamens slightly longer than petals, with very thin, flat filaments. Drupe yellowish green when young, dark blue and waxy at maturity, globose to ovoid to ellipsoid, 5–6 mm, to 3 mm in diam., with persistent disk and calyx tube at base; fruiting pedicel 4.5–5 mm, pilose. Fl. Jul–Oct, fr. Nov.

Hills, open places, roadsides; low elevations. Fujian, Guangdong, Guangxi, Hainan, Taiwan [India, Japan, Vietnam].

The roots and leaves are used medicinally for relieving coughs and reducing sputum and for treating injuries, trauma, and snakebites.

4. *Berchemia polyphylla* Wallich ex M. A. Lawson in J. D. Hooker, Fl. Brit. India 1: 638. 1875.

多叶勾儿茶 *duo ye gou er cha*

Shrubs scandent, 3–4 m tall. Branchlets yellow-brown, pubescent or glabrous. Stipules lanceolate-subulate, minute, basally connate, persistent; petiole 3–6 mm, pubescent or sparsely so; leaf blade abaxially greenish, often turning yellow when dry, adaxially deep green, ovate-elliptic, ovate-oblong, or elliptic, 1.5–4.5(–5.5) × 0.8–2(–3) cm, papery, both surfaces glabrous or at least abaxially pubescent on veins, lateral veins 7–9 pairs, conspicuously prominent abaxially, slightly prominent adaxially, base rounded, rarely broadly cuneate, apex rounded or obtuse, rarely acute, often mucronulate. Flowers greenish or white, glabrous, usually 2–10-fascicled in pedunculate cymose racemes or rarely in shortly branched narrow cymose panicles at lower part of terminal inflorescences, ca. 7 cm; rachis sparsely or densely pubescent. Pedicel 2–5 mm. Sepals ovate-triangular or triangular, apex acute. Petals suborbicular. Drupe red at maturity, turning black, cylindrical, 7–9 mm, 3–3.5 mm in diam., base with persistent disk and tube, apex acute; fruiting pedicel 3–6 mm. Fl. May–Sep, fr. Jul–Nov.

Mountain forests, forests in valleys, forest margins, thickets, slopes; 100–2100 m. Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Yunnan [India, Myanmar].

- 1a. Branchlets glabrous 4b. var. *leioclada*
1b. Branchlets pubescent.
2a. Leaves glabrous on both surfaces
..... 4a. var. *polyphylla*
2b. Leaves abaxially or along veins
pubescent 4c. var. *trichophylla*

4a. *Berchemia polyphylla* var. *polyphylla*

多叶勾儿茶(原变种) *duo ye gou er cha* (*yuan bian zhong*)

Berchemia trichoclada (Rehder & E. H. Wilson) Handel-Mazzetti; *B. yunnanensis* Franchet var. *trichoclada* Rehder & E. H. Wilson.

Branchlets pubescent. Leaves glabrous on both surfaces.

Mountain forests and thickets; 300–900 m. Gansu, Guangxi, Guizhou, Shaanxi, Sichuan, Yunnan [India, Myanmar].

4b. *Berchemia polyphylla* var. *leioclada* (Handel-Mazzetti) Handel-Mazzetti, Symb. Sin. 7: 672. 1933.

光枝勾儿茶 *guang zhi gou er cha*

Berchemia trichoclada var. *leioclada* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 58: 149. 1921.

Branchlets, rachis, and fruiting pedicels glabrous. Petiole only sparsely pubescent.

• Forest margins, thickets, slopes; 100–2100 m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

The roots and leaves are used medicinally. The young leaves are used as a substitute for tea.

4c. *Berchemia polyphylla* var. *trichophylla* Handel-Mazzetti, Symb. Sin. 7: 672. 1933.

毛叶勾儿茶 *mao ye gou er cha*

Branchlets, petioles, and rachis densely golden-yellow pubescent. Leaves sparsely or densely pubescent abaxially or along veins.

• Forests in valleys, thickets; 1500–1600 m. Guizhou, Yunnan.

5. *Berchemia formosana* C. K. Schneider in Sargent, Pl. Wilson. 2: 220. 1914.

台湾勾儿茶 *tai wan gou er cha*

Berchemia ohwii Kanehira & Hatusima ex Kanehira; *B. racemosa* Siebold & Zuccarini var. *formosana* (C. K. Schneider) Kitamura.

Shrubs scandent. Branchlets purple-black, glabrous. Petiole 4–8 mm, glabrous; leaf blade abaxially turning white, adaxially turning black when dry, ovate or broadly ovate-oblong, (1.5–)2–3 × 1–1.5 cm, papery, both surfaces glabrous, lateral veins 6–8 pairs, primary and lateral veins prominent on both surfaces, base rounded, apex subrounded, or slightly acute, mucronulate. Inflorescences 2–5 cm. Flowers yellow-green, usually 2- or 3-fascicled, in cymose racemes at apices of lateral branches. Pedicel 2–3 mm. Sepals ovate, apically shortly acute. Petals obovate, shorter than sepals. Drupe cylindrical to ellipsoid, 7–10 mm, 2–3 mm in diam., with persistent disk at base; fruiting pedicel 2–4 mm. Fl. autumn, fr. Apr–May of following year.

Thickets on slopes; ca. 900 m. Taiwan [Japan (Ryukyu Islands)].

6. *Berchemia kulingensis* C. K. Schneider in Sargent, Pl. Wilson. 2: 216. 1914.

牯岭勾儿茶 *gu ling gou er cha*

Shrubs scandent or climbing, to 3 m tall. Branchlets spreading, yellow, turning pale brown, glabrous. Stipules lanceolate, ca. 3 mm, basally connate; petiole 6–10 mm, glabrous; leaf blade abaxially grayish green when dry, adaxially green, ovate-elliptic or ovate-oblong, 2–6.5 × 1.5–3.5 cm, papery, both surfaces glabrous, lateral veins 7–9(or 10) pairs, veins slightly prominent on both surfaces, base rounded or subcordate, apex obtuse-rounded or acute, mucronulate. Inflorescences 3–5 cm, glabrous. Flowers green, glabrous, usually 2- or 3-fascicled in subsessile or shortly pedunculate lax cymose racemes, rarely narrowly cymose panicles. Pedicels 2–3 mm, glabrous. Sepals triangular, margin ciliate, apex acuminate. Petals obovate. Drupe red when young, black-purple at maturity, narrowly cylindrical, 7–9 mm, 3.5–4 mm in diam., with persistent cup-shaped disk at base; fruiting pedicel 2–3 mm, glabrous. Fl. Jun–Jul, fr. Apr–Jun of following year.

• Forests in valleys, forest margins, thickets; 300–2200 m. Anhui, Fujian, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Zhejiang.

The roots are used medicinally.

This species is quite similar to *Berchemia polyphylla* var. *leioclada*, but the latter differs in having shorter, pubescent petioles and fruit that matures within the same year.

7. *Berchemia yunnanensis* Franchet, Bull. Soc. Bot. France 33: 456. 1886.

云南勾儿茶 *yun nan gou er cha*

Berchemia pycnantha C. K. Schneider; *Microrhamnus mairei* H. Lévillé.

Shrubs scandent, 2.5–5 m tall. Branchlets spreading, light to yellow-green; old branches yellow-brown, glabrous. Petioles to 1.5(–2) cm, stout, glabrous; leaf blade abaxially pale green, turning yellow when dry, adaxially green, ovate-elliptic, oblong-elliptic, or ovate, 2.5–6 × 1.5–3 cm, papery, both surfaces glabrous, lateral veins 8–12 pairs, prominent on both surfaces, base broadly cuneate, apex acute to obtuse, finely mucronate. Flowers yellow, 2- or 3-fascicled in long pedunculate, terminal racemes 2–5 cm. Pedicel 3–4 mm, glabrous. Calyx tube shallowly dish-shaped, glabrous; sepals narrowly triangular, apex acute or shortly acuminate. Petals obovate, apex obtuse. Stamens slightly shorter than petals. Disk thick, fleshy, centrally distinctly convex. Ovary nearly completely immersed in but not fused with disk; style cylindrical, stout, undivided; stigma capitate, 2- or 3-lobed. Drupe red when young, turning black at maturity, cylindrical, 6–9 mm, 4–5 mm in diam., base with persistent remnants of calyx tube and cup-shaped disk, apex obtuse, never mucronulate; mesocarp thin, sweet; fruiting pedicel 4–5 mm. Fl. Jun–Aug, fr. Apr–May of following year.

• Forests, thickets, slopes, riverbanks; 1500–3900 m. Gansu, Guizhou, Shaanxi, Sichuan, E Xizang, Yunnan.

8. *Berchemia longipes* Y. L. Chen & P. K. Chou, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 5: 12. 1979.

长梗勾儿茶 *chang geng gou er cha*

Shrubs scandent, glabrous. Branchlets red-brown, smooth. Stipules ovate-triangular, ca. 2 mm, caducous; petiole remarkably long, 1.2–2.7 cm, glabrous; leaf blade abaxially grayish white, adaxially green, oblong or ovate-oblong, 4.5–6.5 × 2.5–4 cm, papery, lateral veins 10–12 pairs, slightly prominent on both surfaces, base rounded, apex shortly acuminate, rarely acute. Inflorescences to 6 cm, glabrous. Flowers white, 3–3.5 mm in diam., usually 3–12-fascicled in terminal or axillary, cymose racemes; peduncles 5–10 mm, rarely to 1.5 cm. Pedicel 4–6 mm. Sepals ovate-triangular, ca. 2 mm, apex slightly obtuse. Petals spatulate, apex obtuse. Stamens longer than petals. Fruit not seen. Fl. summer, fr. unknown.

• Forests; middle elevations. SE Yunnan (Xichou).

This species is characterized by its long petioles and up to 1.5 cm long peduncles.

9. *Berchemia annamensis* Pitard in Lecomte, Fl. Indo-Chine 1: 925. 1912.

越南勾儿茶 *yue nan gou er cha*

Shrubs climbing. Young branches grayish or gray-brown, glabrous. Petiole 1–1.5 cm, glabrous; leaf blade abaxially pale green, adaxially green, ovate or ovate-elliptic, 6.5–20 × 3.5–6 cm, papery, both surfaces glabrous or abaxially sparsely pubescent on veins, glabrescent, lateral veins 8–12 pairs, prominent on both surfaces, base rounded or cordate, apex acuminate or mucronate, mucro to 5 mm. Inflorescences 5–10 cm, pubescent. Flowers yellow-green, glabrous, usually few in fascicles, in terminal, pedunculate, broad cymose panicles. Pedicel 1–2

mm, glabrous. Drupe obovoid or obovoid-elliptic, 5–7 mm, 4–5 mm in diam., apex mucronulate, with persistent cup-shaped remnants of disk at base; fruiting pedicel 2–3 mm, glabrous. Fl. Jul–Aug, fr. Apr–May of following year.

Forests, mountain thickets; middle elevations. Guangdong (Longmen), Guangxi [Vietnam].

This species is distinct in having an obovoid drupe.

10. *Berchemia hirtella* H. T. Tsai & K. M. Feng, Acta Phytotax. Sin. 1: 190. 1951.

大果勾儿茶 *da guo gou er cha*

Shrubs scandent. Branchlets spreading, yellow-green, sparsely pubescent; old branches turning brown, glabrescent. Stipules ovate, ciliate, caducous; petiole 1.5–2 cm; leaf blade abaxially gray-yellow, adaxially dark brown when dry, ovate-elliptic or oblong, 6.5–10 × 4–6 cm, papery, adaxially glabrous or white powdery, densely pubescent or glabrous, or sparsely pubescent on veins, or clustered hairy in vein axils, lateral veins 11–13 pairs, prominent on both surfaces, base cordate or subrounded, apex shortly acuminate. Inflorescences rather large, to 20 × 7 cm; rachis pubescent. Flowers usually in broad cymose panicles at ends of lateral branches. Pedicel 1–1.5 cm, glabrous or subglabrous. Drupe purple-red at maturity, cylindrical-ellipsoid, 1.1–1.4 cm, 5–6 mm in diam., with persistent cup-shaped disk at base; fruiting pedicel 1.2–2 cm. Fl. May–Jun, fr. Feb–May of following year.

• Forests and thickets in valleys; 400–1500 m. Guizhou, Yunnan.

- 1a. Young branches and petioles pubescent; leaf blade abaxially densely pubescent 10a. var. *hirtella*
- 1b. Young branches and petioles glabrous; leaf blade abaxially glabrous or sparsely pubescent on veins and in vein axils 10b. var. *glabrescens*

10a. *Berchemia hirtella* var. *hirtella*

大果勾儿茶(原变种) *da guo gou er cha (yuan bian zhong)*

Young branches and petioles pubescent. Leaf blade abaxially densely pubescent.

• Forests and thickets in valleys; 400–1500 m. Yunnan.

10b. *Berchemia hirtella* var. *glabrescens* C. Y. Wu ex Y. L. Chen & P. K. Chou, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 5: 13. 1979.

大老鼠耳 *da lao shu er*

Young branches and petioles glabrous. Leaf blade abaxially glabrous or sparsely pubescent on veins or clustered hairy in vein axils.

• Forests; ca. 1300 m. Guizhou (Anlong), Yunnan.

11. *Berchemia huana* Rehder, J. Arnold Arbor. 8: 166. 1927.

大叶勾儿茶 *da ye gou er cha*

Shrubs scandent, ca. 10 m tall. Branchlets green-brown, smooth, glabrous. Petiole 1.4–2.5 cm, glabrous; leaf blade abax-

ially yellow-green, dark brown when dry, adaxially green, ovate or ovate-oblong, 6–10 × 3–6 cm, upper leaves gradually smaller, papery or thinly papery, abaxially densely yellowish pubescent or sparsely pubescent on veins or in vein axils, adaxially glabrous, lateral veins 10–14 pairs, slightly prominent on both surfaces, base rounded or subcordate, apex rounded or slightly obtuse, rarely acute. Inflorescences comparatively large; rachis to 20 cm; branches to 8 cm, pubescent. Flowers yellowish green, glabrous, usually in terminal, broad cymose panicles, rarely in axillary, narrow cymose racemes or cymose panicles. Pedicel 1–2 mm, glabrous. Drupe purple-red or purple-black at maturity, cylindric-elliptic, 7–9 mm, ca. 4 mm in diam., with persistent, cup-shaped disk at base; fruiting pedicel ca. 2 mm. Fl. Jul–Sep, fr. May–Jun of following year.

• Forests on slopes, thickets; below 1000 m. Anhui, Fujian, Hubei, Hunan, Jiangsu, Jiangxi, Zhejiang.

1a. Leaves abaxially densely pubescent 11a. var. *huana*

1b. Leaves abaxially sparsely pubescent on major veins or in vein axils 11b. var. *glabrescens*

11a. *Berchemia huana* var. *huana*

大叶勾儿茶(原变种) *da ye gou er cha* (yuan bian zhong)

Leaves densely pubescent abaxially.

• Forests on slopes, thickets; below 1000 m. Anhui, Fujian, Hubei, Hunan, Jiangsu, Jiangxi, Zhejiang.

11b. *Berchemia huana* var. *glabrescens* Cheng ex Y. L. Chen & P. K. Chou, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 5: 14. 1979.

脱毛大叶勾儿茶 *tuo mao da ye gou er cha*

Leaves sparsely pubescent on major veins or in vein axils abaxially.

• Forests on slopes. Anhui, Zhejiang.

12. *Berchemia hispida* (H. T. Tsai & K. M. Feng) Y. L. Chen & P. K. Chou, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 5: 14. 1979.

毛背勾儿茶 *mao bei gou er cha*

Shrubs climbing. Young branches yellow-green, smooth, glabrous. Petiole 1.5–4 cm, glabrous; leaf blade adaxially green, turning dark brown when dry, ovate to elliptic, 6–10 × 3.5–6.5 cm, papery to subleathery, abaxially densely pubescent or pubescent on veins or in vein axils, adaxially glabrous, lateral veins 12–17 pairs, conspicuously prominent abaxially, impressed adaxially, base rounded, rarely truncate, apex acute and minutely mucronate. Inflorescences to 18 cm; rachis hispid or glabrous; branches ca. 7 cm. Flowers yellow-green, glabrous, in terminal, broad cymose panicles. Pedicel 2–3 mm, glabrous. Drupe purple-red at maturity, small, 6–8 mm, 3–4 mm in diam., apex mucronulate, base with persistent cup-shaped disk; fruiting pedicel 2–3 mm. Fl. Jul–Sep, fr. May–Jun of following year.

• Mountain forests and thickets; 1000–2000 m. Guizhou, Sichuan, Yunnan.

1a. Leaves abaxially densely pubescent 12a. var. *hispida*

1b. Leaves abaxially sparsely pubescent on veins or in vein axils 12b. var. *glabrata*

12a. *Berchemia hispida* var. *hispida*

毛背勾儿茶(原变种) *mao bei gou er cha* (yuan bian zhong)

Berchemia hypochrysa C. K. Schneider var. *hispida* H. T. Tsai & K. M. Feng, Acta Phytotax. Sin. 1: 191. 1951.

Leaves densely pubescent abaxially.

• Mountain forests and thickets; 1000–2000 m. Sichuan, S Yunnan.

12b. *Berchemia hispida* var. *glabrata* Y. L. Chen & P. K. Chou, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 5: 15. 1979.

光轴勾儿茶 *guang zhou gou er cha*

Leaves sparsely pubescent on veins or in vein axils abaxially. Inflorescence rachis glabrous.

• Mountain forests and thickets; 1400–1900 m. Guizhou, Sichuan (Mei Shan), Yunnan.

13. *Berchemia barbiger* C. Y. Wu ex Y. L. Chen & P. K. Chou, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 5: 15. 1979.

腋毛勾儿茶 *ye mao gou er cha*

Shrubs scandent. Branchlets red-brown, smooth, glabrous. Petiole 1–2.5 cm, glabrous; leaf blade abaxially grayish green, adaxially green, ovate-elliptic or ovate-oblong, 5–9 × 3–5.5 cm, thinly papery, abaxially grayish white puberulent on vein axils, lateral veins 8–13 pairs, base rounded, apex obtuse or rounded. Flowers yellow-green, glabrous, in terminal, narrow, cymose panicles; rachis glabrous. Pedicel 2–3 mm. Drupe red when young, turning black at maturity, cylindrical, 5–7 mm, ca. 3 mm in diam., basally with persistent disk-shaped remnants of calyx tube and disk; fruiting pedicel ca. 3 mm, glabrous. Fl. Jun–Aug, fr. May–Jun.

• Mixed mountain forests; middle elevations. S Anhui (Huang Shan), N Zhejiang (Tianmu Shan).

14. *Berchemia sinica* C. K. Schneider in Sargent, Pl. Wilson. 2: 215. 1914.

勾儿茶 *gou er cha*

Shrubs scandent or climbing, to 5 m tall. Young branches glabrous; old branches yellow-brown, smooth, glabrous. Leaves alternate or fascicled on short shoots; petiole reddish, 1.2–2.6 cm, slender, glabrous; leaf blade grayish white abaxially, green adaxially, ovate-elliptic or ovate-oblong, 3–6 × 1.6–3.5 cm, thickly papery, abaxially sparsely puberulent in vein axils, adaxially glabrous, lateral veins 8–10 pairs, base rounded or subcordate, apex rounded or obtuse, often mucronulate. Flowers yellow or greenish, solitary or few in fascicles, sessile or shortly pedunculate, in short, branched, narrow cymose panicles at ends of lateral branches; rachis to 10 cm, glabrous; branches ca. 5 cm, sometimes in axillary, short racemes. Pedicel ca. 2 mm, glabrous. Calyx tube shallowly cup-shaped, glabrous; sepals broadly triangular, abaxially glabrous, adaxially slightly keeled. Petals hooded. Disk thick, fleshy, centrally distinctly convex. Ovary deeply immersed in disk but not fused to it; style cylindric, short; stigma 2- or 3-lobed. Drupe purple-red, turning black at maturity, cylindrical, 5–9 mm, 2.5–3 mm in diam., basally with persistent remnants of calyx tube and disk;

fruiting pedicel ca. 3 mm. Fl. Jun–Aug, fr. May–Jun of following year.

• Mixed forests and thickets on slopes and in valleys; 1000–2500 m. Gansu, Guizhou, Henan, Hubei, Shaanxi, Shanxi, Sichuan, Yunnan.

15. *Berchemia omeiensis* Feng ex Y. L. Chen & P. K. Chou, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 5: 16. 1979.

峨眉勾儿茶 e mei gou er cha

Shrubs scandent or climbing. Young branches glabrous; branchlets yellow-green, smooth. Leaves usually 2–5-fasciated on short shoots; stipules broadly ovate-lanceolate, basally connate; petiole 2–4 cm; leaf blade abaxially pale green, slightly gray or reddish when dry, adaxially deep green, ovate-elliptic or ovate-oblong, 6–12 × 3–6 cm, leathery or subleathery, abaxially pubescent on vein axils, adaxially glabrous, lateral veins (7–)9 or 10(–13) pairs, prominent on both surfaces, base cordate or rounded, slightly oblique, apex shortly acuminate or acute, often mucronulate. Inflorescences to 16 cm; branches ca. 8 cm, glabrous. Flowers yellow or greenish, glabrous, usually 2–5 in fascicles, in shortly pedunculate, terminal, broad cymose panicles. Pedicels ca. 3 mm. Drupe red, turning purple-black at maturity, cylindrical-ellipsoid, 1–1.3 cm, ca. 4 mm in diam., base with persistent cup-shaped disk; fruiting pedicel 3–4 mm. Fl. Jul–Aug, fr. May–Jun of following year.

• Mountain forests; 400–1700 m. N Guizhou, W Hubei, Sichuan.

16. *Berchemia brachycarpa* C. Y. Wu ex Y. L. Chen & P. K. Chou, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 5: 17. 1979.

短果勾儿茶 duan guo gou er cha

Shrubs climbing. Young branches reddish brown, smooth, glabrous. Petiole 1–1.5 cm, stout, glabrous; leaf blade abaxially reddish when dry, adaxially green, oblong or ovate-oblong, 5–8 × 2.5–4.5 cm, thickly papery or subleathery, both surfaces glabrous, lateral veins 12–16 pairs, prominent abaxially, ± impressed adaxially, base rounded or truncate, apex shortly acute. Flowers yellow-green, glabrous, solitary or 2 or 3 in fascicles, in shortly pedunculate, narrow cymose panicles or cymose racemes at ends of lateral branches; rachis 5–6 cm, glabrous. Pedicel ca. 2 mm, glabrous. Drupe cylindrical, 6–7 mm, 4–5 mm in diam., base with persistent sepals and cup-shaped disk, apex mucronulate; fruiting pedicel 2–3 mm, glabrous. Fl. May, fr. Sep–Oct.

• Forests; 1400–2800 m. S Yunnan.

17. *Berchemia medogensis* Y. L. Chen & Y. F. Du, Acta Phytotax. Sin. 39: 73. 2001.

墨脱勾儿茶 mo tuo gou er cha

Shrubs scandent. Branchlets spreading, green or yellow-green, brown puberulous. Stipules minute, triangular, persistent; petiole 1.5–2 cm, puberulous; leaf blade ovate or ovate-elliptic, 4.5–8 × 3–5.5 cm, papery, abaxially gray-green, white puberulous, adaxially dark green, glabrous, lateral veins 10–13 pairs, abaxially prominent, densely puberulous on veins, base rounded or subcordate, apex obtuse, mucronulate. Flowers not seen. Fruiting inflorescence in broad cymose panicles up to 18 cm;

lateral branches to 10 cm; rachis of inflorescence puberulous. Drupe cylindrical-ellipsoid, 7–12 mm, 4–6 mm in diam., base with persistent disk-shaped disk, apex mucronulate, deciduous; fruiting pedicel red at maturity, turning purple-black later, 2–4 mm, puberulous. Fl. unknown, fr. Dec.

• Margins of evergreen forests; 1200–1500 m. SE Xizang (Médog).

This species is somewhat similar to *Berchemia flavescens*, from which it differs by having branchlets, abaxial leaf surface, and inflorescence rachis puberulous.

18. *Berchemia flavescens* (Wallich) Brongniart, Mém. Fam. Rhamnées, 50. 1826.

黄背勾儿茶 huang bei gou er cha

Ziziphus flavescens Wallich in Roxburgh, Fl. Ind. 2: 367. 1824; *Berchemia hypochrysa* C. K. Schneider.

Shrubs scandent, 7–8 m tall, glabrous. Branchlets spreading, yellow or turning brown. Stipules caducous; petiole 1.3–2.5 cm, glabrous; leaf blade adaxially green, turning yellow when dry, ovate, ovate-elliptic, or oblong, 7–15 × 3–7 cm, papery or subleathery, adaxially glabrous, lateral veins 12–18 pairs, prominent on both surfaces, base rounded, apex obtuse to acute, mucronulate. Flowers yellow-green, very small, ca. 1.5 mm, glabrous, usually 1 to few in fascicles, in narrow cymose panicles, rarely cymose racemes at ends of lateral branches. Pedicel 2–3 mm. Calyx tube shallowly dish-shaped; lobes narrowly triangular. Petals obovate, distinctly hooded. Stamens nearly completely enfolded by petals. Disk thick, fleshy. Ovary deeply immersed in disk; style cylindrical, short, stout; stigma 2- or 3-lobed. Drupe purple-red or purple-black at maturity, subcylindrical, 7–11 mm, 4–5 mm in diam., base with persistent cup-shaped disk, apex mucronulate; mesocarp thin, sour-sweet-tasting; fruiting pedicel 3–5 mm, glabrous. Fl. Jun–Aug, fr. May–Jul of following year.

Forests and thickets on slopes; 1200–4000 m. E Gansu, W Hubei, S Shaanxi, Sichuan, S and SE Xizang, NW Yunnan [Bhutan, India, Nepal].

19. *Berchemia floribunda* (Wallich) Brongniart, Mém. Fam. Rhamnées, 50. 1826.

多花勾儿茶 duo hua gou er cha

Shrubs scandent or erect. Young branches yellow-green, smooth, glabrous. Stipules narrowly lanceolate, 1–2 mm, persistent; petiole 1–2 cm, rarely to 5 cm, glabrous; leaf blade abaxially dark brown when dry, adaxially green, ovate or ovate-elliptic to elliptic, 4–9(–11) × 2–5(–6.5) cm, papery, abaxially glabrous, or sparsely pubescent on veins, adaxially glabrous, lateral veins 9–12 pairs, prominent on both surfaces, base rounded to cordate, margin entire, apex obtuse to rounded, or acute to acuminate. Inflorescences to 15 cm; lateral branches less than 5 cm; rachis glabrous or sparsely puberulous. Flowers numerous, glabrous, few in fascicles, in terminal cymose panicles or axillary cymose racemes. Pedicel 1–2 mm. Calyx tube shallowly patelliform, glabrous; lobes narrowly triangular, adaxially distinctly keeled up to middle. Petals spatulate, en-

folding stamens. Disk thick, fleshy, centrally distinctly convex. Ovary nearly completely immersed in disk; style cylindric, undivided; stigma 2- or 3-lobed. Drupe red, bluish black at maturity, cylindric-elliptic to ovoid-oblong, 7–10 × 4–5 mm, with persistent cup-shaped disk; stone 2-loculed; fruiting pedicel 2–3 mm, glabrous. Fl. Jul–Oct, fr. Apr–Jul of following year.

Mountain forests, understories of forests and thickets on slopes, forest margins, valleys; below 2600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Xizang, Yunnan, Zhejiang [Bhutan, India, Japan, Nepal, Thailand, Vietnam].

The roots are used medicinally to alleviate pain. The young leaves are used as a substitute for tea.

- 1a. Leaf blade ovate or ovate-elliptic, apex acute 19a. var. *floribunda*
1b. Leaf blade oblong or narrowly oblong, apex obtuse 19b. var. *oblongifolia*

19a. *Berchemia floribunda* var. *floribunda*

多花勾儿茶(原变种) duo hua gou er cha (yuan bian zhong)

Ziziphus floribunda Wallich in Roxburgh, Fl. Ind. 2: 368. 1824; *Berchemia floribunda* var. *megalophylla* C. K. Schneider; *B. giraldiana* C. K. Schneider; *B. racemosa* Siebold & Zuccarini.

Leaf blade ovate or ovate-elliptic, apex acute.

Understories of forests and thickets on slopes, forest margins, valleys; below 2600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Xizang, Yunnan, Zhejiang [Bhutan, India, Japan, Nepal, Vietnam].

19b. *Berchemia floribunda* var. *oblongifolia* Y. L. Chen & P. K. Chou, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 5: 19. 1979.

矩叶勾儿茶 ju ye gou er cha

Leaf blade oblong or narrowly oblong, apex obtuse. Inflorescence rachis sparsely puberulent, rarely glabrous.

- Mountain forests; ca. 1000 m. Fujian, Jiangxi, Zhejiang.

