

6. STEWARTIA Linnaeus, Sp. Pl. 2: 698. 1753.

紫茎属 *zi jing shu*

*Cavanilla* Salisbury (1796), not J. F. Gmelin (1792), nor Thunberg (1792); *Hartia* Dunn; *Malachodendron* Mitchell.

Shrubs or trees, evergreen or deciduous. Winter buds laterally compressed; bud scales 1 to several, imbricate. Petiole short, narrowly to widely winged, wing sometimes enclosing and concealing axillary and terminal buds; leaf blade ovate, lanceolate, or elliptic, papery to leathery, base cuneate to rounded, margin serrulate to serrate, apex acuminate, acute, or apiculate. Flowers axillary, solitary to several arranged in a short raceme, pedicellate. Bracteoles 2, close to sepals, persistent or rarely caducous. Sepals 5, imbricate, persistent, basally connate. Petals 5, white or yellowish white, imbricate, basally slightly connate. Stamens numerous, basally connate into a short tube and adnate to petals; anthers dorsifixed. Ovary superior, 5-loculed with 2–4(–7) ovules per locule, placentation axile but nearly basal; style connate or distinct. Capsule ovoid to conic, 5-ribbed, 5-loculed with (1 or)2–4 seeds per locule, loculicidal, enveloped by persistent sepals, apex acute or acuminately rostrate; pericarp splitting into 5 valves; columella abortive or ± apical 1/2 abortive. Seeds small, obovate, angular and wingless or planoconvex with a narrow marginal wing; testa crustaceous, shiny; embryo small, straight; cotyledons subrounded, clasping, embedded in copious fleshy endosperm.

About 20 species: China, Japan, Korea, Laos, Vietnam; E North America; 15 species (14 endemic) in China.

- 1a. Deciduous; winter bud with 2–11 scales; leaf blade papery or thinly leathery; petiole wingless or narrowly winged.
  - 2a. Bracteoles reniform, not leaflike, 1/2 as long as sepals; sepals 0.6–1.2 cm, not leaflike; capsule 2–2.5 × 1.5–2 cm ..... 15. *S. rubiginosa*
  - 2b. Bracteoles not reniform, leaflike, ± equal to sepal length; sepals 1–2 cm, leaflike; capsule 1.2–2 × 1–1.5(–1.6) cm.
    - 3a. Bracteoles 2–2.5 × 1–1.3 cm; style ca. 1 cm; ovary tomentose throughout; capsule conical ..... 13. *S. sinensis*
    - 3b. Bracteoles (1.2–)1.5–2 × (0.6–)0.8–1.2 cm; style 1.6–1.8 cm; ovary basally densely sericeous, apically glabrous; capsule subglobose ..... 14. *S. rostrata*
- 1b. Evergreen; winter bud without scales; leaf blade leathery or thickly leathery (papery to thinly leathery in *S. calcicola*); petiole distinctly winged.
  - 4a. Flowers 2–5 in short racemes but sometimes solitary flowers also present.
    - 5a. Sepals longer than wide.
      - 6a. Leaf blade margin serrulate, apex long acuminate; bracteoles long obovate; sepals obovate to broadly elliptic, 12–15 × ca. 10 mm ..... 1. *S. sinii*
      - 6b. Leaf blade margin entire or apically with several serrations, apex obtuse; bracteoles and sepals lanceolate, sepals ca. 10 × 4 mm ..... 2. *S. densivillosa*
    - 5b. Sepals as long as wide.
      - 7a. Bracteoles lanceolate, as long as sepals ..... 3. *S. laotica*
      - 7b. Bracteoles ovate to broadly ovate (sometimes lanceolate in *S. obovata*), ca. 1/2 as long as sepals.
        - 8a. Leaf blade leathery, margin entire ..... 4. *S. obovata*
        - 8b. Leaf blade thickly leathery, margin serrate ..... 5. *S. crassifolia*
  - 4b. Flowers solitary.
    - 9a. Sepals orbicular to suborbicular, ± 1/2 as long as capsule.
      - 10a. Bracteoles ca. 2/3 as long as sepals; capsule subglobose ..... 10. *S. sichuanensis*
      - 10b. Bracteoles ca. 1/2 as long as sepals; capsule conic.
        - 11a. Leaf blade oblong to narrowly oblong, adaxially glabrous, apex acuminate ..... 11. *S. micrantha*
        - 11b. Leaf blade oblong-elliptic, adaxially pubescent along midvein, apex abruptly acute to shortly acuminate ..... 12. *S. calcicola*
    - 9b. Sepals ovate, long ovate, or ovate-lanceolate, ± as long as capsule.
      - 12a. Sepals leaflike, apex acute.
        - 13a. Sepals margin entire; ovary tomentose ..... 6. *S. villosa*
        - 13b. Sepals margin serrulate; ovary glabrous ..... 7. *S. pteropetiolata*
      - 12b. Sepals not leaflike, apex rounded to obtuse.
        - 14a. Petiole 1.2–2.5 cm; leaf blade long ovate, thickly leathery; sepals long ovate, 9–12 mm, margin entire, outside pubescent ..... 8. *S. cordifolia*
        - 14b. Petiole ca. 1 cm; leaf blade oblong, leathery; sepals ovate, 7–8 mm, margin serrulate, outside velutinous ..... 9. *S. medogensis*

1. *Stewartia sinii* (Y. C. Wu) Sealy, Bot. Mag. 176: t. 510. 1967.

黄毛紫茎 *huang mao zi jing*

*Hartia sinii* Y. C. Wu, Bot. Jahrb. Syst. 71: 194. 1940.

Trees to 10 m tall, evergreen. Current year branchlets densely yellowish villous. Petiole 1.5–2 cm, yellowish villous, wings ca. 2 mm wide; leaf blade oblong, 10–14 × 3–4.5 cm, abaxially densely yellow to reddish brown villous, adaxially glabrous and shiny, secondary veins 12–18 on each side of midvein, abaxially impressed, and adaxially raised, base broadly cuneate to rounded, margin serrulate, apex long acuminate. Flowers axillary, solitary or to 3 in a raceme. Pedicel ca. 1 cm, yellowish villous; bracteoles long obovate, 8–9 × ca. 4.5 mm, both surfaces villous. Sepals obovate to broadly elliptic, 1.2–1.5 × ca. 1 cm, outside yellowish tomentose, basally connate, margin sparsely serrate and ciliolate, apex shortly acuminate to obtuse. Petals white, suborbicular, 1.3–1.5 × ca. 1 cm. Stamens numerous. Ovary ovoid to conic. Capsule conic, equal in length to persistent sepals. Fl. May, fr. Sep.

- Forests; 300–1100 m. E and S Guangxi.

**2. *Stewartia densivillosa*** (Hu ex Hung T. Chang & C. X. Ye) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 57. 1996.

狭萼紫茎 xia e zi jing

*Hartia densivillosa* Hu ex Hung T. Chang & C. X. Ye, Acta Sci. Nat. Univ. Sunyatseni 21(4): 75. 1982.

Shrubs to 3 m tall, evergreen. Current year branchlets densely yellowish villous. Petiole 1–2 cm, spreading villous, wings ca. 3 mm wide; leaf blade oblong-ovate to ovate-elliptic, 6–13 × 3.5–6.5 cm, thickly leathery, abaxially appressed pubescent and spreading villous along veins, adaxially appressed pubescent and densely hirtellous along midvein, secondary veins 9–13 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially impressed, base rounded to subcordate, margin entire or apically with several serrations, apex obtuse. Flowers solitary or to 3 in a short raceme. Pedicel 5–7 mm, densely yellowish villous; bracteoles persistent, lanceolate, 7–8 × 2.5–3.5 mm, outside villous, inside glabrous. Sepals lanceolate, ca. 10 × 4 mm, outside villous, inside glabrous, apex apiculate. Petals white, oblong, outside yellowish puberulent. Stamens short than petals. Ovary glabrous. Capsule not seen. Fl. Apr.

- Evergreen broad-leaved forests; ca. 800 m. Yunnan (Funing).

**3. *Stewartia laotica*** (Gagnepain) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 58. 1996.

老挝紫茎 lao wo zi jing

*Hartia laotica* Gagnepain, Notul. Syst. (Paris) 10: 121. 1942; *H. gracilis* (S. Z. Yan) Hung T. Chang & C. X. Ye; *H. racemosa* Hung T. Chang & C. X. Ye; *H. yunnanensis* Hu var. *gracilis* S. Z. Yan.

Small trees, evergreen. Current year branchlets densely white pubescent. Petiole 1.1–1.3 cm, wings ca. 1.5 mm wide, white pubescent; leaf blade oblong to obovate-oblong, 7–10 × 2.5–4 cm, leathery, abaxially pubescent along midvein, adaxially glabrous and shiny, secondary veins 9–12 on each side of midvein, abaxially visible, and adaxially obscure, base cuneate, margin serrulate, apex bluntly acute. Flowers 2–4 in a short raceme. Pedicel 5–7 mm, white pubescent; bracteoles 2, lanceolate, 5–7 mm, white pubescent. Sepals 5, orbicular, ca. 5 mm in

diam., outside white pubescent, margin ciliolate, apex rounded. Petals 5, white, broadly obovate, ca. 1.5 cm, outside puberulent. Stamens numerous; filaments basally connate. Ovary densely pubescent, 5-loculed; style 2–4 mm. Capsule subglobose, with 5 or 6 seeds per locule. Seeds narrowly winged. Fl. May–Jun, fr. Sep–Oct.

- Forests; 900–1800 m. Guangxi, SE Yunnan [Laos, Vietnam].

**4. *Stewartia obovata*** (Chun ex Hung T. Chang) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 57. 1996.

钝叶紫茎 dun ye zi jing

*Hartia obovata* Chun ex Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 5(2): 24. 1959; *H. multinerva* S. Z. Yan.

Trees to 5 m tall, evergreen. Current year branchlets glabrous or puberulent. Petiole 1–1.5 cm, pubescent when young, wings 1.5–2 mm wide; leaf blade obovate to obovate-oblong, 7–12 × 3–4.5 cm, leathery, abaxially appressed pubescent when young but glabrescent and reddish brown glandular punctate, secondary veins 10–15 on each side of midvein, base asymmetrically slightly cordate, margin entire, apex obtuse to emarginate. Flowers solitary or to 4 in a short raceme, ca. 2.5 cm in diam. Pedicel 3–5 mm, pubescent; bracteoles 2, caducous, ovate to lanceolate, ca. 5 mm. Sepals obovate to suborbicular, 6–8 × 4–6 mm, outside grayish white appressed pubescent, apex rounded. Petals 5, white, broadly obovate to obovate, ca. 1.2 cm, basally slightly connate, margin serrate. Stamens numerous; filament whorls basally connate. Ovary glabrous. Capsule conic, 8–12 × 6–8 mm; pedicel ca. 5 mm. Fl. Jun–Jul, fr. Sep–Oct.

- Forests; 900–1300 m. SW Guangdong, N Guangxi.

The plants mistakenly treated as *Hartia tonkinensis* Merrill in FRPS (49(3): 228. 1998) belong here. This species, now *Stewartia tonkinensis* (Merrill) C. Y. Wu ex T. L. Ming, is endemic to Vietnam.

**5. *Stewartia crassifolia*** (S. Z. Yan) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 57. 1996.

厚叶紫茎 hou ye zi jing

*Hartia crassifolia* S. Z. Yan, Acta Phytotax. Sin. 19: 468. 1981.

Trees 10–18 m tall, evergreen. Current year branchlets pubescent. Petiole 1.4–2 cm, pubescent when young, wings 2–3 mm wide; leaf blade long ovate, 8–12 × 3–4.5 cm, thickly leathery, abaxially pale green and appressed pubescent when young but glabrescent, adaxially dark green and glabrous, secondary veins 12–14 on each side of midvein, base slightly cordate, margin serrate, apex abruptly acute. Flowers 2 or 3 in a short raceme. Pedicel 5–7 mm, pubescent; bracteoles caducous, broadly ovate, 2–3 mm. Sepals suborbicular, 6–8 × 5–7 mm, outside pubescent, basally slightly connate, apex rounded. Petals yellowish white, obovate, 1.2–1.5 × 0.8–1 cm, outside white sericeous. Stamens 8–10 mm; filaments basally connate. Ovary conic; style very short. Capsule shortly conic, 1.5–1.6 cm in diam. Fl. May–Jun, fr. Nov.

- Forests; 800–1900 m. NW Guangdong, NE Guangxi, S Hunan, S Jiangxi.

6. *Stewartia villosa* Merrill, Lingnan Sci. J. 7: 315. 1931.

柔毛紫茎 rou mao zi jing

Trees 8–20 m tall, evergreen. Current year branchlets spreading villous or appressed pubescent. Petiole 1–2 cm, spreading villous or appressed pubescent, wings ca. 2 mm wide; leaf blade elliptic-oblong, oblong, or lanceolate, (4.5–)6–13(–21) × (2.4–)3–5.5(–7) cm, leathery, both surfaces villous or pubescent but sometimes glabrescent, secondary veins 10–16 on each side of midvein, base rounded to obtuse, margin sparsely serrate, apex abruptly acute to shortly acuminate. Flowers solitary. Pedicel 6–8 mm, villous; bracteoles lanceolate, 0.8–1.5 cm, villous. Sepals ovate-lanceolate, unequal, 1.5–1.8 × (0.4–)0.6–0.8 cm, outside villous, apex acute. Petals yellowish white, obovate, ca. 1.8 × 1.2 cm. Stamens ca. 1 cm; filaments basally connate. Ovary conic, tomentose. Capsule conic, ca. 1.8 cm. Fl. Jun–Jul, fr. Oct–Nov.

• Forests; 200–1200 m. Guangdong, Guangxi, S Jiangxi.

- 1a. Current year branchlets, midvein of leaf blade abaxial surface, and petioles appressed pubescent; leaf blade lanceolate ..... 6c. var. *kwangtungensis*
- 1b. Current year branchlets, midvein of leaf blade abaxial surface, and petioles spreading villous; leaf blade elliptic to oblong.
  - 2a. Leaf blade margin entire toward base ..... 6a. var. *villosa*
  - 2b. Leaf blade margin serrate to base ..... 6b. var. *serrata*

6a. *Stewartia villosa* var. *villosa*

柔毛紫茎(原变种) rou mao zi jing (yuan bian zhong)

*Hartia nankwanica* Hung T. Chang & C. X. Ye; *H. villosa* (Merrill) Merrill; *H. villosa* var. *elliptica* Hung T. Chang.

Current year branchlets, midvein of leaf blade abaxial surface, and petioles spreading villous. Leaf blade elliptic to oblong and 8–13 × 3–5 cm, rarely elliptic and 4.5–6 × 2.4–3.8 cm, margin entire toward base. Fl. Jun–Jul, fr. Oct.

• Forests; 600–700 m. Guangdong, Guangxi.

6b. *Stewartia villosa* var. *serrata* (Hu) T. L. Ming, **comb. nov.**

齿叶柔毛紫茎 chi ye rou mao zi jing

Basionym: *Hartia kwangtungensis* Chun var. *serrata* Hu, Bull. Fan Mem. Inst. Biol., Bot. 6: 170. 1935; *H. villosa* var. *serrata* (Hu) Hung T. Chang.

Current year branchlets, midvein of leaf blade abaxial surface, and petioles spreading villous. Leaf blade oblong, margin serrate to base. Fl. Jun, fr. Oct.

• Forests; 200–400 m. S Guangxi.

6c. *Stewartia villosa* var. *kwangtungensis* (Chun) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 64. 1996.

广东柔毛紫茎 guang dong rou mao zi jing

*Hartia kwangtungensis* Chun, Sunyatsenia 2: 60. 1934; *H.*

*kwangtungensis* var. *grandifolia* Chun; *H. villosa* var. *grandifolia* (Chun) Hung T. Chang; *H. villosa* var. *kwangtungensis* (Chun) Hung T. Chang; *Stewartia villosa* var. *grandifolia* (Chun) J. Li & T. L. Ming.

Current year branchlets, midvein of leaf blade abaxial surface, and petioles appressed pubescent. Leaf blade lanceolate, margin obtusely serrate toward apex to almost entire. Fl. Jun–Jul, fr. Nov.

• Forests; 200–1200 m. Guangdong, Guangxi, S Jiangxi.

7. *Stewartia pteropetiolata* W. C. Cheng, Contr. Biol. Lab. Sci. Soc. China, Bot. Ser. 9: 202. 1934.

翅柄紫茎 chi bing zi jing

*Hartia sinensis* Dunn, Hooker's Icon. Pl. 28: t. 2727. 1902, not *Stewartia sinensis* Rehder & E. H. Wilson (1915); *Hartia serratisepala* Hu.

Trees 6–15 m tall, evergreen. Year-old branchlets purple, glabrous; current year branchlets grayish yellow pubescent. Petiole 1–1.5 cm, gray pubescent, wings ca. 3 mm wide; leaf blade elliptic to oblong, 6–10(–13) × 2.5–4.5(–5) cm, leathery, abaxially yellowish green, sparsely pubescent or glabrescent, and trichomes evident along midvein, adaxially green, shiny, and glabrous, midvein red, secondary veins 10–12 on each side of midvein, secondary and reticulate veins abaxially raised and adaxially impressed, base rounded, margin serrate, apex abruptly acute to shortly acuminate. Flowers solitary, ca. 3 cm in diam. Pedicel 8–10 mm, appressed pubescent; bracteoles persistent, elliptic, 5–7.5 × 3–3.5 mm, appressed pubescent. Sepals purplish red, long ovate, 1–1.5 × 0.7–1 cm, leaf-like, both surfaces white sericeous, veins pinnate, margin serrulate, apex acute. Petals white, broadly obovate to suborbicular, 1.5–1.8 × 1–1.3 cm, outside basally white sericeous, apex rounded. Stamens 7–9 mm; filaments basally connate. Ovary ovoid, 3–4 mm, glabrous; style ca. 5 mm. Capsule long ovoid, 1.5–2 × 1–1.5 cm, 5-loculed with 4 seeds per locule; columella ca. 5 mm, apically abortive. Seeds obovate, ± compressed, ca. 5 × 3.5 mm, narrowly winged. Fl. Apr–May, fr. Sep–Nov. 2n = 36\*.

• Forests; 1200–2600 m. S and W Yunnan.

8. *Stewartia cordifolia* (H. L. Li) J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 63. 1996.

心叶紫茎 xin ye zi jing

*Hartia cordifolia* H. L. Li, J. Arnold Arbor. 26: 65. 1945; *H. guizhouensis* C. X. Ye.

Trees 12–18 m tall, evergreen. Young branches glabrous; current year branchlets pubescent. Petiole 1.2–2.5 cm, pubescent, wings 2–3 mm wide; leaf blade long ovate, 5–8 × 3–4.5 cm, thickly leathery, abaxially yellowish green and sparsely appressed pubescent or glabrescent, adaxially dark green and glabrous, midvein abaxially elevated and adaxially impressed, secondary veins 10–12 on each side of midvein and raised on both surfaces, base rounded to cordate, margin sparsely serrate, apex abruptly acute to acuminate. Flowers solitary. Pedicel 4–6 mm, pubescent; bracteoles lanceolate, 4–7 × 2–3 mm, pubes-

cent. Sepals long ovate, 9–12 × 5–7 mm, outside pubescent, inside basally puberulent, apex rounded. Petals white, elliptic, 1.2–1.5 × 0.8–1 cm. Stamens 8–10 mm. Ovary conic, glabrous. Capsule conic, ca. 1 × 1.4 cm, 5-loculed with 5 or 6 seeds per locule. Seeds broadly ovate, narrowly winged. Fl. Jun–Jul, fr. Sep–Oct.

- Forests; 400–1300 m. NE Guangxi, SE Guizhou, S Hunan.

**9. *Stewartia medogensis*** J. Li & T. L. Ming, *Acta Phytotax. Sin.* 34: 64. 1996.

墨脱紫茎 *mo tuo zi jing*

*Hartia brevicalyx* Hung T. Chang, *Acta Sci. Nat. Univ. Sunyatseni* 22(3): 65. 1983, not *Stewartia brevicalyx* S. Z. Yan (1981).

Small trees, evergreen. Current year branchlets pubescent. Petiole ca. 1 cm, grayish brown villous, wings ca. 1.5 mm wide; leaf blade oblong, 6–10 × 2.5–4 cm, leathery, abaxially pubescent and hirtellous along midvein, adaxially green, glabrous, and shiny, secondary veins ca. 10 on each side of midvein, abaxially raised, and adaxially visible, base rounded, margin serrulate, apex abruptly acute to slightly obtuse. Flowers not seen. Capsule ovoid, ca. 1.5 × 1.3 cm, brown pubescent; pedicel 5–8 mm, villous or glabrescent; bracteoles caducous; persistent sepals ovate, 7–8 mm, outside brown villous, apex rounded to obtuse. Fr. Oct.

- Forests; 1500–1800 m. Xizang (Médog).

**10. *Stewartia sichuanensis*** (S. Z. Yan) J. Li & T. L. Ming, *Acta Phytotax. Sin.* 34: 61. 1996.

四川紫茎 *si chuan zi jing*

*Hartia sichuanensis* S. Z. Yan, *Acta Phytotax. Sin.* 19: 469. 1981.

Shrubs or small trees, evergreen. Current year branchlets pubescent. Petiole 1–1.5 cm, sparsely pubescent or glabrescent, wings ca. 2 mm wide; leaf blade elliptic to obovate-elliptic, 7.5–10 × 3–4.5 cm, leathery, abaxially appressed pubescent, adaxially glabrous, secondary veins 7–10 on each side of midvein, base broadly cuneate to subrounded, margin serrulate, apex abruptly acute to slightly obtuse. Flowers not seen. Capsule subglobose, ca. 9 × 10 mm, longitudinally 5-grooved, glabrous, persistent style ca. 1.5 cm; pedicel 5–7 mm, pubescent; persistent bracteoles 2, linear-lanceolate, ca. 5 × 1 mm, outside densely pubescent, inside subglabrous, margin ciliolate; persistent sepals 5, suborbicular, 7–8 mm, outside densely appressed pubescent, inside sericeous, margin ciliolate, apex rounded. Fr. Sep–Oct.

- Thickets; ca. 600 m. Sichuan (Pingshan).

**11. *Stewartia micrantha*** (Chun) Sealy, *Bot. Mag.* 176: t. 510. 1967.

小花紫茎 *xiao hua zi jing*

*Hartia micrantha* Chun, *Sunyatsenia* 2: 62. 1934; *H. nitida* H. L. Li.

Shrubs 1–3 m tall, evergreen. Current year branchlets pubescent; terminal buds white sericeous. Petiole 1–1.5 cm, pubescent, wings 1–1.3 mm wide; leaf blade oblong to narrowly oblong, 7–13 × 2–4 cm, leathery, abaxially sparsely pubescent when young but glabrescent, adaxially glabrous and shiny, secondary veins 10–14 on each side of midvein, secondary and reticulate veins raised on both surfaces, base rounded, margin sparsely serrate, apex acuminate. Flowers solitary. Pedicel 5–7 mm, pubescent; bracteoles ovate-triangular, ca. 2.5 mm. Sepals suborbicular, 4–6 mm in diam., outside pubescent, margin glandular ciliate, apex rounded. Petals white, 1.2–1.5 × ca. 1 cm. Stamens 6–7 mm. Ovary conic, 5-loculed, densely pubescent. Capsule conic, ca. 1 cm in diam., apex acute. Seeds 5–6 mm. Fl. May–Jun, fr. Oct.

- Thickets; 300–500 m. Fujian, Guangdong (Dabu, Raoping).

**12. *Stewartia calcicola*** T. L. Ming & J. Li, *Acta Phytotax. Sin.* 34: 63. 1996.

云南紫茎 *yun nan zi jing*

*Hartia yunnanensis* Hu, *Bull. Fan Mem. Inst. Biol., Bot.* 6: 169. 1935, not *Stewartia yunnanensis* Hung T. Chang (1982).

Trees 8–15 m tall, evergreen. Young branches glabrous; current year branchlets purplish brown, gray pubescent. Petiole 1–1.5 cm, appressed pubescent, wings 2–3 mm wide; leaf blade oblong-elliptic, 8–16 × 3.5–6.3 cm, papery to thinly leathery, abaxially pale green, sparsely pubescent, and villous along midvein, adaxially dark green and pubescent along midvein, secondary veins 9–12 on each side of midvein, secondary and reticulate veins raised on both surfaces, base broadly cuneate to rounded, margin serrate, apex abruptly acute to shortly acuminate. Flowers solitary. Pedicel 3–5 mm, appressed pubescent; bracteoles 2, caducous, lanceolate, 3–4 mm. Sepals orbicular, 4–6 mm in diam., outside gray sericeous, inside puberulent, margin glandular serrate and ciliolate, apex rounded. Petals white, obovate, ca. 11 × 8 mm, outside gray sericeous. Stamens numerous; filaments basally connate. Ovary conic, glabrous. Capsule conic, 1.5–2 × ca. 1 cm; columella ca. 7 mm, apically abortive. Seeds 4–6 × 3–4 mm, narrowly winged. Fl. May–Jun, fr. Oct–Dec.

- Forests; 900–1700 m. SW Guangxi, SE Yunnan.

**13. *Stewartia sinensis*** Rehder & E. H. Wilson in Sargent, *Pl. Wilson.* 2: 395. 1915.

紫茎 *zi jing*

Shrubs or trees, 3–11 m tall, deciduous. Current year branchlets purplish red, glabrous or villous; winter buds with 3–11 scales. Petiole purplish red, ca. 1 cm, glabrous or villous, narrowly winged; leaf blade elliptic to obovate-elliptic, 5.5–10.5 × 2.5–4.5 cm, papery, abaxially yellowish green, appressed pubescent, and densely villous along midvein, adaxially green and glabrous, secondary veins 7–11 on each side of midvein and raised on both surfaces, base broadly cuneate to rounded, margin sparsely serrate, apex abruptly acute to acuminate. Flowers solitary. Pedicel 0.5–3 cm, pubescent or glabrescent, thickened toward apex; bracteoles persistent, ovate, long ovate,

ovate-lanceolate, broadly ovate, or subcordate, 2–2.5 × 1–1.3 cm, leaflike, apex abruptly acute, acuminate, or long acuminate. Sepals ovate, long ovate, ovate-lanceolate, broadly ovate, or subcordate, 1–2 × ca. 1 cm, leaflike, outside glabrous or basally sparsely pubescent, apex abruptly acute. Petals white, broadly obovate, 2.5–3 × 1.5–2 cm, outside gray sericeous, apex rounded. Stamens 1.5–2 cm; filaments basally connate, distinct parts sparsely villous. Ovary conical, tomentose; style ca. 1 cm, glabrous. Capsule conical, 1.5–2 × 1–1.5 cm, tomentose, apex rostrate; columella abortive. Seeds obovate in outline, planoconvex, 6–9 × 4–5 mm, margin narrowly winged. Fl. May–Jul, fr. Sep–Nov.

• Forests, dense thickets or scrub on mountains; 500–2200 m. Anhui, Fujian, N Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, S Shaanxi, E Sichuan, NE Yunnan, Zhejiang.

- 1a. Current year branchlets, winter buds, petioles, bracteoles, and sepals densely villous ..... 13d. var. *shensiensis*
- 1b. Current year branchlets, winter buds, petioles, bracteoles, and sepals glabrous or sparsely pubescent, soon glabrescent.
  - 2a. Bracteoles and sepals not leaflike, bracteoles broadly ovate to subcordate and apex obtuse, outer 2 sepals orbicular or reniform and apex rounded ..... 13c. var. *brevicalyx*
  - 2b. Bracteoles and sepals leaflike, ovate, long ovate, or ovate-lanceolate, apex acute to acuminate.
    - 3a. Pedicel 0.5–1 cm; bracteoles and sepals ovate, apex abruptly acute ..... 13a. var. *sinensis*
    - 3b. Pedicel (1.5–)2–3 cm; bracteoles and sepals long ovate to ovate-lanceolate, apex acuminate to long acuminate ..... 13b. var. *acutisepala*

**13a. *Stewartia sinensis* var. *sinensis***

紫茎(原变种) *zi jing* (yuan bian zhong)

*Stewartia gemmata* S. S. Chien & W. C. Cheng; *S. nanlingensis* S. Z. Yan.

Current year branchlets, winter buds, petioles, pedicels, bracteoles, and sepals glabrous or glabrescent. Pedicel 5–10 mm; bracteoles and sepals ovate, apex abruptly acute. Fl. May–Jun, fr. Sep–Nov.

• Forests, dense thickets on mountains; 500–2200 m. Anhui, Fujian, N Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, E Sichuan, NE Yunnan, Zhejiang.

**13b. *Stewartia sinensis* var. *acutisepala*** (P. L. Chiu & G. R. Zhong) T. L. Ming & J. Li, Acta Phytotax. Sin. 34: 60. 1996.

尖萼紫茎 *jian e zi jing*

*Stewartia acutisepala* P. L. Chiu & G. R. Zhong, Acta Bot. Yunnan. 10: 57. 1988.

Current year branchlets, winter buds, petioles, pedicels,

bracteoles, and sepals glabrous or glabrescent. Pedicel (1.5–)2–3 cm; bracteoles and sepals long ovate to ovate-lanceolate, apex acuminate to long acuminate. Fl. May–Jun, fr. Oct–Nov.

• Forests; 1400–1700 m. Zhejiang.

**13c. *Stewartia sinensis* var. *brevicalyx*** (S. Z. Yan) T. L. Ming & J. Li, Acta Phytotax. Sin. 34: 60. 1996.

短萼紫茎 *duan e zi jing*

*Stewartia brevicalyx* S. Z. Yan, Acta Phytotax. Sin. 19: 466. 1981.

Current year branchlets, winter buds, petioles, pedicels, bracteoles, and sepals glabrous or glabrescent. Bracteoles broadly ovate to subcordate. Outer 2 sepals orbicular to reniform, apex rounded. Fl. May–Jun.

• Dense scrub on mountains; 600–700 m. Zhejiang.

**13d. *Stewartia sinensis* var. *shensiensis*** (Hung T. Chang) T. L. Ming & J. Li, Acta Phytotax. Sin. 34: 60. 1996.

陕西紫茎 *shan xi zi jing*

*Stewartia shensiensis* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 21(4): 76. 1982.

Current year branchlets, winter buds, petioles, pedicels, bracteoles, and sepals densely villous. Bracteoles and sepals oblong. Fl. Jul.

• Below 1400 m. Henan, S Shaanxi.

This taxon is expected to be found in extreme S Gansu.

**14. *Stewartia rostrata*** Spongberg, J. Arnold Arbor. 55: 198. 1974.

长喙紫茎 *chang hui zi jing*

*Stewartia glabra* S. Z. Yan; *S. sinensis* Rehder & E. H. Wilson var. *rostrata* (Spongberg) Hung T. Chang.

Shrubs or trees, to 10 m tall, deciduous. Bark slate gray. Branches ascending, usually several from base; outer bark on current year branchlets not exfoliating; winter buds compressed, ca. 5 mm, with 2 or 3 finely pubescent imbricate scales. Petiole (2–)4–6(–9) mm, adaxially shallowly grooved; leaf blade ovate to elliptic, (2–)6–10.5 × (1.2–)2.5–4.5 cm, papery, abaxially sparsely appressed villous especially along midvein and tufts of short trichomes in axils of midvein and secondary veins, adaxially glabrous, midvein abaxially elevated, base rounded, margin serrate, apex acuminate. Flowers axillary. Pedicel 5–7 mm; bracteoles persistent, subopposite, subtending calyx, ovate, (1.2–)1.5–2 × (0.6–)0.8–1.2 cm, leaf-like, margin irregularly undulating, apex acuminate. Sepals 5, persistent, similar to bracteoles, ovate, obovate, or orbicular, 1.2–1.8 × 0.7–1 cm, basally connate, margin irregularly undulating, apex acute to rounded. Petals 5, white, obovate to suborbicular, 2.8–3.8 × 2–3 cm, outside finely sericeous, basally connate, margin erose. Stamens numerous; filaments to 2.5 cm, basally connate into a 6–8 mm tube and adnate to petals, distinct parts pubescent. Ovary subglobose, 5-angled, basally densely sericeous, apically glabrous; style 1.6–1.8 cm, glabrous, terminating in 5 marginally ciliate stigmatic arms. Capsule sub-

globose, 1.2–1.6 × 1.4–1.6 cm, 5-loculed with 4 seeds per locule, apex rostrate. Seeds obovate in outline, planoconvex, 8–10 × 6–7 mm, narrowly winged. Fl. May–Jul, fr. Sep.

• Forests, along streams; 600–1500 m. Anhui, Henan, Hubei, E Hunan, Jiangxi, Zhejiang.

**15. *Stewartia rubiginosa*** Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 5(2): 23. 1959.

红皮紫茎 hong pi zi jing

Trees to 15 m tall, deciduous. Bark reddish brown,

smooth. Current year branchlets purplish red, glabrous; winter buds ovoid, compressed, ca. 12 × 6 mm, with 4 or 5 scales, apically sericeous. Petiole 1–2 cm, pubescent; leaf blade oblong-elliptic to ovate-elliptic, 9–13 × 4.5–6.5 cm, thinly leathery, abaxially yellowish green and appressed pubescent, adaxially green and glabrous, secondary veins 8–12 on each side of midvein, base broadly cuneate to subrounded, margin serrate, apex acute. Flowers solitary. Pedicel 5–10 mm, pubescent or glabrescent; bracteoles reniform, 5–6 × 7–10(–14) mm, outside sericeous. Sepals obovate to suborbicular, 6–12 × 8–10 mm, outside yellowish sericeous-villous, inside sericeous, margin glandular serrate, apex rounded. Petals white, obovate, 2.5–4 cm, outside sericeous, basally connate. Stamens numerous, unequal, 1.5–2 cm; filaments basally connate. Ovary pubescent or glabrescent; style 5–8 mm, apically 5-lobed. Capsule ovoid, 2–2.5 × 1.5–2 cm. Seeds 7–10 mm, winged. Fl. May–Jun, fr. Oct–Nov.

• Forests; 1100–1300 m. NW Guangdong, Guangxi (Daming Shan), S Hunan.

1a. Seeds narrowly winged ..... 15a. var. *rubiginosa*

1b. Seeds broadly winged ..... 15b. var. *damingshanica*

**15a. *Stewartia rubiginosa* var. *rubiginosa***

红皮紫茎(原变种) hong pi zi jing (yuan bian zhong)

*Stewartia mangshanica* C. X. Ye; *S. oblongifolia* Hu ex S. Z. Yan.

Seeds narrowly winged. Fl. May–Jun, fr. Oct–Nov.

• Forests; 1100–1300 m. NW Guangdong, S Hunan.

**15b. *Stewartia rubiginosa* var. *damingshanica*** (J. Li & T. L. Ming) T. L. Ming, **comb. et stat. nov.**

大明紫茎 da ming zi jing

Basionym: *Stewartia damingshanica* J. Li & T. L. Ming, Acta Phytotax. Sin. 34: 61. 1996.

Seeds broadly winged. Fr. Oct.

• Forests; 1100–1300 m. Guangxi (Daming Shan).

