

4. CELASTRUS Linnaeus, Sp. Pl. 1: 196. 1753, nom. cons.

南蛇藤属 nan she teng shu

Zhang Zhixiang (张志翔); A. Michele Funston

Monocelastrus F. T. Wang & T. Tang.

Scandent to twining shrubs, deciduous or evergreen, glabrous or pubescent, with oblong or circular gray lenticels; bud scales imbricate. Leaves alternate, subentire or serrate; stipules small, linear, deciduous. Inflorescences axillary or terminal, cymose, thyrsoid, or flowers solitary. Flowers unisexual, rarely bisexual, rarely dioecious, 5-merous, greenish or yellowish white. Disk membranous or fleshy, annular to cupuliform, entire or slightly 5-lobed, intrastaminal; anthers longitudinally dehiscent, introrse. Ovary 3-locular, separate from or slightly adnate to disk; ovules erect, 1 or 2 per locule. Capsule globose, yellowish, leathery, loculicidally dehiscent. Seeds 1–6, ellipsoid, enclosed in aril; aril carnosous, red to orange-red.

About 30 species: tropical, subtropical, and temperate zones of Asia, Australia, and North and South America, as well as Madagascar; 25 species (16 endemic) in China.

This genus is divided into two subgenera: *Celastrus* subg. *Celastrus* and *C.* subg. *Racemocelastrus* Ding Hou; the latter does not occur in China.

- 1a. Fruit 1-loculed, 1-seeded; evergreen (*C.* sect. *Sempervirentes*).
 - 2a. Lenticels of young branchlets not obvious; floral disk thin, cupuliform; stamens inserted on margin of disk; fruit small, 6.5–10 mm wide, globose.
 - 3a. Leaves narrowly rectangular-elliptic, narrowly ovate-elliptic to elliptic-oblongate; secondary veins 5–7 pairs; valves without transverse rugae 22. *C. hindsii*
 - 3b. Leaves ovate or widely elliptic; secondary veins 7–10 pairs; valves with transverse rugae 23. *C. tonkinensis*
 - 2b. Lenticels of young branchlets obvious; floral disk carnosous, shallowly discoid or slightly pillow-form; stamens inserted below disk; fruit large, 8–12 mm wide, widely elliptic, rarely globose.
 - 4a. Young branchlets, leaves, and valves puce when dry; leaf blade papery to thinly leathery; valves rugose and curly when fruit ripe 24. *C. monospermus*
 - 4b. Young branchlets, leaves, and valves yellowish green when dry; leaf blade thickly leathery; valves not rugose and curly when fruit ripe 25. *C. virens*
- 1b. Fruit 3-loculed, 3–6-seeded; deciduous or evergreen.
 - 5a. Inflorescences generally terminal, occasionally axillary in upper part of branches (*C.* sect. *Celastrus*).
 - 6a. Branchlets not obviously angled; leaf blade small, 5–10 × 2.5–5 cm, narrowly elongate; sepals imbricate; disk cupulate 1. *C. paniculatus*
 - 6b. Branchlets generally 4–6-angled; leaf blade large, 7–18 × 5–14 cm, relatively broad; sepals valvate; disk disciform 2. *C. angulatus*
 - 5b. Inflorescences axillary, or both axillary and terminal (*C.* sect. *Axillares*).
 - 7a. Inflorescences usually axillary; seeds generally crescentiform or curved-semiorbicular; if seeds elliptic, bud scales thornlike (*C. flagellaris*).
 - 8a. Outer scales of buds thornlike, thorn 1.5–2.5 mm; seeds elliptic 14. *C. flagellaris*
 - 8b. Bud scales not thornlike; seeds crescentiform or curved-semiorbicular.
 - 9a. Petiole short, less than 9 mm.
 - 10a. Leaf blade widely obovate or rarely orbicular, 1.5–4 cm; petiole 1–5 mm; peduncle slender, 4–6.5 mm; fruit 6–7 mm wide 15. *C. cuneatus*
 - 10b. Leaf blade oblanceolate, rarely widely oblanceolate, 6.5–12.5 cm; petiole 4–9 mm; peduncle subsessile, only ca. 2 mm; fruit 7.5–8.5 mm wide 16. *C. oblanceifolius*
 - 9b. Petiole long, more than 10 mm, longest up to 30 mm.
 - 11a. Fruit small, 4–5 mm wide; seeds small, ca. 2.5 mm 17. *C. homaliifolius*
 - 11b. Fruit large, 6.5–10 mm wide; seeds large, 3–5 mm.
 - 12a. Cymes 3-flowered; peduncle short, 2–5 mm; pedicels jointed distally 18. *C. aculeatus*
 - 12b. Cymes 3–14-flowered; peduncle long, 5–20 mm; pedicels jointed below middle or near base.
 - 13a. Leaf blade obovate or obovate-elliptic; cymes 7–14-flowered; young branchlets, peduncles, and pedicels densely brown hirsute 19. *C. hirsutus*
 - 13b. Leaves oblong or elliptic; cymes 3–7-flowered; young branchlets, peduncles, and pedicels with very short brown or yellowish white stiff hairs.
 - 14a. Young branchlets, peduncles, and pedicels with dense and very short brown stiff hairs; leaf blade widely elliptic to orbicular; secondary veins in 3 or 4 pairs 20. *C. kusanoi*
 - 14b. Young branchlets, peduncles, and pedicels with very short yellowish white stiff hairs; leaf blade rectangular-elliptic, rarely rectangular-obovate; secondary veins in 5–7 pairs 21. *C. stylosus*

- 7b. Inflorescences both axillary and terminal; seeds usually elliptic.
- 15a. Leaf blade abaxially pallid.
- 16a. Leaf blade narrowly lanceolate 3. *C. franchetianus*
- 16b. Leaf blade broad, elliptic to broadly lanceolate or obovate-lanceolate.
- 17a. Petiole short, 8–12 mm; seeds elliptic 4. *C. glaucophyllus*
- 17b. Petiole long, 12–20 mm; seeds convex or slightly crescentiform.
- 18a. Terminal inflorescence long, 7–10 cm; leaf blade small, ovate or rectangular-elliptic, 6–9.5 × 2.5–5.5 cm, base widely cuneate; fruit stalk long, 10–25 mm 5. *C. hypoleucus*
- 18b. Terminal inflorescence short, 3–7 cm; leaf blade large, widely ovate, widely ovate-elliptic or orbicular, 6–13.5 × 3.5–9.5 cm, base widely rounded; fruit stalk short, 5–10 mm 6. *C. hypoleucoides*
- 15b. Leaf blade same color on both surfaces.
- 19a. Veinlets obviously prominent and cancellate netted; leaf blade abaxially pubescent along veins 7. *C. rugosus*
- 19b. Veinlets not cancellate netted; leaf blade glabrous, or sometimes sparsely with short hair along veins.
- 20a. Terminal inflorescences long, 6–18 cm; valves adaxially maculate, macula small, brown 8. *C. vaniotii*
- 20b. Terminal inflorescence short, generally 1–6 cm (*C. hookeri*: sometimes up to 9 cm); valves without macula.
- 21a. Winter buds large, 5–12 mm; fruit large, 10–12 mm wide; filament sometimes with papillate hairs 9. *C. gemmatus*
- 21b. Winter buds small, 1–3 mm; fruit small, 5.5–10 mm wide; filament smooth.
- 22a. Petiole 2–8 mm; leaf blade up to 9 cm, elliptic.
- 23a. Leaf blade glabrous; pedicels jointed above middle 10. *C. punctatus*
- 23b. Leaf blade slightly pubescent along veins abaxially; pedicels jointed at or below middle 11. *C. rosthornianus*
- 22b. Petiole usually more than 10 mm, longest up to 20 mm; leaf blade up to 13 cm, oblong, ovate, or nearly rounded.
- 24a. Terminal inflorescence long, 3–9 cm; pedicels jointed at or above middle; capsule 6–7 mm wide 12. *C. hookeri*
- 24b. Terminal inflorescence short, 1–3 cm; pedicels jointed below middle or near base; capsule 8–10 mm wide 13. *C. orbiculatus*

1. *Celastrus* sect. *Celastrus*

圆锥组 *yuan zhui zu*

Deciduous or evergreen. Panicles typically terminal; foliage bud at axil of branching inflorescences absent if inflorescences axillary at upper part of branches. Fruit 3-loculed. Seeds 3–6.

About six species: S and SE Asia, Australia, Madagascar, North America, Pacific Islands; two species (one endemic) in China.

1. *Celastrus paniculatus* Willdenow, Sp. Pl. 1: 1125. 1797.

灯油藤 *deng you teng*

Celastrus dependens Wallich; *C. euphlebiophyllus* (Hayata) Kanehira; *C. multiflorus* Roxburgh (1824), not Lamarck (1785); *C. paniculatus* subsp. *multiflorus* Ding Hou; *C. paniculatus* subsp. *serratus* (Blanco) Ding Hou; *Diosma serrata* Blanco; *Euonymus euphlebiophyllus* Hayata.

Large deciduous twining shrubs, stem up to 23 cm in diam.; bark pale brown, rough and cracked, exfoliating in small scales; branchlets pubescent or glabrous, with prominent elliptic lenticels; axillary buds small, 1–2 mm, triangular. Petiole 6–16 mm; leaf blade elliptic, oblong, rectangular, ovate, or obovate to suborbicular, 5–10 × 2.5–5 cm, glabrous, base cuneate, margin serrate, apex mucronate to acuminate; secondary veins 5–7 pairs, rarely abaxially pubescent at axil of veins. Thyrses terminal, 5–10 cm, 1- or 2-ramous; rachis and pedicels occasionally with short tomentum; pedicels 3–6 mm. Flowers greenish, 5-merous, dioecious, 2–3 × 1.2–1.8 mm; sepals free, imbricate, semiorbicular, ciliate; petals oblong to obovate-rectangular. Disk membranous, cupulate, slightly 5-lobed.

Stamens ca. 3 mm, inserted on margin of disk. Ovary globose. Capsule 1–1.3 cm in diam., depressed, globose, 3-valved, bright yellow, 3–6-seeded. Seeds elliptic, 3.5–5.5 × 2–5 mm; aril orange-red. Fl. Apr–Jun, fr. Jun–Sep.

Forest slopes; 200–2000 m. Guangdong, Guangxi, Guizhou, Hainan, Taiwan, Yunnan [Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam; Australia, Pacific islands (New Caledonia)].

Seed oiliness in this species is more than 50%. It is used for making lamp oil and soap in Yunnan. Many pharmacological studies deal with its effects on the central nervous system and the tranquilizing property of the alkaloidal fractions of the oil.

The variable leaf blade shape led to the creation of three sub-species: *Celastrus paniculatus* subsp. *paniculatus*, *C. paniculatus* subsp. *serratus* (Blanco) Ding Hou (not in China), and *C. paniculatus* subsp. *multiflorus* (Roxburgh) Ding Hou. However, there are so many transi-

tional blade forms that it is hard to distinguish between them; therefore, the subspecies are not recognized here.

2. *Celastrus angulatus* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 27: 455. 1881.

苦皮藤 ku pi teng

Celastrus latifolius Hemsley.

Deciduous twining shrubs; branchlets dark brown, 4–6-angular; lenticels dense, prominent, orbicular to elliptic, white; axillary buds ovate, 2–4 mm. Petiole 1.5–3 cm, strong; leaf blade ovate to orbicular, 7–18 × 5–14 cm, leathery, light green, glabrous, base cuneate, margin crenate, apex acute to shortly acuminate; secondary veins 5–7 pairs, obviously prominent on adaxial surface. Paniculate thyrses terminal, apically

2. *Celastrus* sect. *Axillares* (Rehder & E. H. Wilson) C. Y. Cheng & T. C. Kao in C. Y. Cheng & P. H. Huang, Fl. Reipubl. Popularis Sin. 45(3): 103. 1999.

腋花组 ye hua zu

Celastrus ser. *Axillares* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 2: 355. 1915.

Deciduous twining shrubs. Inflorescences axillary, or both axillary and terminal; foliage buds at axil of branching inflorescences. Capsule 3-loculed. Seeds 3–6.

About 19 species: E and S Asia; 19 species (14 endemic) in China.

3. *Celastrus franchetianus* Loesener, Bot. Jahrb. Syst. 30: 470. 1902.

洱源南蛇藤 er yuan nan she teng

Celastrus racemulosus Franchet, Bull. Soc. Bot. France 33: 455. 1887, not Hasskarl (1858).

Twining shrubs, 1–2 m tall; branchlets terete; young branchlets green, lenticels usually absent. Petiole 5–11 mm; leaf blade lanceolate, 5–13 × 2–4 cm, thinly papery to coriaceous, base cuneate, margin serrulate, apex acuminate; secondary veins 7–9 pairs, prominent. Thyrses terminal, elongate; peduncle very short, less than 5 mm. Flowers 5-merous, white to pea green, ca. 5 mm wide. Disk slightly orbicular, lobe triangular. Ovary 3-loculed; ovules 2 per locule; style columnar; stigma 3-lobed. Capsule ovate to slightly globose.

• Forests in mountain regions; ca. 2300 m. Yunnan.

4. *Celastrus glaucophyllus* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 2: 347. 1915.

灰叶南蛇藤 hui ye nan she teng

Celastrus glaucophyllus var. *angustus* Q. H. Chen.

Deciduous twining shrubs; branchlets with elliptic to oblong sparse lenticels. Petiole 8–12 mm; leaf blade broadly elliptic, obovate-elliptic, or rarely narrowly elliptic, 5–10 × 2.5–6.5 cm, leathery during fruiting period, adaxially green, abaxially gray-white, base orbicular or broadly cuneate, margin sparsely finely serrate, apex shortly acuminate; secondary veins 4 or 5 pairs, rarely 6. Racemose panicles axillary to terminal, 3–6 cm, axillary inflorescences only 3–5-flowered; rachis short, only 1–2 mm; pedicels 2.5–3.5 mm, jointed at or above middle. Sepals elliptic or ovate, 1.5–2 mm, margin sparsely erose-denticulate; petals obovate-rectangular to narrowly ovate, 4–5 ×

branched, 10–20 cm, 1- or 2-ramous; rachis and pedicels glabrous or with russet short hairs; pedicels short, jointed at apex. Flowers small, greenish, dioecious; sepals valvate, triangular to ovate, ca. 1.2 mm, margin approximately entire; petals rectangular, ca. 2 × 1.2 mm, margin erose. Disk carnosely, discoid, slightly 5-lobed. Stamens ca. 3 mm, inserted on disk; staminodia in female flowers ca. 1 mm. Pistils 3–4 mm; ovary globose; style reflexed; pistillodes in male flowers ca. 1.2 mm. Capsule globose, yellow, 8–10 mm wide, 3-valved, adaxial side of valves with brown macula. Seeds elliptic, 3.5–5.5 × 1.5–3 mm; aril bright red. Fl. May–Jun.

• Mountain thickets, slopes; 1000–2500 m. Anhui, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Yunnan.

ca. 2.2 mm. Disk shallowly cupulate, slightly carnosely, edge approximately semicircular. Stamens ± shorter than petals; anthers broadly elliptic to approximately orbicular. Pistillode 1.5–2 mm in male flowers. Fruit globose, 8–10 mm wide; stipes 5–9 mm. Fl. Mar–Jun, fr. Aug–Oct.

• Mixed forests; 700–3700 m. Guizhou, Hubei, Hunan, S Shaanxi, Sichuan, Yunnan.

The leaf blades are quite variable in this species.

5. *Celastrus hypoleucus* (Oliver) Warburg ex Loesener, Bot. Jahrb. Syst. 29: 445. 1900.

粉背南蛇藤 fen bei nan she teng

Erythrospermum hypoleucum Oliver, Hooker's Icon. Pl. 19: t. 1899. 1889; *Celastrus hypoglaucus* Hemsley.

Twining shrubs; branches with sparse broadly elliptic or approximately orbicular lenticels, young branchlets without lenticels; axillary buds small, orbicular-triangular, ca. 2 mm wide. Petiole 1.2–2 cm; leaf blade elliptic to rectangular-elliptic, 6–9.5 × 2.5–5.5 cm, abaxial surface gray, adaxial surface green, glabrous, base cuneate, margin serrate, apex shortly acuminate; secondary veins 5–7 pairs. Thyrses terminal and axillary, terminal thyrses 7–10 cm, many flowered, axillary ones short and small, 3–7-flowered; rachis short; pedicels 2–8 mm, jointed above middle. Sepals approximately triangular, apex obtuse; petals rectangular or elliptic, ca. 4.3 mm. Disk cupuliform. Stamens ca. 4 mm; staminodia in female flowers ca. 1.5 mm. Pistils ca. 3 mm; ovary elliptic; stigma flat; pistillodes in male flowers ca. 2 mm. Terminal infructescence long and pendulous, axillary ones mainly fruitless. Capsule globose, adaxial side of valves with brownish red macula; stipes slender, 1–2.5 cm. Seeds convex or slightly crescentiform, 4–5 × 1.4–2 mm, black to blackish brown. Fl.

May–Aug, fr. Jul–Oct.

• Forests; 400–2700 m. Anhui, E Gansu, Guizhou, Henan, Hubei, Hunan, Shaanxi, Sichuan, Yunnan, Zhejiang.

6. *Celastrus hypoleucoides* P. L. Chiu, J. Hangzhou Univ., Nat. Sci. Ed. 8: 114. 1981.

薄叶南蛇藤 bo ye nan she teng

Twining shrubs; branchlets with sparse or very sparse lenticels; lenticels broadly elliptic or approximately orbicular. Petiole 1.2–2 cm; leaf blade broadly ovate, broadly ovate-elliptic, or nearly orbicular, 6–13.5 × 3.5–9.5 cm, papery, abaxially powdery white, base widely rounded, sometimes decurrent, margin shallowly serrate or obtusely serrulate, apex shortly acuminate; secondary veins 5–7 pairs, curved, approximately parallel. Inflorescences terminal and axillary, terminal inflorescences many flowered, 3–7 cm, axillary ones 3–7- or more flowered; rachis short; pedicels 2–4 mm, jointed at or below middle. Sepals large, globose, 2–3 mm wide, ciliate, apex obtusely orbicular-triangular; petals elliptic or orbicular-elliptic, ca. 4.5 × 2.5–3 mm. Disk cupuliform, margin approximately truncate. Stamens slightly shorter than corolla; anther ovate, apex often apiculate. Infructescence 3–7 cm, stipe sturdy, 5–10 × ca. 1.5 mm. Capsule globose, adaxially brown maculate. Seeds convex to slightly crescentiform, 4.5–6 × 2–3 mm, blackish brown. Fl. May–Jun, fr. Aug–Nov.

• Thickets, slopes. Anhui, Guangdong, Guangxi, Hubei, Hunan, Jiangxi, Yunnan, Zhejiang.

7. *Celastrus rugosus* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 2: 349. 1915.

皱叶南蛇藤 zhou ye nan she teng

Celastrus glaucophyllus Rehder & E. H. Wilson var. *rugosus* (Rehder & E. H. Wilson) C. Y. Wu ex Y. C. Ho.

Deciduous twining shrubs; branchlets purplish brown, glabrous; lenticels small, elliptic or oblong, slightly flat; winter buds globose or ovate, ca. 2 mm wide. Petiole 1–1.7 cm, glabrous; leaf blade elliptic, obovate, or rectangular-elliptic, 6–13 × 3–8(–9) cm, thinly papery in flower, papery in fruit, rarely hard papery, glabrous, abaxially whitish green, base cuneate, broadly cuneate, or suborbicular, margin serrate, apex acuminate or broadly orbicular, mucronulate; secondary veins 4–6 pairs, veins with yellowish white short hairs, veinlets parallel. Inflorescences terminal and axillary, terminal inflorescences 3–6 cm, axillary ones mainly 3–5-flowered; rachis 2–5 mm; pedicels 2–6 mm, jointed generally below middle. Sepals ovate, ca. 2 × 1.5 mm, apex obtuse, ciliate; petals slightly ovate-rectangular, ca. 4 × 1.5 mm. Disk shallowly cupuliform, slightly carose, lobe semicircular or slightly narrow. Stamens ca. 4 mm; filament filiform; anther rectangular-elliptic; staminodia in female flowers short and small. Pistils ampullaceous; ovary globose; styles slender and long; stigma slightly 3-lobed; pistillodes in male flowers 1–1.5 mm. Capsule globose, 8–10 mm wide. Seeds elliptic, 4–5 × 1.5–2.5 mm, brown. Fl. May–Jun, fr. Aug–Oct.

• Thickets, slopes; 1400–3600 m. N Guangxi, Guizhou, Hubei, S Shaanxi, Sichuan, E Xizang, Yunnan.

8. *Celastrus vaniotii* (H. Léveillé) Rehder, J. Arnold Arbor. 14: 249. 1933.

长序南蛇藤 chang xu nan she teng

Saurauia vaniotii H. Léveillé, Fl. Kouy-Tchéou, 415. 1914–1915 [“*vaniotii*”]; *Celastrus spiciformis* Rehder & E. H. Wilson; *C. spiciformis* var. *laevis* Rehder & E. H. Wilson.

Twining shrubs; branchlets glabrous, lenticels sparse or orbicular or elliptic; axillary buds approximately globose, rarely ovate-orbicular, 1.5–2.5 mm. Petiole 1–1.7 cm; leaf blade ovate, rectangular-ovate, or rectangular-elliptic, 6–12 × 3.5–7 cm, glabrous or rarely abaxially pubescent on veins, base rounded, rarely broadly cuneate, margin with recurved glandular teeth, apex shortly acuminate, rarely narrowly acute; secondary veins 6 or 7 pairs, prominent on both surfaces. Terminal thyrses 6–18 cm, axillary inflorescences short, 3–4 cm; pedicels 4–6 mm, jointed generally below middle. Sepals ciliate; petals obovate-rectangular or approximately obovate, 3–3.5 × 1.5–2 mm. Disk slightly cupuliform, lobe broadly rounded. Stamens ± shorter than corolla, or as long as corolla; filament conical-linear; anther rectangular-elliptic; staminodes in female flowers ca. 1 mm. Pistils ca. 3.5 mm; ovary approximately globose; styles stout; pistillodes in male flowers ca. 1 mm. Capsule globose, ca. 9 × 8 mm, adaxial side of valves with small brown macula. Seeds elliptic, ca. 4 × 2 mm. Fl. May–Jul, fr. Aug–Sep.

• Mixed forests; 500–2200 m. Hubei, Hunan, Guangxi, Guizhou, Sichuan, Yunnan.

9. *Celastrus gemmatus* Loesener, Bot. Jahrb. Syst. 30: 468. 1902.

大芽南蛇藤 da ya nan she teng

Embelia esquirolii H. Léveillé.

Twining shrubs; branchlets with lenticels; lenticels elliptic to orbicular, white, prominent; winter buds large, long ovate to long conical, up to 12 mm, base ca. 5 mm in diam. Petiole 1–2.3 cm; leaf blade rectangular, ovate-elliptic, or elliptic, 6–12 × 3.5–7 cm, abaxially glabrous, or rarely with brown short tomentum on veins, adaxially glabrous, asperous, base rounded or broadly orbicular, margin shallowly serrate, apex acuminate; secondary veins 5–7 pairs, veinlets densely netted, prominent on both surfaces. Cymes terminal and axillary, terminal inflorescences ca. 3 cm, axillary ones short and few flowered; rachis 5–10 mm; pedicels 2.5–5 mm, jointed above middle. Sepals ovate, ca. 1.5 mm, margin erose; petals rectangular-ovate, 3–4 × 1.2–2 mm. Disk shallowly cupuliform, lobe approximately triangular, lobe in female flowers often obtuse. Stamens as long as corolla; filament sometimes with papillate hairs; anther sometimes apically mucronulate; staminodia in female flowers ca. 1.5 mm. Pistils ampullaceous; ovary globose; styles ca. 1.5 mm; pistillodes in male flowers 1–2 mm. Capsule globular, 10–13 mm wide; stipes with visible prominent lenticels. Seeds widely elliptic to rectangular-elliptic, 4–5.5 mm, obtuse, reddish brown, shiny. Fl. Apr–Sep, fr. Aug–Oct.

• Dense forests, thickets; 500–1800 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi,

Shaanxi, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang.

10. *Celastrus punctatus* Thunberg in Murray, Syst. Veg., ed. 14, 237. 1784.

东南南蛇藤 dong nan nan she teng

Celastrus articulatus Thunberg var. *punctatus* (Thunberg) Rehder; *C. geminiflorus* Hayata; *C. gracillimus* Hayata; *C. leiocarpus* Hayata; *C. longeracemosus* Hayata; *C. punctatus* var. *microphyllus* Li & Ding Hou.

Deciduous twining shrubs; branchlets tenuous, spreading, glabrous; axillary buds small, ovate, ca. 2 mm; apex of outer scales acute, spinelike. Petiole 2–8 mm; leaf blade elliptic, oblong, broadly elliptic, or rectangular-elliptic, rarely obovate-elliptic, 1.5–7 × 1–3 cm, papery or thickly papery, glabrous, base cuneate, margin serrulate or obtusely serrate, apex acute or shortly acuminate; secondary veins (3 or)4 or 5 pairs. Inflorescences generally axillary, terminal inflorescences occurring in male plants, 1- or 2-flowered or more flowers in a small cyme, somewhat racemose-monochasial; pedicels 3–5 mm, jointed above middle. Male flowers: sepals elliptic, 1–1.2 mm, margin unequally serrulate; petals oblanceolate to obovate-rectangular, ca. 4.5 × 1.5 mm; disk deeply lobed, lobe elliptic; filament slightly flat, ca. 3.5 mm; anther broadly rectangular, apex abrupt; staminodia undeveloped. Female flowers unknown. Capsule globose, 5.5–7 mm wide, valves orbicular. Seeds broadly elliptic, ca. 3.5 × 2 mm, brown or brownish. Fl. Mar–May, fr. May–Oct.

Forests, valleys, slopes; 100–2300 m. Anhui, Fujian, Taiwan, Zhejiang [Japan].

11. *Celastrus rosthornianus* Loesener, Bot. Jahrb. Syst. 29: 445. 1900.

短梗南蛇藤 duan geng nan she teng

Twining shrubs, to 7 m; branchlets with large and dense lenticels; axillary buds subulate or ovate, ca. 3 mm. Petiole 5–8 mm; leaf blade rectangular-elliptic to obovate-elliptic, 3.5–9(–11) × 1.5–4.5(–6.5) cm, papery, often slightly leathery during fruiting period, base cuneate or widely cuneate, margin shallowly serrulate or entire at base, apex acute or shortly acuminate; secondary veins 4–6 pairs. Inflorescences terminal and axillary, terminal inflorescences racemiform cymes, 2–4 cm, axillary ones small and short, 1- to several flowered, rachis very short; pedicels 2–6 mm, jointed at or below middle. Sepals oblong, ca. 1 mm, margin erose; petals approximately rectangular, 3–3.5 × ca. 1 mm. Disk shallowly lobed, lobe apex approximately truncate. Stamens slightly shorter than corolla; staminodes in female flowers 1–1.5 mm. Pistils 3–3.5 mm; ovary globose; styles 3-lobed, each lobe divided, subfiliform. Capsule subglobose, 5.5–8 mm wide; stipe 4–8 mm. Seeds broadly elliptic, 3–4 × 2–3 mm. Fl. Apr–May, fr. Aug–Oct.

• Dense forests, forest margins, thickets, slopes, roadsides; 500–1800 m, sometimes to 3100 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, S Shaanxi, Shanxi, Sichuan, Yunnan, Zhejiang.

The root bark of this species is used as medicine to cure tumors and injuries caused by snakes, while the bark and leaves are used as a

pesticide.

- 1a. Leaf blade small, rectangular-elliptic to narrowly rectangular-elliptic, rarely obovate-elliptic, 3.5–9(–11) × 1.5–4.5(–6.5) cm 11a. var. *rosthornianus*
- 1b. Leaf blade large, elliptic, broadly elliptic, or rectangular-elliptic, 5–11 × 3–6.5 cm 11b. var. *loeseneri*

11a. *Celastrus rosthornianus* var. *rosthornianus*

短梗南蛇藤(原变种) duan geng nan she teng (yuan bian zhong)

Celastrus reticulatus Chen H. Wang.

Leaf blade small, rectangular-elliptic to narrowly rectangular-elliptic, rarely obovate-elliptic, 3.5–9(–11) × 1.5–4.5(–6.5) cm.

• Forest margins, thickets, slopes, roadsides; 500–1800 m, sometimes to 3100 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan, Yunnan, Zhejiang.

11b. *Celastrus rosthornianus* var. *loeseneri* (Rehder & E. H. Wilson) C. Y. Wu, Fl. Tsinling. 1(3): 213. 1981.

宽叶短梗南蛇藤 kuan ye duan geng nan she teng

Celastrus loeseneri Rehder & E. H. Wilson in Sargent, Pl. Wilson. 2: 350. 1915.

Leaf blade large, elliptic, broadly elliptic, or rectangular-elliptic, 5–11 × 3–6.5 cm, slightly thick, subleathery; veins thin, prominent on both surfaces. Fruit slightly large, infructescence stout, mainly with strumose lenticels.

• Dense forests, thickets on hills; 500–1500 m. Gansu, NW Guangxi, S Guizhou, Henan, N Hubei, Shanxi, E Sichuan.

12. *Celastrus hookeri* Prain, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 73: 197. 1904.

滇边南蛇藤 dian bian nan she teng

Twining shrubs; branchlets pubescent, glabrous later; axillary buds ovate, 2–3 mm. Petiole 7–15 mm; leaf blade oblong, broadly oblong, or oblong-elliptic, rarely orbicular, 6–12 × 4–7 cm, membranous during flowering period, papery or leathery during fruiting period, adaxial surface light brownish purple maculate, margin shallowly serrate, apex broadly cuneate or rounded. Inflorescences axillary and terminal, 3–9 cm, terminal inflorescences paniculate, with numerous flowers, axillary ones 3–5- or more flowered, tufted; pedicels 2–2.5 mm. Sepals obtuse-triangular, ca. 1.5 mm; petals oblong or rectangular-elliptic, 3–3.5 mm. Disk cupuliform, very shallowly lobed. Stamens ca. 2.5 mm; anther apically mucronulate; staminodes in female flowers ca. 1.5 mm. Pistils ca. 4 mm; pistillodes in male flowers ca. 1.5 mm. Capsule approximately globose, 6–7 mm wide. Seeds elliptic, sometimes slightly curved, ca. 4 mm. Fl. May–Jun, fr. Jul–Oct.

Forests; 2500–3500 m. Xizang, NW Yunnan [Bhutan, India, Myanmar, Nepal, Pakistan].

13. *Celastrus orbiculatus* Thunberg in Murray, Syst. Veg., ed. 14, 237. 1784.

南蛇藤 nan she teng

Celastrus articulatus Thunberg; *C. articulatus* var. *pubescens* Makino; *C. jeholensis* Nakai; *C. oblongifolius* Hayata; *C. tartarinowii* Ruprecht.

Deciduous twining shrubs; branchlets glabrous, gray-brown or brown, with sparse and inconspicuous lenticels; axillary buds small, ovate to elliptic, 1–3 mm. Petiole slender, 1–2 cm; leaf blade generally broadly ovate, suborbicular, or rectangular-elliptic, 5–13 × 3–9 cm, glabrous or abaxially sparsely pubescent on veins, base broadly cuneate to obtuse-orbicular, margin serrate, apex broadly rounded, muriculate, or shortly acuminate; secondary veins 3–5 pairs. Cymes axillary, sometimes terminal, 1–3 cm, 1–7-flowered; pedicels jointed below middle or nearly to base. Male flowers: sepals obtuse-triangular; petals obovate-elliptic to rectangular, 3–4 × 2–2.5 mm; disk shallowly cupuliform, lobe shallow, apex rounded-obtuse; stamens 2–3 mm. Female flowers: corolla relatively shorter than that of male flower; disk slightly thick, carose; staminodes very short; ovary approximately globose; styles ca. 1.5 mm; stigma deeply 3-lobed, lobe apex shallowly 2-lobed. Capsule approximately globose, 8–13 mm wide, yellow, 3-valved. Seeds elliptic, slightly flat, 4–5 × 2.5–3 mm, reddish brown; aril orange-red. Fl. May–Jun, fr. Jul–Oct.

Mixed forests, forest margins, thickets on grassy slopes; 400–2200 m. Anhui, Gansu, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang [Japan, Korea].

This is one of the most widely distributed *Celastrus* species in China. The ripe fruit is used in Chinese traditional medicine, called “wattle flower” in NE and N China. The bark is used for fine fiber, and seed oiliness is 50%. It is also widely distributed in Asia and its leaf morphology is very variable.

14. *Celastrus flagellaris* Ruprecht, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 15: 357. 1857.

刺苞南蛇藤 ci bao nan she teng

Celastrus ciliidens Miquel.

Deciduous twining shrubs; branchlets glabrous; winter buds small, triangular, apex obtuse, outer pairs of bud scales persistent and thornlike, 1.5–2.5 mm, reddish brown. Petiole slender, generally as long as 1/3–1/2 leaf blade; stipules filiform, deeply lacerate, 2–3 mm, deciduous; leaf blade broadly elliptic or broadly ovate-elliptic, 3–6 × 2–4.5 cm, base narrowly cuneate, margin serrulate to serrate, teeth generally with minute spines, apex mucronate or very shortly acuminate; secondary veins 4 or 5 pairs, midvein sparsely and shortly pubescent or approximately glabrous. Cymes axillary, 1–5-flowered or more, rachis very short, 1–2 mm or absent; pedicels 2–5 mm, jointed below middle. Male flowers: sepals rectangular, ca. 1.8 mm; petals narrowly rectangular-obovate, 3–3.5 × 1–1.2 mm; disk shallowly cupuliform, apex approximately truncate; stamens slightly longer than corolla. Female flowers: staminodes ca. 1 mm; ovary globose. Capsule globose,

2–8 mm. Seeds approximately elliptic, ca. 3 × 2 mm, brown. Fl. Apr–May, fr. Aug–Sep.

Riverside forests, thickets, valleys, sunny slopes. Hebei, Heilongjiang, Jilin, Liaoning [Japan, Korea, Russia (Far East)].

15. *Celastrus cuneatus* (Rehder & E. H. Wilson) C. Y. Cheng & T. C. Kao in C. Y. Cheng & P. H. Huang, Fl. Reipubl. Popularis Sin. 45(3): 117. 1999.

小南蛇藤 xiao nan she teng

Celastrus articulatus Thunberg var. *cuneatus* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 2: 350. 1915; *C. orbiculatus* Thunberg var. *cuneatus* (Rehder & E. H. Wilson) Wuzhi; *C. orbiculatus* f. *microphyllus* Loesener.

Tenuous twining shrubs; branchlets purplish brown, with sparse longitudinal-elliptic lenticels; axillary branchlets setulose; axillary buds approximately globose, 1–2 mm wide. Petiole 1–5 mm; leaf blade broadly obovate or rarely approximately orbicular, 1.5–4.5 × 1.5–4 cm, base cuneate to broadly cuneate, margin serrulate, apex widely rounded to approximately truncate, mucronate; secondary veins 2–5 pairs. Cymes axillary, 1–4-flowered, rarely terminal; rachis slender, 4–6.5 mm; pedicels 2–3 mm, jointed at or below middle. Male flowers: sepals triangular or triangular-elliptic, ca. 1.5 × 2 mm, broadest above middle part; disk cupuliform, lobe approximately curved or truncate; stamens shorter than petals; filament ca. 2.5 mm; anther approximately globular; pistillodes small, long triangular. Female flowers: perianths similar to male flowers; disk slightly longer than male flowers, lobe obvious; staminodes small, ca. 1.5 mm; pistils ampullaceous; ovary globose; styles ca. 1 mm; stigma sticklike, deeply 3-lobed, extrorse, apex flat and enlarged. Capsule globose, 6–7 mm wide. Seeds elliptic, 3.5–4 mm, slightly convex. Fl. Apr–May, fr. Jun–later.

• Slopes, thickets along roadsides; near sea level to 600 m. Hubei, E Sichuan.

16. *Celastrus oblanceifolius* Chen H. Wang & P. C. Tsoong, Chin. J. Bot. 1: 65. 1936.

窄叶南蛇藤 zhai ye nan she teng

Celastrus aculeatus Merrill var. *oblanceifolius* (Chen H. Wang & P. C. Tsoong) P. S. Hsu.

Twining shrubs; branchlets angulate, brown pubescent. Petioles 4–9 mm; leaf blade oblanceolate, rarely broadly oblanceolate, 6.5–12.5 × 1.5–3.5(–4) cm, glabrous or abaxially brown pubescent on veins, base narrowly cuneate or cuneate, margin sparse serrulate, apex narrow, acute or shortly acuminate; secondary veins 7–10 pairs. Cymes axillary or lateral, 1–3-flowered; rachis 2–5 mm, brown pubescent; pedicels 2–3 mm, with brown short hairs, jointed distally. Sepals elliptic-ovate, ca. 2 × 1 mm; petals rectangular-oblanceolate, ca. 4 × 1.5 mm, margin ciliate. Disk carose, slightly flat, entire. Stamens as long as sepals; filament slender, papillate; anther broadly ovate, apex mucronulate. Capsule globose, 7.5–8.5 mm wide. Seeds crescentiform, ca. 5 mm. Fl. Mar–Apr, fr. Jun–Oct.

• Thickets, slopes, streamsides; 500–1000 m. Anhui, Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Zhejiang.

17. *Celastrus homaliifolius* P. S. Hsu, *Observ. Fl. Hwangshan*. 141. 1965.

小果南蛇藤 xiao guo nan she teng

Evergreen twining shrubs; branchlets with russet short hairs. Petiole 1.5–2.5 cm; leaf blade elliptic, narrowly elliptic, rectangular-elliptic, or obovate, 7–14 × 3–8 cm, papery to thickly papery, abaxially sparsely hirsute on veins, adaxially glabrous, base cuneate or widely cuneate, rarely obtuse-cuneate, margin with thick obtuse teeth, apex shortly acuminate; secondary veins 5–7 pairs, obviously prominent on lower surface. Cymes mainly lateral; rachis 3–6 mm, with russet short hairs; pedicels 2–4 mm, brown hispidulous, jointed above middle. Sepals narrowly triangular, up to 2.5 mm, margin approximately entire; petals rectangular to rectangular-elliptic, ca. 2.5 mm, apex erose. Disk shallowly cupuliform, 5-lobed, lobes broadly orbicular. Staminodia in female flowers ca. 1.5 mm. Pistils ampullaceous; ovary globose; styles slender, 2–3 mm. Fruits tufted at base of branchlets. Capsule small, globose, 4–5 mm wide, valves approximately orbicular, inner side brown maculate. Seeds crescentiform, ca. 2.5 × 1.5 mm, purplish or blackish brown; aril yellowish brown. Fl. Apr–May, fr. Aug–Oct.

• Sparse forests, thickets; 1400–2300 m. Sichuan, N Yunnan.

18. *Celastrus aculeatus* Merrill, *Lingnan Sci. J.* 13: 37. 1934.

过山枫 guo shan feng

Twining shrubs; branchlets with brown short hairs, glabrescent later; winter buds conical, 2–3 mm, bud scales persistent, somewhat spinelike. Petioles 1–1.8 cm; leaf blade mainly elliptic or rectangular, 5–10 × 3–6 cm, glabrous, sometimes pubescent on veins, base widely cuneate, rarely approximately orbicular, margin sparsely serrulate on apical half, apex acuminate or narrowly acute; secondary veins mainly 5 pairs. Cymes short, axillary or lateral, generally 3-flowered; rachis 2–5 mm, brown pubescent; pedicels 2–3 mm, brown pubescent, jointed distally. Sepals triangular-ovate, up to 2.5 mm; petals rectangular-lanceolate, ca. 4 mm. Disk slightly carnosose, entire. Filament slender, 3–4 mm, papillate; staminodia in female flowers only ca. 1.5 mm. Ovary globose. Capsule approximately globose, 7–8 mm wide, persistent sepals obviously enlarged. Seeds crescentiform or semicircular, ca. 5 mm, with tubercles. Fl. Mar–Apr, fr. Aug–Sep.

• Sparse forests, thickets, mountainous regions, roadsides; 100–1000 m. Fujian, Guangdong, Guangxi, Jiangxi, Yunnan, Zhejiang.

19. *Celastrus hirsutus* H. F. Comber, *Notes Roy. Bot. Gard. Edinburgh* 18: 233. 1934.

硬毛南蛇藤 ying mao nan she teng

Ilex leiboensis Z. M. Tan; *I. serrata* Thunberg subsp. *cathayensis* T. R. Dudley.

Twining shrubs; branchlets densely brown hirsute and glabrate later; winter buds large, ovate, 3–5 × 2.5–3.5 mm, bud scales persistent. Petiole 1.5–3 cm, brown hirsute; leaf blade ovate, broadly obovate, or obovate-elliptic, 7–14 × 4–10 cm, thickly membranous during flowering period, papery to thickly papery during fruiting period, brown hirsute-pubescent, densely

so on young leaves and veins, base widely cuneate or approximately orbicular, margin with obtuse teeth, apex widely rounded, mucronate; secondary veins 6–8 pairs, prominent on both surfaces, closely parallel and curved. Cymes axillary or lateral at twig base, 7–14-flowered; rachis 5–10 mm, pubescent; pedicels 2–4 mm, pubescent, jointed near base. Sepals obtusely rounded-triangular, ca. 1.5 mm, margin sparsely ciliate; petals ovate-elliptic, ca. 4 × 2.8 mm, midribs of outer petals papillate. Disk slightly carnosose, flat or slightly concave in center, lobes obvious and broad. Male flowers: filament subulate, ca. 3 mm, papillate on lower part; anther broadly ovate; pistillodes undeveloped. Female flowers: pistils 3–5 mm; styles short and thick, columnar; stigma obviously 3-lobed, ca. 1 mm; staminodia small. Capsule globose, 7–8 mm wide. Seeds crescentiform, ca. 5 × 1.5–2 mm. Fl. Mar–May, fr. Aug–Oct.

• Valleys, wetlands; 1400–2500 m. Sichuan, Yunnan.

20. *Celastrus kusanoi* Hayata, *J. Coll. Sci. Imp. Univ. Tokyo* 30(1): 60. 1911.

圆叶南蛇藤 yuan ye nan she teng

Deciduous and small twining shrubs; branchlets often with very short and brown setae, often glabrescent when mature; lenticels sparse and small, broadly elliptic to suborbicular. Petioles 1.5–2.8(–3.5) cm; leaf blade broadly elliptic to orbicular, 6–10 × 4–9(–10) cm, approximately membranous during fruiting, adaxially generally with brownish white short hairs at vein base, abaxially glabrous, base rounded, rarely very widely cuneate or approximately cordate, only distal margin slightly serrate, apex widely rounded and mucronate; secondary veins 3 or 4 pairs, curved, veinlets netting. Cymes axillary or terminal at top of axillary branches, small, 3–7-flowered; rachis ca. 1 cm, pubescence of very short brown setae; pedicels 2–3 mm, jointed at base, pubescence of very short setae. Sepals rectangular-triangular, apex flat and obtuse, ca. 1 mm; petals narrowly rectangular-obovate, ca. 4 mm, margin slightly erose. Disk thin, entire. Stamens ca. 3 mm, papillate-hairy on lower part of filament. Ovary approximately globose; stigma 3-lobed, extrorse. Capsule approximately globose, 7–10 mm wide, persistent sepals small and truncate; valves transversely rugose; fructiferous stipes ca. 2 cm, with very short setae. Seeds globose or subcrescentiform, 3.5–5 mm, blackish brown when ripe.

• Mountain forests; 300–2500 m. Hainan, Taiwan.

21. *Celastrus stylosus* Wallich in Roxburgh, *Fl. Ind.* 2: 401. 1824.

显柱南蛇藤 xian zhu nan she teng

Twining shrubs, 3–5 m tall; branchlets generally glabrous, rarely setaceous; winter buds small, ovate-globose, ca. 2 mm wide. Petiole 1–1.8 cm; leaf blade rectangular-elliptic, rarely rectangular-obovate, 6.5–12.5 × 3–6.5 cm, abaxially pubescent along veins, glabrous later, adaxially slightly green or light brown when dry, often membranous during flowering and leathery in fruit, base cuneate, widely cuneate to obtuse-orbicular, margin obtusely serrate, apex shortly acuminate to acute; secondary veins (4 or) 5–7 pairs. Cymes axillary and lateral, 3–

7-flowered; rachis 7–20 mm; pedicels 5–7 mm, with very short yellowish white setae, jointed below middle. Sepals subovate or subelliptic, 1–2 mm, margin slightly erose; petals rectangular-obovate, 3.5–4 × ca. 2 mm, margin erose. Disk shallowly cupuliform, lobe semicircular or approximately obtuse-triangular. Stamens slightly shorter than corolla; filament glabrous or papillate proximally; staminodes in female flowers ca. 1 mm. Pistils ampullaceous, ca. 3 mm, degenerate in male flowers; stigma revolute. Capsule globose, 6.5–8 mm wide; fructiferous stipe and fruit stipe glabrous, often with elliptic lenticels. Seeds adaxially flat, slightly crescentiform, 4.5–5.5 × 1.5–2 mm. Fl. Mar–May, fr. Aug–Oct.

Forests, mountain slopes; 300–2500 m. Anhui, Chongqing, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang [Bhutan, India, Myanmar, Nepal, N Thailand].

1a. Petiole glabrous, veins of leaf blade somewhat sparsely pubescent abaxially 21a. var. *stylosus*

1b. Petiole pubescent, veins of leaf blade with dense short setae 21b. var. *puberulus*

21a. *Celastrus stylosus* var. *stylosus*

显柱南蛇藤(原变种) xian zhu nan she teng (yuan bian zhong)

Celastrus crassifolius Chen H. Wang; *C. hypoleucus* Warburg ex Loesener f. *puberulus* Loesener; *C. stylosus* var. *angustifolius* C. Y. Cheng & T. C. Kao; *C. stylosus* subsp. *glaber* Ding Hou; *Gymnosporia neglecta* Wallich ex M. A. Lawson.

Petiole glabrous; leaf blade 6.5–12.5 × 3–6.5 cm, glabrous, somewhat sparsely pubescent along veins abaxially; secondary veins 5–7 pairs.

Forests, mountain slopes; 1000–2500 m. Anhui, Chongqing, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan [Bhutan, India, Myanmar, Nepal, N Thailand].

21b. *Celastrus stylosus* var. *puberulus* (P. S. Hsu) C. Y. Cheng & T. C. Kao in C.Y. Cheng & P. H. Huang, Fl. Reipubl. Popularis Sin. 45(3): 121. 1999.

毛脉显柱南蛇藤 mao mai xian zhu nan she teng

Celastrus glaucophyllus Rehder & E. H. Wilson var. *puberulus* P. S. Hsu, Observ. Fl. Hwangshan. 141. 1965.

Petiole and veins of leaf blade densely shortly setiferous; leaf blade broadly elliptic or rectangular-elliptic, 7–14 × 4–9.5 cm; secondary veins (3 or)4 or 5(or 6) pairs.

• Forests in valleys; 300–1000 m. Anhui, Guangdong, Hunan, Jiangsu, Jiangxi, Zhejiang.

3. *Celastrus* sect. *Sempervirentes* (Maximowicz) C. Y. Cheng & T. C. Kao in C. Y. Cheng & P. H. Huang, Fl. Reipubl. Popularis Sin. 45(3): 121. 1999.

独子藤组 du zi teng zu

Celastrus ser. *Sempervirentes* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 27: 455. 1881.

Evergreen twining shrubs. Thyrses terminal or axillary; foliage buds at axil of branching inflorescences. Capsule ca. 3-loculed. Seed ca. 1.

About four species: S and SE Asia; four species (one endemic) in China.

22. *Celastrus hindsii* Bentham, Hooker’s J. Bot. Kew Gard. Misc. 3: 334. 1851. lightly green; sepals approximately semicircular, imbricate, ca. 1 mm; petals

青江藤 qing jiang teng

Celastrus cantonensis Hance; *C. xizangensis* Y. R. Li.

Evergreen twining shrubs; branchlets terete, gray or purple, with very sparse lenticels; axial buds ovate-triangular, 1–1.5 mm. Petiole 6–10 mm; leaf blade narrowly rectangular-elliptic, or narrowly ovate-elliptic to elliptic-oblongate, 7–14 × 3–6 cm, papery or leathery, often gray-green when dry, base cuneate or rounded, margin sparsely serrate, apex acute, caudate-acuminate to acuminate; secondary veins 5–7 pairs, veinlets between secondary veins parallel, prominent. Thyrses terminal and axillary, 5–14 cm, axillary inflorescences 1–3-flowered; pedicels 4–5 mm, jointed at upper middle. Flowers

rectangular, ca. 2.5 mm, margin ciliate. Disk cupuliform, membranous, shallowly lobed, lobe triangular. Stamens inserted on margin of disk; filament subulate; anther ovate-orbicular. Pistils ampullaceous; ovary approximately globose; styles ca. 1 mm; stigma slightly 3-lobed; anther of staminodia hastate. Fruits approximately globose, 7–9 × 6.5–8.5 mm; style persistent on young fruit, up to 1.5 mm, valves slightly rugose. Seed broadly elliptic to globose, 5–8 mm; aril orange. Fl. May–Jul, fr. Jul–Oct.

Forests, thickets, mountainous regions; 300–2500 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, E Xizang, Yunnan [NE India, Malaysia, Myanmar, N Vietnam].

23. *Celastrus tonkinensis* Pitard in Lecomte, Fl. Indo-Chine 1: 891. 1912.

皱果南蛇藤 *zhou guo nan she teng*

Twining shrubs, 4–5 m tall; branchlets gray-brown, lenticels absent; axillary buds triangular-ovate, ca. 2 mm. Petiole 1–1.5(–2) cm; leaf blade obovate or broadly elliptic, 7–13 × 4–6.5 cm, leathery, gray-green, margin slightly revolute, only serrulate on distal half; secondary veins 7–10 pairs, prominent on both surfaces, veinlets sparse. Inflorescences terminal or axillary. Flowers 5-merous. Fruit approximately globose or very broadly elliptic, ca. 10 mm, valves hard, lower surface transversely rugose, brown, persistent sepals thickened; stipes sturdy, 5–8 × 1–2 mm. Seed 1, broadly elliptic, ca. 7 × 5 mm. Fr. Oct.

Forests, thickets, mountainous regions; 1000–1800 m. W Guangxi, E Yunnan [N Vietnam].

24. *Celastrus monospermus* Roxburgh, Fl. Ind. 2: 394. 1824.

独子藤 *du zi teng*

Catha benthamii Gardner & Champion; *C. monosperma* (Roxburgh) Benthams; *Celastrus benthamii* (Gardner & Champion) Rehder & E. H. Wilson; *C. championii* Benthams, nom. illeg. superfl.; *Monocelastrus monospermus* (Roxburgh) F. T. Wang & T. Tang.

Evergreen twining shrubs, to 10 m tall; annotinal branchlets purplish brown; lenticels sparse, elliptic or suborbicular. Petiole 1–2 cm; leaf blade broadly rectangular-elliptic to narrowly elliptic, rarely obovate-elliptic, 5–17 × 3–7 cm, approximately leathery, glabrous, base cuneate, rarely widely cuneate, margin serrulate, apex acuminate or acute; secondary veins 5–7 pairs. Thyrses axillary, sometimes terminal; rachis 1–2.5 cm, glabrous; pedicels 1–4 mm, jointed at base, generally glabrous. Flowers yellowish green or whitish. Male flowers: sepals triangular-semiorbicular, ca. 1 mm; petals rectangular or rectangular-elliptic, ca. 2.5 × 1.8 mm, revolute during blossoming; disk car-nose, flat, shallowly 5-lobed, lobe apex approximately truncate; stamens 5, 2.5–3 mm, inserted on disk; filament subulate.

Female flowers: pistils approximately ampullaceous; styles 3-lobed, revolute; staminodes ca. 1 mm. Capsule broadly elliptic, rarely globose, 10–18 × 9–14 mm; valves elliptic, 12–20 × 8–10 mm, revolute when dry, margin crispate. Seed 1, elliptic, 10–15 × 6–9 mm, glabrous, slightly verrucose; aril purplish brown. Fl. Mar–Jun, fr. Jun–Oct.

Dense forests, thickets, slopes; 300–1500 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Yunnan [Bhutan, India, Myanmar, Pakistan, Vietnam].

25. *Celastrus virens* (F. T. Wang & T. Tang) C. Y. Cheng & T. C. Kao in C. Y. Cheng & P. H. Huang, Fl. Reipubl. Popularis Sin. 45(3): 127. 1999.

绿独子藤 *lü du zi teng*

Monocelastrus virens F. T. Wang & T. Tang, Acta Phytotax. Sin. 1: 135. 1951.

Evergreen twining shrubs; branchlets yellowish green, lenticels very few, narrowly elliptic. Petiole 7–12 mm; leaf blade oblong, rarely narrowly rectangular-elliptic, 8–13 × 3–5 cm, thickly papery, yellowish green when dry, margin sparsely serrulate; secondary veins 6–8 pairs, veinlets prominent on both surfaces. Inflorescences paniculate. Sepals broadly ovate, margin irregularly serrulate; petals rectangular, ca. 2.5 mm. Disk car-nose, shallowly discoid or flat, with 5 shallow lobes, lobe apex widely rounded. Stamens shorter than corolla, inserted on disk. Pistillodes in male flowers slightly subulate. Infructescence conical, axillary, 5–13 cm, stipes 4–6 cm. Fruit stipe 6–12 mm. Capsule broadly elliptic, yellowish green, 14–18 × 10–13 mm, valves elliptic to elliptic-ovate, 15–23 mm, leathery, straight when dry. Seed 1, elliptic, 12–17 mm; aril purplish brown. Fl. Mar, fr. Jun–Oct.

• Slopes; 800–1200 m. S Yunnan (Xishuangbanna).

