

## SYMPLOCACEAE

山矾科 shan fan ke

Wu Rong-fen (吴容芬)<sup>1</sup>; Hans P. Nooteboom<sup>2</sup>

Shrubs or trees, evergreen (*Symplocos paniculata* deciduous). Leaves spirally or distichously arranged, simple; stipules absent. Inflorescences spikes, racemes, panicles, or glomerules, rarely flowers solitary. Flowers actinomorphic, bisexual, rarely unisexual, subtended by 1 bract and 2 bractlets, rarely bractless or with several bracts in leaf axil. Ovary inferior to half inferior, 2–5-locular, 3-locular unless stated otherwise; ovules 2–4 per locule. Calyx lobes (3–)5, persistent, valvate or imbricate. Corolla white (not repeated in descriptions) or yellow, gamopetalous but divided nearly to base (or to middle in *S. pendula*); lobes (3–) 5(–11), imbricate. Stamens many, rarely 4 or 5, adnate to base of corolla tube, monadelphous in subgenus *Symplocos*, monadelphous to pentadelphous in subgenus *Hopea*; filaments distinct or in fascicles; anthers subglobose, 2-locular. Disc apical, 5-glandular, annular, cylindric, or 5-lobed. Style 1, filiform; stigma small, capitate or 2–5-lobed. Fruit a drupe. Seed with copious endosperm; embryo straight or curved; cotyledons very short.

One genus and ca. 200 species: widely distributed in tropics and subtropics of Asia, Australia, and America; 42 species (18 endemic) in China.

Wu Rong-fen (as Wu Young-fen) in Wu Young-fen & Hwang Shu-mei, eds. 1987. Symplocaceae. Fl. Reipubl. Popularis Sin. 60(2): 1–77.

### 1. SYMPLOCOS Jacquin, Enum. Syst. Pl. 5, 24. 1760.

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Morphological characters and geographical distribution are the same as the family.

#### Key to the species based primarily on flower characters

- 1a. Petals connate at least halfway to apex (subgen. *Symplocos*) ..... 41. *S. pendula*
- 1b. Petals connate only at very base (subgen. *Hopea* (Linnaeus) C. B. Clarke).
  - 2a. Plants deciduous; inflorescences terminal panicles ..... 40. *S. paniculata*
  - 2b. Plants evergreen; inflorescences not terminal.
    - 3a. Flowers 1–3 from a leaf axil.
      - 4a. Petiole with 2 rows of glands; twigs pubescent or tomentose; bracts ca. 1 mm; fruit oblong ..... 5. *S. euryoides*
      - 4b. Petiole without glands or with few glands; twigs puberulent or patent pilose; bracts 2–4 mm; fruit ampulliform or ovoid.
        - 5a. Leaf blade abaxially glabrous, apex acute to rounded, reticulation obscure; twigs inconspicuously puberulent; calyx glabrous, lobes ca. 2 mm; disc cupular; fruit ovoid, ca. 5 mm wide ..... 9. *S. nokoensis*
        - 5b. Leaf blade abaxially hairy at least when young, apex acuminate, reticulation distinct; twigs patent pilose; calyx pubescent, lobes 2.5–3 mm; disc cylindric; fruit ampulliform, ca. 4 mm wide ..... 6. *S. ovatilobata*
    - 3b. Flowers in more than 3-flowered inflorescences.
      - 6a. Leaf blade midvein adaxially prominent at least toward base or flat.
        - 7a. Twigs, terminal buds, bracts, and bractlets glabrous ..... 1. *S. lucida*
        - 7b. Twigs hairy at least when young, terminal buds pubescent, bracts and bractlets hairy.
          - 8a. Leaf blade adaxially hairy, base broadly cuneate to rounded ..... 4. *S. groffii*
          - 8b. Leaf blade adaxially glabrous, base attenuate-cuneate to narrowly cuneate.
            - 9a. Inflorescences branched racemes; leaf blade abaxially glabrous; bracts and bractlets persistent ..... 2. *S. anomala*
            - 9b. Inflorescences branched spikes; leaf blade abaxially hairy at least when young; bracts and bractlets under fruit early deciduous.
              - 10a. Leaves evenly distributed; leaf blade abaxially often appressed fine hairy, base attenuate-cuneate, intramarginal vein not close to margin; fruit ellipsoid to subglobose, 3–5 × 2–5 mm ..... 27. *S. lancifolia*
              - 10b. Leaves crowded at end of branchlets; leaf blade abaxially minutely scattered hairy, base narrowly cuneate, intramarginal

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- vein close to margin; fruit ovoid, 10–12 × 6–8 mm ..... 3. *S. wikstroemiifolia*
- 6b. Leaf blade midvein adaxially impressed.
- 11a. Inflorescences sessile or rarely elongated clusters or glomerules.
- 12a. Leaf blade abaxially hairy at least when young.
- 13a. Ovary hairy.
- 14a. Petiole ca. 2 cm; twigs tomentose; leaf blade narrowly elliptic, abaxially with cobwebby hairs, margin with 8–12 glands per cm; bracts 2.5–3 mm; calyx lobes ca. 2 mm; corolla 5–6 mm, fruit cylindrical ..... 30. *S. glandulifera*
- 14b. Petiole 0.3–0.5 cm; twigs puberulent; leaf blade elliptic to ovate, abaxially with appressed fine hairs, margin with less than 6 glands per cm; bracts ca. 2 mm; calyx lobes ca. 1 mm; corolla 3–4 mm; fruit ampulliform to ovoid ..... 16. *S. atriolivacea*
- 13b. Ovary glabrous.
- 15a. Leaf blade adaxially hairy; twigs pubescent; fruit subglobose, ca. 5 mm ..... 36. *S. dolichotricha*
- 15b. Leaf blade adaxially glabrous; twigs tomentose, villous, or tomentellous; fruit cylindrical, ellipsoid, or narrowly ovoid, 8–20 mm.
- 16a. Calyx hairy.
- 17a. Leaf blade 7–10 cm, abaxially not papillate and not glaucous, base broadly cuneate, intramarginal vein present, reticulation distinct; twigs tomentose; fruit ellipsoid, ca. 1 cm ..... 35. *S. fukienensis*
- 17b. Leaf blade 10–26 cm, abaxially papillate (always so near base) and glaucous, base cuneate, intramarginal vein absent, reticulation obscure; twigs tomentellous to tomentose; fruit cylindrical to narrowly ovoid, 1.2–2 cm ..... 10. *S. glauca*
- 16b. Calyx glabrous but sometimes margin ciliate.
- 18a. Petiole without glands or with few glands; leaf blade narrowly elliptic to narrowly ovate, margin entire, apex acute to rounded, intramarginal vein close to margin; corolla ca. 6 mm; disc flat, annular ..... 34. *S. ulotricha*
- 18b. Petiole with 2 rows of glands; leaf blade elliptic to ovate, margin glandular dentate to denticulate with 6–12 glands per cm, apex acuminate, intramarginal vein not close to margin; corolla 3–5 mm; disc cylindrical, 0.5–1 mm ..... 32. *S. adenopus*
- 12b. Leaf blade abaxially glabrous.
- 19a. Calyx hairy; fruit 6–8 mm wide ..... 10. *S. glauca*
- 19b. Calyx glabrous but sometimes margin ciliate, rarely woolly tomentose; fruit 2.5–5 mm wide (not known in *S. spectabilis*).
- 20a. Leaf blade margin with 6–12 glands per cm ..... 32. *S. adenopus*
- 20b. Leaf blade margin without glands or with less than 6 glands per cm.
- 21a. Disc cylindrical (annular in *S. spectabilis*).
- 22a. Leaf blade margin glandular dentate to denticulate.
- 23a. Stamens ca. 50; corolla apically ciliate, 5–8 mm ..... 33. *S. stellaris*
- 23b. Stamens ca. 30; corolla glabrous, 4–5 mm ..... 31. *S. glomerata*
- 22b. Leaf blade margin entire with distinct marginal thickening.
- 24a. Leaf blade margin revolute, lateral veins abaxially obscure ..... 33. *S. stellaris*
- 24b. Leaf blade margin flat, lateral veins prominent ..... 42. *S. spectabilis*
- 21b. Disc flat, low cylindrical, or annular, often 5-glandular.
- 25a. Twigs glabrous; leaf blade with 11–14 pairs of lateral veins ..... 39. *S. poilanei*
- 25b. Twigs hairy at least when young; leaf blade with 5–10 pairs of lateral veins.
- 26a. Twigs tomentellous; leaf blade elliptic to obovate, reticulation distinct; calyx lobes 1.5–3.5 mm ..... 38. *S. congesta*
- 26b. Twigs puberulent; leaf blade narrowly elliptic, reticulation obscure; calyx lobes ca. 1 mm ..... 37. *S. austrosinensis*

- 11b. Inflorescences branched spikes or racemes.
- 27a. Ovary hairy (glabrous in *S. xylopyrena*).
- 28a. Bracts and bractlets glabrous or subglabrous but margin sometimes ciliate.
- 29a. Leaf blade with 11–13 pairs of lateral veins; ovary ca. 1.7 mm; corolla ca. 6 mm; fruit ca. 3 × 1 cm ..... 18. *S. xylopyrena*
- 29b. Leaf blade with 4–10 veins of lateral veins; ovary 1–1.5 mm; corolla 3–5 mm; fruit 0.9–1.2 × 0.4–0.5 cm ..... 17. *S. ramosissima*
- 28b. Bracts and bractlets hairy.
- 30a. Petiole with 2 rows of glands; leaf blade margin with 6–12 glands per cm ..... 15. *S. adenophylla*
- 30b. Petiole without glands or with few glands; leaf blade margin with less than 6 glands per cm.
- 31a. Inflorescences branched spikes ..... 16. *S. atriolivacea*
- 31b. Inflorescences branched or unbranched racemes or racemes forming a pseudocone in bud.
- 32a. Twigs glabrous.
- 33a. Disc cylindrical to pulvinate; leaf blade intramarginal vein not close to margin; bracts and bractlets persistent ..... 11. *S. viridissima*
- 33b. Disc flat or annular; leaf blade intramarginal vein close to margin; bracts and bractlets under fruit early deciduous ..... 7. *S. sumuntia*
- 32b. Twigs hairy at least when young.
- 34a. Disc hairy; inflorescences racemes, forming pseudocones in bud; bracts and bractlets under fruit early deciduous.
- 35a. Leaf blade narrowly elliptic to narrowly ovate, abaxially minutely appressed hairy to pubescent, base cuneate, reticulation distinct; corolla ca. 4 mm; fruit 7–10 × ca. 4 mm ..... 25. *S. sulcata*
- 35b. Leaf blade obovate, abaxially tomentose, base broadly cuneate, reticulation obscure; corolla 6–9 mm; fruit 14–24 × 5–9 mm ..... 23. *S. hookeri*
- 34b. Disc glabrous; inflorescences branched racemes; bracts and bractlets persistent.
- 36a. Leaf blade abaxially spreading long pilose; twigs densely pilose; terminal buds with long hairs; disc flat; fruit cylindrical, ca. 1.4 cm ..... 26. *S. pilosa*
- 36b. Leaf blade abaxially appressed fine hairy or glabrous; twigs pubescent; terminal buds pubescent; disc cylindrical; fruit ampulliform, 0.7–1 cm ..... 11. *S. viridissima*
- 27b. Ovary glabrous.
- 37a. Inflorescences branched spikes.
- 38a. Calyx hairy ..... 28. *S. cochinchinensis*
- 38b. Calyx glabrous.
- 39a. Twigs hairy at least when young; terminal buds with long hairs; petiole 2–3 mm; leaf blade abaxially hairy at least when young, apex caudate; calyx 3-lobed; fruit ovoid ..... 8. *S. fordii*
- 39b. Twigs glabrous; terminal buds glabrous or pubescent; petiole 7–25 mm; leaf blade abaxially glabrous, apex rounded, acuminate, or acute; calyx 5-lobed; fruit cylindrical, ampulliform, narrowly ovoid, or subglobose.
- 40a. Leaf blade obovate; inflorescences 0.5–1.5 cm ..... 39. *S. poilanei*
- 40b. Leaf blade narrowly elliptic, elliptic, or ovate; inflorescences 3–14 cm.
- 41a. Leaf blade margin serrulate; terminal buds glabrous;

- bracts and bractlets under fruit early deciduous;  
bracts ca. 1 mm; fruit cylindrical to narrowly ovoid,  
12–15 mm ..... 13. *S. hainanensis*
- 41b. Leaf blade margin glandular dentate or denticulate;  
terminal buds pubescent; bracts and bractlets persistent;  
bracts ca. 2 mm; fruit ampulliform or subglobose,  
4–6 mm ..... 28. *S. cochinchinensis*
- 37b. Inflorescences branched racemes or a racemes forming a pseudocone in bud.
- 42a. Bracts and bractlets glabrous or soon glabrescent.
- 43a. Petiole 1.5–4 mm ..... 19. *S. modesta*
- 43b. Petiole 5–30 mm.
- 44a. Disc hairy ..... 23. *S. hookeri*
- 44b. Disc glabrous.
- 45a. Calyx lobes ca. 1.5 mm; leaf blade reticulation fine;  
inflorescences racemes, forming a pseudocone in bud;  
bracts and bractlets under fruit early deciduous; bracts  
5–9 mm; ovary 1.5–2 mm; corolla 6–7 mm; fruit  
ellipsoid to obovoid, 1.5–2 cm ..... 22. *S. crassilimba*
- 45b. Calyx lobes 0.3–0.5 mm; leaf blade reticulation coarse;  
inflorescences branched racemes; bracts and bractlets  
persistent; bracts 1–2 mm; ovary ca. 1 mm; corolla 1.5–4  
mm; fruit ovoid-oblong to ampulliform, 0.6–0.8 cm  
..... 12. *S. pseudobarberina*
- 42b. Bracts and bractlets hairy.
- 46a. Leaf blade abaxially hairy at least when young ..... 21. *S. racemosa*
- 46b. Leaf blade abaxially glabrous.
- 47a. Twigs hairy at least when young.
- 48a. Leaf blade apex caudate-acuminate; stamens 20–50;  
disc glabrous ..... 14. *S. heishanensis*
- 48b. Leaf blade apex acute to obtuse; stamens 80 or more;  
disc hairy ..... 21. *S. racemosa*
- 47b. Twigs glabrous or base of young twigs hairy between scars  
of bud scales.
- 49a. Twigs glabrous but base of young twigs hairy between  
scars of bud scales.
- 50a. Leaf blade narrowly elliptic, reticulation fine;  
inflorescences racemes forming a pseudocone  
in bud, ca. 4 cm; calyx hairy ..... 24. *S. pyrifolia*
- 50b. Leaf blade elliptic to narrowly obovate,  
reticulation coarse; inflorescences racemes,  
6–9 cm; calyx glabrous ..... 20. *S. dryophila*
- 49b. Twigs glabrous.
- 51a. Disc hairy; leaf blade base narrowly or  
broadly cuneate.
- 52a. Petiole 0.5–0.7 cm; terminal buds pubescent;  
leaf blade narrowly elliptic, 4–8 × 1–3 cm,  
base narrowly cuneate, lateral veins 3–5  
per side, reticulation obscure; inflorescences  
branched racemes; calyx hairy ..... 29. *S. paucinervia*
- 52b. Petiole 1.2–3 cm; terminal buds glabrous;  
leaf blade obovate, 15–25 × 5.5–10 cm, base  
broadly cuneate, lateral veins 6–11 per side,  
reticulation distinct; inflorescences racemes  
forming pseudocones in bud; calyx  
glabrous ..... 23. *S. hookeri*
- 51b. Disc glabrous; leaf blade base cuneate or rounded.
- 53a. Bracts ca. 1 mm; fruit cylindrical to narrowly  
ovoid ..... 13. *S. hainanensis*
- 53b. Bracts 1.5–5 mm; fruit ampulliform to

- ovoid.
- 54a. Leaf blade narrowly elliptic to narrowly obovate, lateral veins 9–14 per side, reticulation obscure ..... 14. *S. heishanensis*
- 54b. Leaf blade elliptic to ovate, lateral veins 4–8(–10) per side, reticulation distinct ..... 7. *S. sumuntia*

**Key to the species based primarily on fruit characters.**

- 1a. Fruit fusiform, hairy superior part of ovary usually visible between calyx lobes (subgen. *Symplocos*) ..... 41. *S. pendula*
- 1b. Fruit not as above (not known in *S. spectabilis*) (subgen. *Hopea* (Linnaeus) C. B. Clarke).
  - 2a. Infructescences terminal panicles; plant deciduous ..... 40. *S. paniculata*
  - 2b. Infructescences not terminal and generally not panicles; plant evergreen.
    - 3a. Leaf blade midvein adaxially prominent at least toward base or flat.
      - 4a. Twigs and terminal buds glabrous; bracts and bractlets glabrous ..... 1. *S. lucida*
      - 4b. Twigs (at least when young) and terminal buds hairy; bracts and bractlets hairy.
        - 5a. Leaf blade abaxially glabrous ..... 2. *S. anomala*
        - 5b. Leaf blade abaxially hairy at least when young.
          - 6a. Leaf blade abaxially pubescent, adaxially hairy, base broadly cuneate to rounded ..... 4. *S. groffii*
          - 6b. Leaf blade abaxially minutely scattered hairy or appressed fine hairy, adaxially glabrous (or rarely sparsely fine hairy in *S. lancifolia*), base attenuate-cuneate or narrowly cuneate.
            - 7a. Fruit ellipsoid to subglobose, 3–5 × 2–5 mm; leaves evenly distributed; leaf blade abaxially appressed fine hairy, base attenuate-cuneate, intramarginal vein not close to margin ..... 27. *S. lancifolia*
            - 7b. Fruit ovoid, 10–12 × 6–8 mm; leaves crowded at end of branchlets; leaf blade abaxially minutely scattered hairy, base narrowly cuneate, intramarginal vein close to margin ..... 3. *S. wikstroemiifolia*
    - 3b. Leaf blade midvein adaxially impressed.
      - 8a. Infructescences glomerules or fruit 1–3 in a leaf axil.
        - 9a. Fruit 1–3 in a leaf axil.
          - 10a. Petiole with 2 rows of glands; twigs pubescent to tomentose; bracts ca. 1 mm; fruit oblong ..... 5. *S. euryoides*
          - 10b. Petiole without glands or with few glands; twigs puberulent or patent pilose; bracts 2–4 mm; fruit ampulliform or ovoid.
            - 11a. Twigs puberulent; leaf blade abaxially glabrous, apex acute to rounded, reticulation obscure; fruit ovoid, ca. 5 mm wide ..... 9. *S. nokoensis*
            - 11b. Twigs patent pilose; leaf blade abaxially hairy at least when young, apex acuminate to caudate, reticulation distinct; fruit ampulliform, ca. 4 mm wide ..... 6. *S. ovatilobata*
        - 9b. Infructescences glomerules or fascicles.
          - 12a. Leaf blade adaxially hairy; fruit subglobose, ca. 5 mm ..... 36. *S. dolichotricha*
          - 12b. Leaf blade adaxially glabrous; fruit cylindrical, ellipsoid, ampulliform, narrowly ovoid, or ovoid, 6–20 mm.
            - 13a. Fruit ellipsoid, ampulliform, or ovoid.
              - 14a. Twigs glabrous; petiole 25–30 mm ..... 42. *S. spectabilis*
              - 14b. Twigs hairy; petiole 3–20 mm.
                - 15a. Fruit ellipsoid; twigs tomentose; petiole 1.5–2 cm; leaf blade abaxially woolly-villous, base broadly cuneate, apex short acuminate to acute ..... 35. *S. fukienensis*
                - 15b. Fruit ovoid to ampulliform; twigs puberulent; petiole 0.3–0.5 cm; leaf blade abaxially appressed fine hairy, base cuneate to rounded, apex acuminate ..... 16. *S. atriolivacea*
    - 13b. Fruit cylindrical or narrowly ovoid.
      - 16a. Leaf blade margin with 6–12 glands per cm.
        - 17a. Leaf blade elliptic to ovate, abaxially appressed fine hairy to tomentose, base broadly cuneate to rounded; fruit 2.5–3 mm wide ..... 32. *S. adenopus*
        - 17b. Leaf blade narrowly elliptic, abaxially with cobwebby

- hairs; base cuneate; fruit ca. 4 mm wide ..... 30. *S. glandulifera*
- 16b. Leaf blade margin with less than 6 glands per cm.
- 18a. Leaf blade abaxially hairy at least when young.
- 19a. Fruit ca. 1 cm; leaf blade abaxially not papillate and not glaucous, base broadly cuneate to rounded, intramarginal vein present ..... 34. *S. ulotricha*
- 19b. Fruit 1.2–2 cm; leaf blade abaxially always papillate near base and glaucous, base cuneate, intramarginal vein absent ..... 10. *S. glauca*
- 18b. Leaf blade abaxially glabrous.
- 20a. Fruit 6–8 mm wide; calyx glabrous or hairy.
- 21a. Leaf blade obovate, not glaucous abaxially; calyx glabrous ..... 42. *S. spectabilis*
- 21b. Leaf blade narrowly elliptic or obovate, glaucous abaxially; calyx hairy ..... 10. *S. glauca*
- 20b. Fruit 2.5–5 mm wide; calyx glabrous or rarely woolly- tomentose.
- 22a. Leaf blade narrowly elliptic to narrowly obovate.
- 23a. Twigs puberulent ..... 37. *S. austrosinensis*
- 23b. Twigs tomentellous or glabrous.
- 24a. Leaf blade margin entire ..... 33. *S. stellaris*
- 24b. Leaf blade margin glandular dentate to denticulate ..... 31. *S. glomerata*
- 22b. Leaf blade elliptic or obovate.
- 25a. Twigs hairy.
- 26a. Leaf blade margin entire; disc flat, low cylindrical or annular, often glandular ..... 38. *S. congesta*
- 26b. Leaf blade margin glandular dentate or denticulate; disc cylindrical ..... 31. *S. glomerata*
- 25b. Twigs glabrous.
- 27a. Leaf blade elliptic; disc cylindrical ..... 31. *S. glomerata*
- 27b. Leaf blade obovate; disc flat, low cylindrical or annular, often 5-glandular.
- 28a. Petiole 2.5–3 cm ..... 42. *S. spectabilis*
- 28b. Petiole 0.8–1.5 cm ..... 39. *S. poilanei*
- 8b. Infructescences branched or unbranched spikes or racemes.
- 29a. Fruit sessile.
- 30a. Leaf blade abaxially glabrous.
- 31a. Fruit ampulliform to globose ..... 28. *S. cochinchinensis*
- 31b. Fruit cylindrical or narrowly ovoid.
- 32a. Leaf blade obovate; terminal buds pubescent; infructescences 0.5–1.5 cm; bracts and bractlets persistent; bracts 2–3 mm; fruit 6–8 × ca. 3 mm ..... 39. *S. poilanei*
- 32b. Leaf blade narrowly elliptic, elliptic, or ovate; terminal buds glabrous; infructescences 3–6 cm; bracts and bractlets under fruit early deciduous; bracts ca. 1 mm; fruit 12–15 × 4–5 mm ..... 13. *S. hainanensis*
- 30b. Leaf blade abaxially hairy at least when young.
- 33a. Petiole with 2 rows of glands; leaf blade abaxially and often also adaxially powdery puberulent, margin with 6–12 glands per cm; fruit cylindrical to ellipsoid ..... 15. *S. adenophylla*
- 33b. Petiole without glands or with few glands; leaf blade abaxially not powdery puberulent, margin with less than 6 glands per cm; fruit ampulliform, ovoid, or subglobose.
- 34a. Petiole 10–20 mm; infructescences 6–11 cm; bracts ca. 3 mm; calyx lobes 2 mm or more ..... 28. *S. cochinchinensis*
- 34b. Petiole 2–5 mm; infructescences 0.5–2 cm; bracts 1–2 mm; calyx lobes less than 2 mm.
- 35a. Twigs puberulent; leaf blade abaxially appressed fine hairy, base cuneate to rounded, apex acuminate; bracts ca. 2 mm ..... 16. *S. atriolivacea*
- 35b. Twigs villous; leaf blade abaxially pubescent, base cordate,

- apex caudate; bracts ca. 1 mm ..... 8. *S. fordii*
- 29b. Fruit stalked.
- 36a. Leaf blade abaxially hairy at least when young.
- 37a. Fruit ampulliform ..... 11. *S. viridissima*
- 37b. Fruit cylindrical or ellipsoid.
- 38a. Petiole with 2 rows of glands; twigs tomentellous to puberulent; leaf blade abaxially and often also adaxially powdery puberulent, margin of leaf 6–12 glands per cm ..... 15. *S. adenophylla*
- 38b. Petiole without glands or with few glands; twigs pubescent, tomentose, or villous; leaf blade abaxially minutely scattered hairy, appressed fine hairy, tomentose, or spreading long pilose, margin with less than 6 glands per cm.
- 39a. Leaf blade obovate, abaxially tomentose, base broadly cuneate ..... 23. *S. hookeri*
- 39b. Leaf blade narrowly elliptic, elliptic, narrowly ovate, ovate, or narrowly obovate, abaxially minutely scattered hairy, pubescent, appressed fine hairy, or spreading long pilose, base attenuate-cuneate, rounded, or cordate.
- 40a. Leaf blade abaxially spreading long pilose; bracts and bractlets persistent ..... 26. *S. pilosa*
- 40b. Leaf blade abaxially minutely scattered hairy, pubescent, or appressed fine hairy; bracts and bractlets under fruit early deciduous.
- 41a. Fruit ca. 3 cm ..... 18. *S. xylopyrena*
- 41b. Fruit 0.7–1.2 cm.
- 42a. Twigs tomentose to villous; leaf blade reticulation fine ..... 25. *S. sulcata*
- 42b. Twigs pubescent; leaf blade reticulation coarse.
- 43a. Leaf blade abaxially pubescent; bracts and bractlets hairy ..... 21. *S. racemosa*
- 43b. Leaf blade abaxially appressed fine hairy; bracts and bractlets glabrous or subglabrous ..... 17. *S. ramosissima*
- 36b. Leaf blade abaxially glabrous.
- 44a. Fruit oblong, ovoid-oblong, ampulliform, ovoid, or subglobose.
- 45a. Leaf blade narrowly elliptic or narrowly obovate.
- 46a. Leaf blade base narrowly cuneate, lateral veins 3–5 per side; shrubs ..... 29. *S. paucinervia*
- 46b. Leaf blade base cuneate, lateral veins 9–14 per side; trees ..... 14. *S. heishanensis*
- 45b. Leaf blade elliptic or ovate.
- 47a. Bracts and bractlets under fruit early deciduous.
- 48a. Leaf blade reticulation obscure; shrubs ..... 19. *S. modesta*
- 48b. Leaf blade reticulation distinct; trees ..... 7. *S. sumuntia*
- 47b. Bracts and bractlets persistent.
- 49a. Infructescences 3–7 cm; terminal buds glabrous; bracts and bractlets glabrous ..... 12. *S. pseudobarberina*
- 49b. Infructescences 0.8–2 cm; terminal buds pubescent; bracts and bractlets hairy ..... 11. *S. viridissima*
- 44b. Fruit cylindrical, ellipsoid, narrowly ovoid, or obovoid.
- 50a. Leaf blade 5.1–10 cm wide.
- 51a. Leaf blade 15–25 cm ..... 23. *S. hookeri*
- 51b. Leaf blade 6–14.5 cm ..... 22. *S. crassilimba*
- 50b. Leaf blade 1–4.5 cm wide.
- 52a. Leaf blade lateral veins 3–5 per side.
- 53a. Leaf blade base narrowly cuneate, intramarginal vein close to margin; bracts and bractlets hairy ..... 29. *S. paucinervia*
- 53b. Leaf blade base cuneate to rounded, intramarginal vein not close to margin; bracts and bractlets glabrous to subglabrous ..... 17. *S. ramosissima*
- 52b. Leaf blade lateral veins 6–13 per side.

- 54a. Fruit cylindrical or narrowly ovoid.
- 55a. Twigs glabrous but base of young twigs hairy between scars of bud scales; leaf blade reticulation fine; fruit 0.6–1 cm ..... 24. *S. pyrifolia*
- 55b. Twigs glabrous; leaf blade reticulation coarse; fruit 1.2–1.5 cm ..... 13. *S. hainanensis*
- 54b. Fruit ellipsoid or obovoid.
- 56a. Twigs glabrous but base of young twigs hairy between scars of bud scales; bracts and bractlets hairy.
- 57a. Leaf blade narrowly elliptic, reticulation fine; infructescences ca. 4 cm ..... 24. *S. pyrifolia*
- 57b. Leaf blade elliptic to narrowly obovate, reticulation coarse; infructescences 6–9 cm ..... 20. *S. dryophila*
- 56b. Twigs glabrous or hairy at least when young; bracts and bractlets glabrous or subglabrous.
- 58a. Fruit ca. 3 cm ..... 18. *S. xylopyrena*
- 58b. Fruit 0.9–2 cm.
- 59a. Leaf blade reticulation fine; fruit 6–8 mm wide ..... 22. *S. crassilimba*
- 59b. Leaf blade reticulation coarse; fruit 4–5 mm wide ..... 17. *S. ramosissima*

**1. *Symplocos lucida*** (Thunberg) Siebold & Zuccarini, Fl. Jap. 1: 55. 1835.

光亮山矾 *guang liang shan fan*

*Laurus lucida* Thunberg in Murray, Syst. Veg. ed. 14, 383. 1784; *Bobua ilicifolia* (Hayata) Kanehira & Sasaki; *Dicalix crassifolia* (Benth) Migo; *D. ernestii* (Dunn) Migo; *D. setchuensis* (Brand) Migo; *D. shinodanus* Migo; *Symplocos acutangula* Brand; *S. coronigera* H. Léveillé; *S. crassifolia* Benth; *S. discolor* Brand; *S. ernestii* Dunn; *S. henryi* Brand; *S. howii* Merrill & Chun ex H. L. Li; *S. ilicifolia* Hayata; *S. multipes* Brand; *S. phyllocalyx* C. B. Clarke; *S. potaninii* Gontscharow; *S. setchuensis* Brand; *S. shilanensis* Y. C. Liu & F. Y. Lu; *S. sinuata* Brand; *S. tetragona* Chen ex Y. F. Wu; *S. theifolia* D. Don; *S. wilsonii* Brand (December 1906), not Hemsley (July 1906); *S. xanthoxantha* H. Léveillé.

Shrubs or trees. Branchlets mostly yellowish green, slightly angled to winged, glabrous. Petiole 0.5–1.5 cm; leaf blade oblong to narrowly elliptic, 5–13 × 2–5 cm, leathery, glabrous, base cuneate, margin revolute and entire or sharply dentate, apex long acuminate to acute; midvein adaxially prominent, often sulcate, lateral veins 4–15 per side. Inflorescences basally branched spikes or racemes, shortened to a fascicle or up to 6 cm, axis mostly puberulent to pubescent; bracts and bractlets persistent, broadly obovate, 1–3 mm, often glabrous. Ovary glabrous, 0.5–2 mm. Calyx 1–3 mm, glabrous; lobes oblong, slightly less than 3 mm. Corolla 3–5 mm. Stamens 10–80, 4–6 mm. Disc white villous, puberulent, or woolly-sericeous. Style ± as long as corolla to much shorter, glabrous or hairy toward base. Drupe ovoid to mostly ellipsoid, 0.5–1.8 × 0.4–1.3 cm, apex with persistent calyx lobes. Seeds and embryo usually U-shaped. Fl. Mar–Dec, fr. May–Dec.

Mixed forests; 500–2600 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, Cambodia, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Thailand, Vietnam].

In many collections the petioles in *Symplocos lucida* are decurrent on the twigs, making the latter ridged to slightly winged. The name *S. tetragona* has been applied to the extreme condition, but after careful study it is apparent that, apart from winged branchlets, *S. tetragona* is indistinguishable from *S. lucida*.

**2. *Symplocos anomala*** Brand in Diels, Bot. Jahrb. Syst. 29: 529. 1900.

薄叶山矾 *bo ye shan fan*

*Dicalix anomalus* (Brand) Migo; *D. fusonii* (Merrill) Migo; *Symplocos alata* Brand; *S. anomala* var. *fusonii* (Merrill) Handel-Mazzetti; *S. anomala* var. *nitida* H. L. Li; *S. argentea* Brand; *S. dielsii* H. Léveillé; *S. doii* Hayata; *S. esquirolii* H. Léveillé; *S. fusonii* Merrill; *S. kiraishiensis* Hayata; *S. morrisonicola* Hayata; *S. okinawensis* Matsumura.

Shrubs or small trees. Young branchlets tomentellous-tomentose to brown pubescent, rarely very soon glabrescent but then still hairy directly under terminal bud. Petiole 2–7 mm; leaf blade narrowly elliptic, elliptic, or ovate, 2–7(–11) × 1.2–3 cm, thin leathery, abaxially glabrous or rarely young leaves finely appressed hairy, adaxially brownish, olive, or sometimes yellowish green glossy, base attenuate-cuneate, margin entire or finely glandular dentate, apex acuminate; midvein and lateral veins adaxially prominent, lateral veins 5–11 per side. Racemes 0.8–1.5(–3.5) cm, sometimes 1–3-branched from base, axis tomentose to appressed pubescent; bracts and bractlets persistent, often ovate, with same indument, bracts 1–2 mm, bractlets 0.8–1.5 mm. Pedicel 2–5 mm. Ovary ca. 1 mm, tomentose to finely appressed pubescent, rarely glabrous. Calyx 1–2.5 mm, tomentose to finely appressed pubescent, rarely glabrous; lobes semi-elliptic to semi-orbicular, 0.5–2 mm, margin ciliate. Corolla 4–6 mm. Stamens (20–)50–100 or more. Disc annular, villous, often 5-glandular. Style 4–7 mm, glabrous or hairy toward base. Drupe brown, oblong-globose,

7–10 × ca. 6 mm, apex with persistent erect calyx lobes. Fl. and fr. Apr–Dec.

Mixed forests; 400–3000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Indonesia, Japan (Okinawa), Malaysia, Myanmar, Thailand, Vietnam].

**3. *Symplocos wikstroemiifolia*** Hayata, Icon. Pl. Formos. 5: 119. 1915.

微毛山矾 wei mao shan fan

*Bobua wikstroemiifolia* (Hayata) Kanehira & Sasaki; *Dicalix wikstroemiifolius* (Hayata) Migo; *Symplocos microtricha* Handel-Mazzetti.

Shrubs or trees. Young branchlets, petioles, and leaf blades abaxially with minute appressed hairs. Leaves only toward end of twigs; petiole 3–10 mm; leaf blade narrowly elliptic, elliptic, narrowly obovate, or obovate, 4–12 × 1.5–4 cm, papery to thin leathery, base narrowly cuneate, margin entire or sinuolate-dentate, apex mucronate-acuminate, acute, or obtuse; midvein adaxially flattened to slightly prominent, lateral veins 6–10 per side. Spikes 1–2 cm, with some branches, axis pubescent; bracts very soon deciduous, oblong to orbicular, 1.2–2 mm, pubescent, margin ciliate; bractlets very soon deciduous, pubescent. Flowers staminate or bisexual, probably androdioecious. Ovary ca. 0.5 mm in staminate flowers and 1–1.5 mm in bisexual flowers, glabrous or very fine appressed short hairy. Calyx lobes broadly ovate to nearly semi-orbicular, ca. 1 mm, margin ciliate, outer lobes sometimes appressed fine pubescent. Corolla 2–3 mm. Stamens 15–20 in staminate flowers, 5 and alternate with petals in bisexual flowers. Disc annular, glabrous or sparsely pilose. Style ca. 2 mm, glabrous, aborted in staminate flowers. Drupe ovoid, 1–1.2 cm × 6–8 mm, apex with persistent erect calyx lobes, endocarp with smooth surface. Seed curved; embryo curved. Fl. Mar, fr. Oct.

Mixed forests; 900–2500 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Taiwan, Yunnan, Zhejiang [Malaysia, Vietnam].

**4. *Symplocos groffii*** Merrill, Philipp. J. Sci. 12: 107. 1917.

毛山矾 mao shan fan

*Bobua groffii* (Merrill) Migo; *Dicalix groffii* (Merrill) Migo; *Symplocos lungtauensis* Merrill; *S. mollipila* H. L. Li.

Shrubs or small trees to 6 m tall. Young branchlets, petioles, leaf blade midveins adaxially, leaf blade lateral veins abaxially, and leaf blades grayish brown soft hairy to subtomentose. Petiole 2–4 mm; leaf blade elliptic, obovate-elliptic, or ovate, 5–8(–12) × 2–3(–5) cm, papery, pubescent, adaxially soon glabrescent, base broadly cuneate to rounded, margin recurved to revolute and entire or remotely sharply dentate, apex acuminate; midvein and lateral veins flat to adaxially slightly prominent, lateral veins 7–10(–12) per side. Inflorescence axes, bracts, bractlets, and ovaries appressed pubescent to sericeous. Spikes or racemes 1 cm or shortened into a fascicle; bracts and bractlets triangular to subelliptic, 1(–2) mm. Pedicel 0–2 mm. Ovary ca. 1 mm. Calyx

ca. 2 mm, less hairy than bractlets and ovary; lobes semi-orbicular, 0.8–1 mm. Corolla 5–6 mm. Stamens ca. 50; filaments 4–8 mm. Disc 5-lobed, annular, surrounding style base. Style densely short soft hairy. Drupe ellipsoid, 6–12 × 4–6 mm, pubescent, apex with persistent erect calyx lobes. Stone lengthwise grooved. Fl. Apr, fr. Jun–Jul.

Mixed forests; 500–1500 m. N Guangdong, Guangxi, Hunan, S Jiangxi [Vietnam].

**5. *Symplocos euryoides*** Handel-Mazzetti, Beih. Bot. Centralbl. 62(B): 27. 1943.

桫叶山矾 ling ye shan fan

*Symplocos euryifolia* Masamune & Syozi; *S. permicrophylla* Merrill & Chun.

Shrubs to 2 m tall. Young branchlets, buds, and rarely leaf blades on abaxial base reddish brown pubescent to tomentose. Bracts, bractlets, ovaries, and calyces minutely powdery villous. Older branchlets reddish brown to dark brown, glabrous. Petiole 3–5 mm, with 2 rows of glandular teeth; leaf blade narrowly elliptic, narrowly ovate, or ovate, 1.2–3(–3.5) cm × 5–10(–13) mm, leathery, transversely rugose when dry, adaxially yellowish green, base broadly cuneate to rounded, margin sharply minutely glandular dentate, apex mucronate-acuminate to acute; lateral veins ca. 5 per side, obscure. Flowers solitary; bract and bractlets narrowly ovate, apex acuminate. Pedicel 1–3 mm. Ovary ca. 1 mm. Calyx ca. 2 mm, lobes narrowly ovate. Corolla 3–4 mm. Stamens 25–50. Disc cylindrical, ca. 0.5 mm, glabrous. Drupe narrowly ovoid, 8–10 mm, apex with persistent erect calyx lobes. Fl. Jul–Aug, fr. Sep–Dec.

\* Mixed forests; 600–900 m. Hainan.

**6. *Symplocos ovatilobata*** Nooteboom, Rev. Symploc. 257. 1975.

单花山矾 dan hua shan fan

Shrubs or small trees. Young branchlets and petioles patent pilose. Petiole 2–3 mm; leaf blade elliptic, obovate-elliptic, or ovate, 2–7(–8) × 1–3 cm, thick papery, abaxially with long appressed grayish yellow hairs, base obtuse to cordate, margin sharply dentate, apex acuminate to caudate; lateral veins 5–8 per side. Flowers solitary; bract and bractlets 3–6, narrowly ovate, 2–3 mm, pubescent, margin with 2 or 3 punctate glands. Ovary ca. 1 mm, glabrous. Calyx 2.5–3 mm, pubescent, lobes ovate. Corolla 3–5 mm. Stamens 25–30. Disc cylindrical, with few hairs. Style ca. 3 mm, glabrous. Drupe ampulliform, 9–10 × ca. 4 mm, apex with persistent erect calyx lobes. Fl. Oct–Nov, fr. Jan–Feb.

\* Mixed forests; 600–800 m. Hainan.

**7. *Symplocos sumuntia*** Buchanan-Hamilton ex D. Don, Prodr. Fl. Nepal. 145. 1825.

山矾 shan fan

*Bobua austrosinensis* Migo; *Dicalix austrosinensis* (Migo) Migo; *D. botryanthus* (Franchet) Migo; *D. decorus* (Hance) Migo; *D. swinhoeanus* (Hance) Migo; *D. urceolaris* (Hance) Migo; *Symplocos botryantha* Franchet; *S. botryantha*

var. *stenophylla* Brand; *S. caerulea* H. Léveillé; *S. caudata* Wallich ex G. Don; *S. caudata* var. *macrantha* Handel-Mazzetti; *S. caudata* var. *macrocalyx* Handel-Mazzetti; *S. cavaleriei* H. L. 関 eill ; *S. decora* Hance; *S. dolichostylosa* Y. F. Wu; *S. fuboensis* M. Y. Fang; *S. leucophylla* Brand; *S. macrostroma* Hayata; *S. ovatibracteata* Y. F. Wu; *S. prunifolia* Siebold & Zuccarini; *S. punctata* Brand; *S. rachitricha* Y. F. Wu; *S. sasakii* Hayata; *S. somai* Hayata; *S. sozanensis* Hayata; *S. subconnata* Handel-Mazzetti; *S. swinhoeana* Hance; *S. urceolaris* Hance.

Trees. Young branchlets brown, usually glabrous. Petiole 2–10(–15) mm; leaf blade elliptic, narrowly ovate, or ovate, 2–10 × 0.7–4.5 cm, thin leathery, glabrous, sometimes abaxially hairy, base cuneate to rounded, margin slightly serrate, sinuate-dentate, or rarely subentire, apex caudate; lateral veins 4–8(–10) per side. Racemes 1–6(–9) cm, subglabrous, pilose, or pubescent; bracts and bractlets very soon deciduous, linear, broadly ovate, or obovate, densely pubescent, bracts 2–5 mm, bractlets 0.3–1.5 mm. Pedicel 0.1–1.3 cm. Ovary ca. 0.5 mm in staminate flowers and 1–1.5 mm in bisexual flowers, glabrous or very fine appressed short hairy. Calyx lobes triangular-ovate, 0.3–1.5 mm, glabrous or sparsely appressed hairy, margin ciliate. Corolla white or yellow, probably lilac when young, 4–8 mm. Stamens 23–40. Disc glabrous, annular. Drupe ampulliform to ovoid, 6–10 (–15) × 3–6 mm, apex with persistent erect calyx lobes. Fl. Feb–Nov, fr. Apr–Nov.

Mixed forests; 100–1800 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, India, Japan, Korea, Malaysia, Myanmar, Nepal, Thailand, Vietnam].

**8. *Symplocos fordii* Hance, J. Bot. 20: 78. 1882.**

三裂山矾 san lie shan fan

*Symplocos cordatifolia* H. L. Li.

Shrubs to 2 m tall. Young branchlets, petioles, and leaf blades abaxially with spreading grayish yellow long hairs. Branchlets dark brown. Petiole 2–3 mm; leaf blade narrowly ovate to ovate, 3.5–9 × 1.5–3.5 cm, thin leathery, base cordate, margin sharply dentate, apex long caudate-acuminate; lateral veins 4–11 per side. Spikes short, axis ca. 1 cm, 5–10-flowered, pubescent; bracts broadly ovate, ca. 1 mm, submembranous, adaxially glabrous or sparsely fine hairy; bractlets ovate, ca. 1.5 mm, submembranous, adaxially glabrous or sparsely fine hairy, apex acute. Ovary ca. 1 mm, glabrous. Calyx glabrous; lobes 3, broadly ovate, 1.2–1.5 mm. Corolla ca. 3.5 mm, lobes 3. Stamens 15–30. Disc flat, annular, glabrous or with some hairs. Drupe narrowly ovoid, ca. 1 cm. Fl. and fr. May–Nov.

\* Mixed forests; ca. 500 m. S Guangdong.

**9. *Symplocos nokoensis* (Hayata) Kanehira, Anat. Charact. Ident. Formos. Woods 151. 1921.**

能高山矾 neng gao shan fan

*Ilex nokoensis* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30: 56. 1911; *Bobua crenatifolia* Yamamoto; *B. nokoensis*

(Hayata) Kanehira & Sasaki; *Symplocos crenatifolia* (Yamamoto) Makino & Nemoto.

Shrubs. Young branchlets puberulent, soon glabrescent. Petiole 2–3 mm; leaf blade oblong-ovate to obovate, 1–2.3 × 0.8–1.2 cm, leathery, glabrous, base broadly cuneate to obtuse, margin sparsely crenate, apex acute to rounded; lateral veins 3–5 per side. Spikes shortened to a fascicle, 1–3-flowered; bracts many, oblong to ovate, 2–4 mm, glabrous or minutely appressed puberulent, apex obtuse. Ovary ca. 0.5 mm, glabrous. Calyx glabrous, lobes ca. 2 mm. Corolla 2–3 mm. Stamens ca. 20. Disc cupular, glabrous. Style glabrous. Drupe ovoid, ca. 7 × 5 mm. Fr. Aug.

\* Mixed forests; 3000–3200 m. Taiwan.

**10. *Symplocos glauca* (Thunberg) Koidzumi, Bot. Mag. (Tokyo) 39: 313. 1925.**

羊舌树 yang she shu

Trees or shrubs. Twigs glabrous or rusty tomentellous to tomentose; small pith lamellated, often disappearing when dry; buds densely brown pubescent. Petiole 1–4 cm; leaf blade brown when dry, narrowly elliptic to narrowly obovate, 10–18(–26) × 2–5(–10) cm, leathery when dry, glabrous or rarely abaxially with cobwebby hairs, papillate or rarely papillae only near base and very short but absent in var. *epapillata*, base cuneate, margin recurved and entire, denticulate, or dentate, apex mucronate-acuminate to acute; midvein adaxially impressed, lateral veins 7–18 per side. Spikes or fascicles from axils of leaves or from wood beneath them, 1–2 cm, usually branched from base; bracts and bractlets persistent in fruit, broadly ovate, brown tomentose, bracts 1–4 mm, bractlets 1–3 mm. Ovary 0.5–1 mm, glabrous. Calyx 1.5–2.5 mm; lobes ovate 1–1.5 mm, brown tomentose. Corolla 3–5 mm. Stamens 20–60. Disc cylindrical to pulvinate, glabrous or rarely villous. Style ca. 5 mm, glabrous. Drupe cylindrical to narrowly ovoid, 1.2–2 × 6–8 cm, apex with persistent erect calyx lobes. Fl. Apr–Aug, fr. Aug–Oct.

600–3000 m. Fujian, Guangdong, Guangxi, Hainan, Hunan, Sichuan, Taiwan, Yunnan, Zhejiang [India, Japan, Myanmar, Thailand, Vietnam].

- 1a. Leaf blade abaxially papillate, reticulation coarse ..... 10a. var. *glauca*
- 1b. Leaf blade abaxially not papillate, reticulation fine ..... 10b. var. *epapillata*

**10a. *Symplocos glauca* var. *glauca***

羊舌树(原变种) yang she shu (yuan bian zhong)

*Laurus glauca* Thunberg in Murray, Syst. Veg. ed. 14, 383. 1784; *Bobua glauca* (Thunberg) Nakai; *B. neriifolia* (Siebold & Zuccarini) Miers; *Dicalix wangii* Migo; *Symplocos grandis* Handel-Mazzetti; *S. kosunensis* Kanehira; *S. neriifolia* Siebold & Zuccarini.

Leaf blade abaxially papillate, reticulation coarse.

Mixed forests; 600–3000 m. Fujian, Guangdong, Guangxi, Hainan, Hunan, Sichuan, Taiwan, Yunnan, Zhejiang [India, Japan, Myanmar, Thailand, Vietnam].

**10b. *Symplocos glauca* var. *epapillata*** Nooteboom, Rev. Symploc. 198. 1975.

无乳突羊舌树 wu ru tu yang she shu

*Symplocos oblanceolata* Y. F. Wu.

Trees to 11 m tall. Branchlets black. Petiole 3–4 cm; leaf blade narrowly elliptic to narrowly obovate, 12–26 × 4–7 cm, thin leathery, glandular, abaxially not papillate, base broadly cuneate to subrounded, margin entire, apex acuminate; lateral veins 11–14 per side. Spikes shortened to fascicles. Drupe narrowly ovoid, ca. 1.5 × 0.6 cm. Fl. and fr. Aug.

Mixed forests; ca. 1500 m. S Yunnan [Vietnam].

**11. *Symplocos viridissima*** Brand in Engler, Pflanzenr. IV. 242(Heft 6): 41. 1901.

绿枝山矾 lu zhi shan fan

*Dicalix lancilimbus* (Merrill) Migo; *Symplocos ascidiiformis* Y. F. Wu; *S. lancilimba* Merrill.

Shrubs or trees, 3–6 m tall. Branchlets light green, usually with minute appressed hairs. Petiole 2–5(–7) mm; leaf blade light green when dry, oblong-elliptic, 3.5–13 × 1.5–4.5 cm, sparsely appressed thin hairy or abaxially glabrous, base cuneate, margin remotely glandular dentate, apex long caudate-acuminate; lateral veins (3 or)4–6(or 7) per side. Racemes 0.8–2 cm, 5–8-flowered, with minute appressed hairs; bracts and bractlets persistent, ovate to triangular-ovate, puberulent, bracts 1–2 mm, bractlets 0.5–0.8 mm. Pedicel 0.5–3(–5) mm. Calyx lobes 0.5–1 mm, finely appressed pubescent to puberulent. Corolla 3–5 mm. Stamens 30–50. Disc cylindrical to pulvinate, glabrous. Ovary 1–1.5 mm. Style ca. 5 mm. Drupe ampulliform, 7–10 × 3–5 mm, neck half as long to as long as belly, apex with persistent erect calyx lobes. Fl. Mar–May, fr. Jun–Sep.

Mixed forests; 600–1500 m. Guangdong, Guangxi, Guizhou, Hainan, Xizang, S Yunnan [NE India, Myanmar, Vietnam].

**12. *Symplocos pseudobarberina*** Gontscharow, Bot. Mater. Gerb. Glavn. Bot. Sada RSFSR 5: 133. 1924.

铁山矾 tie shan fan

Trees. Young branchlets yellowish green, glabrous; old branchlets dark gray. Petiole 0.5–1.5 cm; leaf blade ovate-elliptic to ovate, 5–8(–10) × 1.5–4 cm, membranous, glabrous, base cuneate to slightly rounded, margin entire or sparsely sinuate-dentate, apex acuminate to caudate-acuminate; lateral veins 3–9 per side. Racemes 3–7 cm, usually branched from base, glabrous; bracts and bractlets persistent under fruit, glabrous, margin ciliate; bracts oblong-ovate, 1–2 mm; bractlets triangular-ovate. Ovary ca. 1 mm, glabrous. Calyx glabrous; lobes ovate, 0.3–0.5 mm. Corolla 1.5–4 mm. Stamens 20–40. Disc 5-lobed to annular, glabrous. Drupe green to yellow, ampulliform to oblong-ovoid, 6–8 × 3–6 mm, apex with persistent erect calyx lobes. Seeds curved. Fl. Oct–Nov, fr. May.

Mixed forests; ca. 1000 m. Fujian, Guangdong, Guangxi, Hainan, Hunan, Yunnan [Cambodia, Vietnam].

**13. *Symplocos hainanensis*** Merrill & Chun ex H. L. Li, J. Arnold Arbor. 25: 210. 1944.

海南山矾 hai nan shan fan

Trees to 15 m tall. Branchlets reddish brown, glabrous. Petiole 0.7–1.6 cm; leaf blade elliptic to elliptic-ovate, submembranous to papery, 6–10(–12) × 2.5–4 cm, glabrous, base cuneate to rounded, margin serrulate, apex acuminate; lateral veins 8–12 per side. Racemes or spikes 3–6 cm, 6–10-flowered, axis sparsely fine short hairy; bracts early deciduous, broadly ovate, ca. 1 mm, sparsely fine short hairy, margin ciliate; bractlets ovate, 0.5–0.8 mm, margin ciliate, glabrous. Ovary glabrous, 0.5–1 mm. Calyx glabrous; lobes ovate, 1.2–1.5 mm. Corolla 3–4 mm. Stamens 25–40; filaments 3–5 mm. Disc 5-glandular, glabrous. Drupe cylindrical-ovoid, 1.2–1.5 cm × 4–5 mm, apex with persistent spreading calyx lobes. Fl. and fr. Jul–Oct.

\* Mixed forests; 500–800 m. Guangdong, Hainan.

**14. *Symplocos heishanensis*** Hayata, Icon. Pl. Formos. 5: 101. 1915.

海桐山矾 hai tong shan fan

*Dicalix heishanensis* (Hayata) Migo; *Symplocos oreades* Guillaumin; *S. pittosporifolia* Handel-Mazzetti; *S. risekiensis* Hayata.

Trees. Young branchlets dark brown, glabrous or puberulent; old branchlets black; buds minutely pubescent. Petiole 0.5–1.5 cm; leaf blade narrowly elliptic to obovate-elliptic, 6–12 × 1.1–4 cm, leathery, glabrous, base cuneate, margin entire or sinuous-dentate, apex caudate-acuminate; lateral veins 9–14 per side. Racemes 3–6 cm, axis minutely pubescent; bracts and bractlets persistent or not, puberulent; bracts semi-orbicular, 1.5–4 mm; bractlets broadly ovate, 1–2 mm. Ovary 1–1.2 mm, glabrous. Calyx 0.8–1.5 mm; lobes semi-orbicular, 0.5–1.2 mm, glabrous or sparsely puberulent. Corolla, 3–5 mm. Stamens 20–50. Disc annular, glabrous. Drupe dark purplish, long ampulliform, 5–7 × 2–3 mm, apex with persistent erect calyx lobes. Fl. Feb–May, fr. Jun–Sep.

\* Mixed forests; ca. 1300 m. Guangdong, Guangxi, Hainan, Jiangxi, Taiwan, Yunnan, Zhejiang.

**15. *Symplocos adenophylla*** Wallich ex G. Don, Gen. Hist. 4: 3. 1837.

腺叶山矾 xian ye shan fan

*Dicalix punctomarginatus* (A. Chevalier ex Guillaumin) Migo; *Symplocos iteophylla* Miquel; *S. maclurei* Merrill; *S. punctomarginata* A. Chevalier ex Guillaumin; *S. stewardii* Sleumer.

Trees 4–10 m tall. Young branchlets, buds, inflorescences, bracts, and calyces reddish brown powdery puberulent. Branchlets reddish brown. Petiole 5–10 mm, margin glandular punctate; leaf blade narrowly elliptic, elliptic, or narrowly ovate, 6–11 × 1.8–3 cm, thick papery, powdery but soon glabrescent, base cuneate, margin subentire to sinuous-dentate and with elliptic punctate glands, apex caudate-acuminate; lateral veins 4–12 per side. Racemes or spikes 2–6 cm,

1–3-branched, axis tomentellous-puberulent when young; bracts and bractlets persistent, triangular-ovate, 1–1.5 mm. Ovary 1–2 mm. Calyx 0.5–1 mm; lobes semi-orbicular, 0.3–0.5 mm. Corolla ca. 3 mm. Stamens 30–35. Disc annular, glabrous. Drupe ellipsoid-cylindric, 6–12 × 3–5 mm. Fl. and fr. Jul–Aug.

Mixed forests; 200–800 m. Fujian, Guangdong, Guangxi, Hainan, Yunnan [Indonesia, Malaysia, Philippines, Thailand, Vietnam].

**16. *Symplocos atriolivacea*** Merrill & Chun ex H. L. Li, J. Arnold Arbor. 25: 212. 1944.

橄榄山矾 gan lan shan fan

Shrubs 3–3.5 m tall. Buds, young branchlets, petioles, and leaf blades abaxially with appressed hairs. Petiole 3–5 mm; leaf blade adaxially dark green becoming olive green when dry, elliptic-ovate to ovate, 8–22 × 4.5–8.5 cm, papery, base cuneate to rounded, margin undulate to dentate, apex acuminate; lateral veins 7–15 per side. Spikes or glomerules 6–10 mm, grayish yellow pubescent; bracts broadly ovate, ca. 2 mm, appressed whitish pubescent; bractlets ca. 1.5 mm, appressed whitish pubescent. Ovary ca. 1.5 mm, pubescent. Calyx ca. 1 mm, pubescent, lobes ovate. Corolla 3–4 mm. Stamens 20–35. Disc conic, pubescent. Drupe ovoid-ampulliform, ca. 7 × 3–4 mm, pubescent, apex with persistent erect calyx lobes. Fl. and fr. Jul–Nov.

Mixed forests; 400–1600 m. Guangdong, Hainan [Vietnam].

**17. *Symplocos ramosissima*** Wallich ex G. Don, Gen. Hist. 4: 3. 1837.

多花山矾 duo hua shan fan

*Dicalix myrianthus* (Rehder) Migo; *Symplocos fasciculata* Zollinger var. *chinensis* Brand; *S. myriantha* Rehder; *S. ramosissima* var. *salwinensis* Handel-Mazzetti; *S. stapfiana* H. Léveillé; *S. stapfiana* var. *leiocalyx* Handel-Mazzetti.

Shrubs or small trees. Young branchlets dark purplish, glabrous or appressed pubescent; old branchlets purplish brown, glabrous. Petiole 6–12 mm; leaf blade narrowly elliptic to elliptic, 6–12 × 2–4 cm, membranous, glabrous or abaxially sparsely appressed fine short hairy, base cuneate to rounded, margin glandular dentate, apex caudate-acuminate; lateral veins 4–10 per side. Racemes 1.5–3 cm, with some branches from base, pubescent; bracts and bractlets ovate, mostly subglabrous, margin ciliate and with 2 punctate glands, bracts 1–3 mm, bractlets ca. 1 mm. Pedicel 2(–5) mm. Ovary 1–1.5 mm, minutely appressed puberulent. Calyx lobes broadly ovate, ca. 1 mm, subglabrous, margin ciliate. Corolla 3–5 mm. Stamens 30–40. Disc glabrous, with 5 glands. Drupe green to yellowish brown, blue-black at maturity, ellipsoid, 0.9–1.2 cm × 4–5 mm, puberulent, apex with persistent spreading calyx lobes. Fl. Apr–May, fr. May–Jun.

Mixed forests; 1000–2600 m. Guangdong, Guangxi, Guizhou, Hubei, Hunan, Sichuan, Xizang, Yunnan [Bhutan, India, Myanmar, Nepal, Vietnam].

**18. *Symplocos xylopyrena*** C. Y. Wu ex Y. F. Wu, Acta Phytotax. Sin. 20: 91. 1982.

木核山矾 mu hu shan fan

Trees 3.5–5 m tall. Branchlets minutely brown puberulent, glabrescent. Petiole 8–10 mm; leaf blade narrowly elliptic to elliptic, 9–14 × 3.5–4.5 cm, membranous to nearly papery, base cuneate; lateral veins 11–13 per side. Racemes 8–12 mm; bracts early deciduous, oblong, ca. 2 mm; bractlets early deciduous, triangular-ovate, ca. 1 mm, margin membranous and ciliate. Ovary ca. 1.7 mm, glabrous. Calyx glabrous; lobes semi-orbicular, 1–1.5 mm. Corolla ca. 6 mm. Stamens ca. 110; anthers blue. Drupe ellipsoid, ca. 3 × 1 cm. Fl. Aug, fr. Dec.

\* Mixed forests; 1800–2000 m. Xizang (Mêdog Xian), Yunnan (Gongshan).

**19. *Symplocos modesta*** Brand in Engler, Pflanzenr. IV. 242(Heft 6): 66. 1901.

长梗山矾 chang geng shan fan

*Bobua modesta* (Brand) Yamamoto; *Symplocos eriostroma* Hayata.

Shrubs. Branchlets glabrous. Petiole 1.5–4 mm; leaf blade ovate-elliptic to ovate, 2–8 × 1.2–3 cm, membranous to papery, glabrous, base cuneate to subrounded, margin serrulate, apex caudate-acuminate; lateral veins 5 or 6 per side, adaxially prominent. Racemes 3.5–4 cm, 3–7-flowered, glabrous or sparsely pubescent; bracts early deciduous, 1–1.5 mm, glabrous; bractlets early deciduous, triangular to semi-elliptic, 0.5–1 mm, glabrous or pilose, margin ciliate. Pedicel 3–15 mm. Ovary 1.2–2 mm, glabrous. Calyx glabrous; lobes semi-elliptic, ca. 1 mm, abaxially minutely glandular punctate, margin ciliate. Corolla 4–6 mm. Stamens 25–35. Disc annular to shallow cupular, glabrous. Drupe ovoid-ampulliform, ca. 1.2 cm × 4–5 mm. Fl. and fr. Nov.

\* Mixed forests; ca. 1000 m. Taiwan.

**20. *Symplocos dryophila*** C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 578. 1882.

坚木山矾 jian mu shan fan

*Dicalix delavayi* (Brand) Migo; *D. forrestii* (W. W. Smith) Migo; *D. shunningensis* Migo; *Symplocos delavayi* Brand; *S. forrestii* W. W. Smith; *S. longipetiolata* Rehder.

Trees to 8 m tall. Branchlets glabrous except for pubescent base of young shoots between bud scale scars. Petiole 1–2 cm; leaf blade elliptic to narrowly obovate, 7–12(–16) × 2.5–4.5 cm, leathery, glabrous, base cuneate, margin entire or inconspicuously sharply dentate, apex acuminate; lateral veins 9–12 per side, adaxially impressed. Racemes forming a globose cone in bud, becoming 6–9 cm, axis spreading yellowish brown villous, base surrounded by several glabrous leathery scales; bracts early deciduous, elliptic, boat-shaped, 5–9 × 3–7 mm, appressed pubescent to sericeous; bractlets early deciduous, linear to elliptic, 2.5–3 × ca. 1 mm, pubescent.

Ovary 1–2 mm, glabrous. Calyx glabrous; lobes triangular-ovate, 1–1.5 mm. Corolla 4–6 mm. Stamens 40–50. Disc inconspicuous. Style base conic, minutely soft hairy to densely sericeous. Drupe ellipsoid, 5–12 × 3–7 mm, glabrous, apex with persistent erect calyx lobes. Fl. Mar–May, fr. Jul.

Slopes in mixed forests; 2100–3200 m. S Sichuan, Xizang, Yunnan [India, Myanmar, Nepal, Thailand, Vietnam].

**21. *Symplocos racemosa*** Roxburgh, Fl. Ind. ed. 1832, 2: 539. 1832.

珠仔树 zhu zi shu

*Dicalix propinquus* (Hance) Migo; *Symplocos intermedia* Brand; *S. intermedia* var. *trichantha* Handel-Mazzetti; *S. macrostachya* Brand; *S. macrostachya* var. *leducii* Brand; *S. propinqua* Hance.

Shrubs or small trees. Buds, young branchlets, petioles, and twigs brown pubescent. Petiole 0.7–1.5 (–2) cm; leaf blade narrowly to broadly elliptic, 7–15 (–22) × 1.5–5 (–8) cm, leathery, glabrous or abaxially brown pubescent at least when young, base attenuate, cuneate, or rounded, margin entire or sparsely denticulate, apex acute to obtuse; lateral veins 4–9 (–12) per side. Racemes 4–10 (–17) cm, densely yellowish brown pubescent; bracts early deciduous, ovate to broadly ovate, 2–4 mm, densely pubescent; bractlets early deciduous, ovate to rhombic, 2–3 mm, densely pubescent. Pedicel 1–4 (–8) mm. Ovary 1–1.5 mm, glabrous. Calyx 1.5–3 mm, glabrous; lobes broadly ovate to orbicular, 0.2–0.5 mm, margin ciliate. Corolla 4–6 mm. Stamens 80 or more. Disc short hairy to woolly, with 5 glands. Drupe ellipsoid, 8–11 × 4–10 mm, apex with persistent yellow erect calyx lobes. Fl. Dec–Apr, fr. Jun.

Mixed forests; 100–1600 m. Guangdong, Guangxi, Hainan, SW Sichuan, Yunnan [India, Myanmar, Thailand, Vietnam].

**22. *Symplocos crassilimba*** Merrill, Lingnan Sci. J. 14: 47. 1935.

厚叶山矾 hou ye shan fan

*Dicalix crassilimbus* (Merrill) Migo.

Trees 5–30 m tall. Young branchlets grayish white, glabrous. Petiole 1.5–3 cm; leaf blade olive green when dry, elliptic to obovate, 6–14.5 × 3–7 cm, thick leathery, base broadly cuneate to rounded, margin entire or sparsely denticulate, apex slightly acuminate; lateral veins 7–11 per side. Racemes 4–5 cm, axis glabrous; bracts early deciduous, suborbicular, 5–9 mm, glabrous, margin ciliate; bractlets early deciduous, glabrous. Pedicel 0.5–1 mm, glabrous. Ovary 1.5–2 mm, glabrous. Calyx ca. 1.8 mm, glabrous; lobes triangular-ovate, ca. 1.5 mm. Corolla 6–7 mm. Stamens 80–100. Disc glabrous. Drupe yellowish white, ellipsoid to ovoid, 1.5–2 cm × 6–8 mm, apex with persistent erect calyx lobes. Fl. Oct–Dec, fr. Jun–Jul.

\* Mixed forests; 400–1000 m. Hainan.

**23. *Symplocos hookeri*** C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 578. 1882.

滇南山矾 dian nan shan fan

Trees. Branchlets slightly angled, glabrous or brown tomentose. Petiole 1.2–3 cm; leaf blade obovate-oblong to obovate, 15–25 × 5.5–10 cm, papery, glabrous or abaxially pubescent, base broadly cuneate, margin sparsely sharply denticulate, apex acuminate; lateral veins 6–11 per side. Racemes 3–4 cm, conelike when young because of overlapping bracts; bracts early deciduous, scalelike, broadly ovate to circular, 5–8 mm in diam., strongly convex, almost semiglobose, densely appressed gray pubescent when young, soon glabrescent and light brown; bractlets 1–3 mm, similar to bracts. Pedicel 1–3 mm. Calyx glabrous; lobes suborbicular, 1–2 mm. Ovary 1–2 mm, glabrous. Corolla 6–9 mm. Stamens ca. 80, becoming slightly longer than corolla. Disc 5-glandular, pubescent. Drupe oblong-ellipsoid to ellipsoid, 1.4–2.4 cm × 5–9 mm, often slightly narrowed toward apex, apex with persistent erect calyx lobes. Fr. May–Aug.

1500–1700 m. Yunnan [India, Laos, Myanmar, Thailand, Vietnam].

1a. Branchlets glabrous ..... 23a. var. *hookeri*

1b. Branchlets brown tomentose ..... 23b. var. *tomentosa*

**23a. *Symplocos hookeri* var. *hookeri***

滇南山矾 (原变种) dian nan shan fan (yuan bian zhong)

*Dicalix hookeri* (C. B. Clarke) Migo.

Branchlets glabrous. Leaf blade glabrous. Fr. May–Aug.

Mixed forests; ca. 1700 m. Yunnan [India, Laos, Myanmar, Thailand, Vietnam].

**23b. *Symplocos hookeri* var. *tomentosa*** Y. F. Wu, Acta Phytotax. Sin. 24: 202. 1986.

绒毛滇南山矾 rong mao dian nan shan fan

Young branchlets, petioles, leaf blade veins abaxially, and inflorescences brown tomentose. Leaf blades abaxially and young drupe pubescent. Fr. Aug.

\* Mixed forests; ca. 1500 m. S Yunnan.

**24. *Symplocos pyrifolia*** Wallich ex G. Don, Gen. Hist. 4: 3. 1837.

梨叶山矾 li ye shan fan

Shrubs or small trees. Branchlets glabrous but base of young shoots sericeous. Petiole 1–2 cm; leaf blade narrowly elliptic, 7–12 × 2–3 cm, leathery, glabrous, base cuneate, margin entire or glandular dentate, apex acuminate; lateral veins 7–13 per side. Racemes ca. 4 cm, forming a cone in bud and surrounded by glabrous leathery scales at base, axis pubescent; bracts elliptic to orbicular, 6–7 × 5–7 mm, pubescent, falling at flower maturity; bractlets linear to elliptic, 2–3 × 1–1.5 mm, pubescent. Pedicel 1–3 mm, pubescent. Ovary ca. 1.5 mm, glabrous. Calyx sparsely appressed pubescent; lobes ovate to triangular, 1–1.8 mm. Corolla ca. 5 mm. Stamens ca. 35. Disc 5-glandular, pubescent. Drupe cylindrical-ellipsoid, 6–10 mm, glabrous, apex with persistent calyx lobes.

Mixed forests; 1400–2400 m. S Xizang [Bangladesh, Bhutan, N India, Nepal].

**25. *Symplocos sulcata*** Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 46: 65. 1870.

沟槽山矾 gou cao shan fan

*Dicalix yunnanensis* (Brand) Migo; *Symplocos glandulosopunctata* Y. F. Wu; *S. macrophylla* subsp. *sulcata* (Kurz) Nooteboom; *S. persistens* Huang & Y. F. Wu; *S. yunnanensis* Brand.

Trees. Branchlets and petioles densely long brown villous to tomentose. Petiole 4–13 mm; leaf blade narrowly elliptic to narrowly ovate, 9–18 × 3–6 cm, thin leathery, abaxially patent pubescent to minutely appressed pilose, base cuneate, margin glandular dentate, apex long acuminate; lateral veins 6–17 per side. Racemes 1.5–3 cm, forming a cone in bud; bracts early deciduous, obovate, 3–5 mm, appressed pubescent; bractlets early deciduous, ovate, 1.5–4 mm, appressed pubescent. Ovary 1–1.5 mm, appressed sericeous to pubescent. Calyx with same indument as ovary; lobes oblong, 1–2.5 mm. Corolla ca. 4 mm. Stamens ca. 30. Disc 5-glandular, densely hairy to minutely hairy. Drupe cylindrical to ellipsoid, 7–10 × ca. 4 mm, apex with persistent erect calyx lobes. Fl. May–Nov, fr. Mar–Oct.

\* Slopes in mixed forests; 1200–2300 m. Xizang (Mêdog Xian), S Yunnan.

**26. *Symplocos pilosa*** Rehder in Sargent, Pl. Wilson. 2: 598. 1916.

柔毛山矾 rou mao shan fan

Trees to 3 m tall. Young branchlets, petioles, leaf blades abaxially, and inflorescence axes spreading long brown pilose. Old branchlets dark brown. Petiole 5–8 mm; leaf blade narrowly elliptic, elliptic, or narrowly ovate, 7–15 × 2.5–5 cm, submembranous to thin papery, base cuneate to subcordate, margin sharply dentate, apex long acuminate; lateral veins 7–12 per side. Racemes from axils of leaves or from wood beneath them, 1.5–4 cm, with some branches from base; bracts oblong, 2–5 cm, long pilose, margin ciliate; bractlets persistent, narrowly ovate, ca. 2 mm, long pilose. Ovary ca. 1 mm, long pilose. Calyx glabrous or sparsely long pilose; lobes oblong, 1–1.5 mm. Corolla 4–6 mm. Stamens 40–70. Disc inconspicuous, glabrous. Drupe cylindrical. Fl. May.

\* Mixed forests; 1500–2600 m. S Yunnan.

**27. *Symplocos lancifolia*** Siebold & Zuccarini, Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4(3): 133. 1846.

光叶山矾 guang ye shan fan

*Bobua pseudolancifolia* Hatusima; *Dicalix pseudolancifolius* (Hatusima) Migo; *Symplocos arisanensis* Hayata; *S. aurea* H. Léveillé; *S. formosana* Brand; *S. fulvipes* (C. B. Clarke) Brand; *S. kwangsiensis* Merrill ex H. L. Li; *S. lancifolia* var. *fulvipes* C. B. Clarke; *S. lancifolia* var. *microcarpa* (Champion ex Benth) Handel-Mazzetti; *S. latouchei* W. W. Smith ex Handel-Mazzetti; *S. microcarpa* Champion ex Benth; *S. mollifolia* Dunn; *S. ovalifolia* Handel-Mazzetti; *S. pseudolancifolia* (Hatusima) Handel-Mazzetti; *S. suishariensis* Hayata; *S. taiheizanensis* Mori; *S. trichoclada* Hayata; *S. trichoclada* var. *koshunensis* Mori.

Shrubs or trees, to 20 m. Buds, young branchlets, and inflorescence axes appressed to patent hairy. Branchlets dark brown, glabrescent. Petiole 1–5 mm; leaf blade ovate, elliptic, narrowly ovate, or narrowly elliptic, 2–10 × 1.5–4.3 cm, submembranous to papery, abaxially often sparsely appressed fine hairy, adaxially glabrous or rarely sparsely appressed fine hairy, base attenuate-cuneate, margin finely crenate to dentate, apex caudate-acuminate; midvein adaxially flat or prominent, lateral veins 6–11 per side. Spikes 1–4 cm; bracts elliptic-ovate, 0.5–2 mm, pubescent; bractlets deciduous under fruit, triangular to broadly ovate, 0.5–1.5 mm, pubescent, margin ciliate. Ovary 0.5–1.5 mm, glabrous, sparsely appressed fine hairy, or pubescent. Calyx lobes ovate, 0.5–1.5 mm, appressed fine short hairy, apex rounded. Corolla 2.5–4 mm. Stamens 15–40. Disc short pilose to sericeous, rarely glabrous. Drupe ellipsoid to subglobose, 3–5 × 2–5 mm, apex with persistent calyx lobes. Fl. Mar–Nov, fr. Jun–Dec.

Mixed forests; 800–1400 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [India, Japan, Philippines, Vietnam].

**28. *Symplocos cochinchinensis*** (Loureiro) S. Moore, J. Bot. 52: 148. 1914.

越南山矾 yue nan shan fan

Shrubs or trees. Branchlets glabrous, puberulent, pubescent, or reddish brown tomentose. Petiole 0.4–2.5 cm; leaf blade narrowly elliptic, elliptic, or obovate-elliptic, 6–27 × 0.9–10 cm, abaxially glabrous, pubescent, or tomentose, base cuneate to rarely rounded, margin subentire to glandular dentate, apex acuminate to acute; lateral veins 6–14 per side. Spikes 3–15 cm, 3–5-branched from base, glabrous, pubescent, or tomentose on axes, bracts, and bractlets; bracts 1–3 mm; bractlets 1–2 mm. Ovary 0.5–2 mm, glabrous. Calyx lobes 1–3 mm, glabrous or pubescent. Corolla 3–5 mm. Stamens 30–80. Disc annular to cylindrical, glabrous. Drupe ampulliform to globose, 4–7 × 4–5 mm.

200–3000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Cambodia, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; Australia, Pacific Islands].

Within China *Symplocos cochinchinensis* is represented by two subspecies and four varieties: var. *cochinchinensis* and var. *philippinensis* belong to subsp. *cochinchinensis*, while var. *laurina* and var. *angustifolia* belong to subsp. *laurina*.

- 1a. Branchlets and leaf blades abaxially red-brown pubescent to tomentose, especially on veins ..... 28a. var. *cochinchinensis*
- 1b. Branchlets and leaf blades glabrous.
  - 2a. Calyx lobes hairy, often enlarged in fruit and forming a conic beak; bracts and bractlets forming a calycle hiding ovary ..... 28b. var. *philippinensis*
  - 2b. Calyx lobes glabrous but margin often ciliate, not enlarged in fruit;

bracts and bractlets not hiding ovary.

- 3a. Leaf blade ovate-elliptic to obovate-elliptic, 2–8 cm wide ..... 28c. var. *laurina*  
3b. Leaf blade narrowly elliptic,  
0.9–2 cm wide ..... 28d. var. *angustifolia*

**28a. *Symplocos cochinchinensis* var. *cochinchinensis***

越南山矾(原变种) yue nan shan fan (yuan bian zhong)

*Dicalix cochinchinensis* Loureiro, Fl. Cochinch. 2: 663. 1790; *D. javanicus* Blume; *Symplocos cochinchinensis* subsp. *cochinchinensis* var. *puberula* Huang & Y. F. Wu; *S. ferruginea* Roxburgh; *S. ferruginifolia* Kanehira.

Shrubs or small trees. Branchlets, petioles, and leaf blade midveins reddish brown tomentose. Petiole 1–2 cm; leaf blade 9–27 × 3–10 cm, papery, abaxially rusty to brownish pubescent to tomentose, margin subentire to serrulate. Bracts and bractlets forming a calycle hiding ovary. Calyx lobes slightly connate at base, reddish brown tomentose, 2(–3) mm. Stamens 60–80. Drupe ampulliform to globose, 5–7 × 4–5 mm, apex with persistent conic calyx lobes. Fl. Aug–Sep, fr. Oct–Nov.

Mixed forests; 800–1500 m. S Fujian, Guangdong, Guangxi, Hainan, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [India, Indonesia, Japan, Laos, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand, Vietnam].

**28b. *Symplocos cochinchinensis* var. *philippinensis* (Brand) Nooteboom, Rev. Symploc. 154. 1975.**

兰屿山矾 lan yu shan fan

*Symplocos ferruginea* Roxburgh var. *philippinensis* Brand, Philipp. J. Sci. 3: 6. 1908; *Bobua kotoensis* (Hayata) Yamamoto; *S. kotoensis* Hayata.

Branchlets glabrous. Petiole 1–2.5 cm. Leaf blade ± elliptic, 5–13 × 2.5–5.5 cm, glabrous or midvein abaxially fine hairy; lateral veins 5–10 per side. Inflorescence axes and bracts tomentellous to pubescent; bracts and bractlets forming a calycle hiding ovary. Calyx appressed pubescent, lobes ca. 1 mm. Drupe globose, 4–6 mm.

Taiwan (Lan Yu) [Indonesia, Philippines].

**28c. *Symplocos cochinchinensis* var. *laurina* (Retzius) Nooteboom, Rev. Symploc. 156. 1975.**

黄牛奶树 huang niu nai shu

*Myrtus laurina* Retzius, Observ. Bot. 4: 26. 1786; *Bobua divaricativena* (Hayata) Kanehira & Sasaki; *Dicalix bodinieri* (Brand) Migo; *D. laurinus* (Retzius) Migo; *D. schaefferae* (Merrill) Migo; *D. terminalis* (Brand) Migo; *D. theophrastifolius* (Siebold & Zuccarini) Migo; *Drupatris cochinchinensis* Loureiro; *Eurya cavaleriei* H. Léveillé; *Maesa aurea* H. Léveillé; *M. bodinieri* H. Léveillé & Blin; *Symplocos balfourii* H. Léveillé; *S. bodinieri* Brand; *S. divaricativena* Hayata; *S. dung* Eberhardt & Dubard; *S. konishii* Hayata; *S. laurina* (Retzius) Wallich ex G. Don var. *bodinieri* (Brand) Handel-Mazzetti; *S. schaefferae* Merrill; *S. spicata* Roxburgh; *S. stenostachys* Hayata; *S. terminalis* Brand; *S. theophrastifolia* Siebold & Zuccarini; *S. vinosodentata* H. Léveillé.

Trees. Branchlets glabrous; buds brown pubescent. Petiole 1–1.5 cm; leaf blade ovate-elliptic to obovate-elliptic, 6–21 × 2–8 cm, leathery, glabrous. Bracts and bracteoles persistent, margin glandular punctate, pubescent, not hiding ovary. Calyx glabrous, not enlarged in fruit; lobes semi-orbicular 1–2 mm, shorter than tube. Stamens ca. 30. Drupe globose, 4–6 mm in diam., apex with persistent erect calyx lobes. Fl. Aug–Dec, fr. Mar–Jun.

Mixed forests; 200–3000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, Cambodia, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam].

**28d. *Symplocos cochinchinensis* var. *angustifolia* (Guillaumin) Nooteboom, Rev. Symploc. 158. 1975.**

狭叶山矾 xia ye shan fan

*Symplocos angustifolia* Guillaumin, Bull. Soc. Bot. France 71: 275. 1924; *S. stenophylla* Merrill & Chun ex H. L. Li.

Shrubs to 2 m tall. Young branchlets green, angled, glabrous; old branchlets brown. Petiole 4–8 mm; leaf blade narrowly elliptic, 7–15 × 0.9–2 cm, glabrous. Calyx lobes glabrous but margin often ciliate, not enlarged in fruit; bracts and bractlets not hiding ovary. Fl. May, fr. Jul–Nov.

Mixed forests; 300–500 m. Hainan [Vietnam].

**29. *Symplocos paucinervia* Nooteboom, Rev. Symploc. 262. 1975.**

少脉山矾 shao mai shan fan

Shrubs. Branchlets glabrous; buds pubescent. Petiole 5–7 mm; leaf blade narrowly elliptic, 4–8 × 1–3 cm, glabrous, base narrowly cuneate, apex slightly acuminate; lateral veins 3–5 per side. Racemes 3–5 cm, brown pubescent; bracts early deciduous, oblong, 3–4 mm, puberulent, glandular punctate; bractlets early deciduous, ca. 1.5 mm, puberulent. Ovary ca. 1 mm, glabrous. Calyx pubescent; lobes oblong, ca. 1.5 mm, slightly connate at base, glandular punctate. Corolla 5–6 mm. Stamens 20–25. Disc pilose, glandular. Style ca. 4 mm. Drupe not seen. Fl. Sep.

\* Mixed forests. Guangxi.

**30. *Symplocos glandulifera* Brand in Engler, Pflanzenr. IV. 242(Heft 6): 68. 1901.**

腺缘山矾 xian yuan shan fan

*Symplocos macrophylla* Wallich ex de Candolle subsp. *sulcata* (Kurz) Nooteboom var. *glandulifera* (Brand) Nooteboom.

Trees. Buds and young branchlets tomentose. Petiole ca. 2 cm; leaf blade narrowly elliptic, 10–20 × 2.5–5.5 cm, thin leathery, abaxially with cobwebby hairs when young, glabrescent, base cuneate, margin finely glandular dentate with more than 6 glands per cm, apex acuminate; lateral veins 7–12 per side and adaxially impressed. Inflorescences glomerules; bracts and bractlets persistent, orbicular, 2.5–3 mm in diam., tomentose. Ovary ca. 1.5 mm, tomentose. Calyx

tomentose; lobes oblong, ca. 2 mm, slightly shorter than tube. Corolla 5–6 mm. Stamens ca. 40. Disc pulvinate, pilose. Drupe subcylindric, ca. 10 × 4 mm, apex with persistent erect calyx lobes. Fl. and fr. Feb–Oct.

\* Slopes in mixed forests; 1400–2000 m. Guangxi, Hunan, Yunnan.

**31. *Symplocos glomerata*** King ex C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 577. 1882.

团花山矾 *tuan hua shan fan*

*Dicalix glomeratus* (King ex C. B. Clarke) Migo; *Symplocos wenshanensis* Huang & Y. F. Wu; *S. yizhangensis* Y. F. Wu.

Shrubs or small trees. Branchlets glabrous or tomentellous, soon glabrescent. Petiole 0.5–2.5 cm, without glands to rarely densely glandular in 2 rows; leaf blade narrowly elliptic to elliptic, 14–19 × 2–4.5 cm, subleathery, glabrous, base cuneate to broadly cuneate, margin glandular dentate, apex acuminate; lateral veins 10–17 per side, adaxially impressed. Inflorescences glomerules; bracts and bractlets persistent, tomentose, bracts 1–3 mm, bractlets 1–2 mm. Ovary ca. 1 mm, glabrous. Calyx lobes 1–2 mm, glabrous, margin ciliate. Corolla 4–5 mm. Stamens ca. 30. Disc cylindric, ca. 1 mm, glabrous. Drupe cylindric, 7–10 × ca. 3 mm. Fl. Jul–Oct, fr. Aug–Dec.

Mixed forests; 1200–2700 m. Fujian, N Guangdong, Hunan, Jiangxi, Xizang, Yunnan, Zhejiang [Bhutan, India, Sikkim].

**32. *Symplocos adenopus*** Hance, J. Bot. 21: 322. 1883.

腺柄山矾 *xian bing shan fan*

*Dicalix adenopus* (Hance) Migo; *D. oligophlebius* Migo; *Symplocos adenopus* var. *vestita* Huang & Y. F. Wu; *S. glomerata* King ex C. B. Clarke subsp. *glomerata* var. *adenopus* (Hance) Nootboom; *S. mairei* H. Léveillé; *S. myriadena* Merrill; *S. prainii* H. Léveillé.

Shrubs or small trees. Buds and young branchlets tomentose but sometimes only toward apex, glabrescent. Petiole 0.5–1.8 cm, marginal ridges densely glandular dentate; leaf blade elliptic-ovate to ovate, 5–16 × 2–6 cm, papery, abaxially appressed pilose to tomentose, base broadly cuneate to rounded, margin glandular dentate with 6–12 glands per cm, apex acuminate; lateral veins 6–14 per side, adaxially impressed. Inflorescences glomerules; bracts suborbicular, 2–3 mm in diam., tomentose at least toward apex, margin with large glands; bractlets elliptic, ca. 2 mm, tomentose at least toward apex, margin with small glands. Ovary 0.5–1 mm, glabrous. Calyx lobes semi-orbicular, 1.5–2 mm, glabrous, sometimes margin ciliate. Corolla 3–5 mm. Stamens 20–50. Disc cylindric, 0.5–1 mm, glabrous. Drupe cylindric, 0.8–1.3 cm × 2.5–3 mm, apex with persistent erect calyx lobes. Fl. Nov–Dec, fr. Jul–Aug.

\* Mixed forests; 500–1800 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Yunnan.

**33. *Symplocos stellaris*** Brand in Diels, Bot. Jahrb. Syst. 29: 528. 1900.

老鼠矢 *lao shu shi*

Shrubs or small trees. Buds and young branchlets reddish brown tomentellous or glabrous, soon glabrescent. Petiole 1–3 cm; leaf blade narrowly oblong-elliptic to narrowly obovate, 6–23 × 1.8–5 cm, thick leathery, glabrous, abaxially smooth, often light colored, subglaucous, base broadly cuneate to rarely subrounded, margin entire or rarely glandular denticulate, apex mucronate-acuminate to acute; midvein, lateral veins, and reticulate veins abaxially inconspicuous, adaxially impressed, lateral veins 7–15 per side. Inflorescences glomerules or condensed spikes; bracts and bractlets persistent, 2–3.5 mm, densely tomentose or glabrous with ciliate margin. Ovary 1–1.5 mm, glabrous. Calyx 1.5–2 mm; lobes semi-orbicular, 0.5–1 mm, glabrous or rarely woolly tomentose, margin ciliate. Corolla 5–8 mm, apically ciliate. Stamens 18–50. Disc cylindric, ca. 0.5 mm, glabrous. Drupe narrowly ovoid-cylindric, ca. 1 cm, apex with persistent erect calyx lobes. Fl. Feb–May, fr. Jun–Sep.

1000–2000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Jiangsu, Sichuan, Taiwan, Yunnan, Zhejiang [Japan (Okinawa)].

- 1a. Twigs and bud-scales tomentellous; leaf blade margin entire, strongly revolute; stamens 18–25; bracts and bractlets densely tomentose ..... 33a. var. *stellaris*  
1b. Twigs and bud-scales glabrous; leaf blade margin denticulate, not revolute; stamens ca. 50; bracts and bractlets glabrous except for ciliate margin ..... 33b. var. *aenea*

**33a. *Symplocos stellaris*** var. *stellaris*

老鼠矢 (原变种) *lao shu shi* (*yuan bian zhong*)

*Bobua stellaris* (Brand) Migo; *Dicalix stellaris* (Brand) Migo; *Symplocos dunniana* H. Léveillé; *S. eriobotryifolia* Hayata; *S. limprichtii* H. Winkler; *S. wilsonii* Hemsley.

Twigs and bud-scales tomentellous. Leaf blade margin entire and strongly revolute, apical acumen 0–10 mm, reticulate veins obscure. Bracts and bractlets densely tomentose. Stamens 18–25. Fl. Apr–May, fr. Jun.

Slopes in mixed forests; ca. 1100 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Jiangsu, Sichuan, Taiwan, Yunnan, Zhejiang [Japan (Okinawa)].

**33b. *Symplocos stellaris*** var. *aenea* (Handel-Mazzetti) Nootboom, Rev. Symploc. 283. 1975.

铜绿山矾 *tong lu shan fan*

*Symplocos aenea* Handel-Mazzetti, Beih. Bot. Centralbl. 62(B): 30. 1943; *Dicalix pseudostellaris* Migo; *S. wuliangshanensis* Huang & Y. F. Wu.

Twigs glabrous; bud-scales glabrous or hairy only toward margin. Leaf blade often somewhat obovate, margin denticulate, apical acumen ca. 1.5 cm, reticulate veins very coarse and abaxially slightly prominent. Bracts and bractlets glabrous except for ciliate margin. Stamens ca. 50. Fl. Feb–May, fr. Jun–Sep.

\* Mixed forests; 1000–2000 m. S Sichuan, Yunnan.

**34. *Symplocos ulotricha*** Ling, Acta Phytotax. Sin. 1: 216. 1951.

卷毛山矾 juan mao shan fan

Trees to 7 m tall. Buds, young petioles, and young leaf blades abaxially reddish brown tomentose. Young branchlets densely brown villous; old branchlets glabrous. Petiole 1–1.8 cm; leaf blade narrowly elliptic to narrowly ovate, 7–15 × 2.5–5.5 cm, thick leathery, base broadly cuneate to rounded, margin entire, apex acute to rounded; lateral veins 8–13 per side, adaxially impressed. Inflorescences glomerules; bracts orbicular, ca. 3 mm in diam., with dense long hairs. Ovary 1–1.5 mm, glabrous. Calyx glabrous; lobes oblong, 1.5–2 mm. Corolla ca. 6 mm. Stamens 35–50. Disc annular, glabrous. Drupe cylindrical, ca. 1 cm, apex with persistent erect calyx lobes 2.5–3 mm. Fl. and fr. Apr–Nov.

\* Slopes in mixed forests; 900–1100 m. Fujian, Guangdong.

**35. *Symplocos fukienensis*** Ling, Acta Phytotax. Sin. 1: 218. 1951.

福建山矾 fu jian shan fan

Trees to 3 m tall. Buds and young branchlets tomentose; old branchlets glabrous. Petiole 1.5–2 cm, tomentose; leaf blade oblong to oblong-elliptic, 7–10 × 2.5–4 cm, thick papery, abaxially woolly villous, base broadly cuneate, margin entire, apex short acuminate to acute; lateral veins 7 or 8 per side. Inflorescences glomerules; bracts and bractlets persistent, spatulate to orbicular, ca. 2 mm, brown tomentose. Ovary ca. 1 mm, glabrous. Calyx brown tomentose, lobes orbicular. Corolla yellow, ca. 4 mm. Stamens ca. 40. Disc annular, glabrous. Drupe ellipsoid, ca. 1 cm. Fl. Jun, fr. Aug.

\* Mixed forests; ca. 900 m. Fujian.

**36. *Symplocos dolichotricha*** Merrill, Lingnan Sci. J. 7: 320. 1929.

长毛山矾 chang mao shan fan

*Symplocos indochninensis* H. L. Li; *S. kwangtungensis* H. L. Li.

Trees to 12 m tall. Young branchlets with a mixed indument of short hairs and slender hairs 2.5–3 mm. Petiole 4–7 mm; leaf blade elliptic, oblong-elliptic, or ovate-elliptic, 6–15.5 × 2–5.5 cm, papery, abaxially with bulbous-based dense patent soft hairs, adaxially long pilose but often soon glabrescent, base acute to cordate, margin entire or minutely denticulate, apex acuminate; lateral veins 4–8 per side, adaxially impressed. Inflorescences glomerules, 6–8-flowered; bracts and bractlets persistent, ovate to triangular broadly ovate, 1–2 mm, sparsely to densely appressed pubescent. Ovary 1–2 mm, glabrous. Calyx lobes oblong to ovate, 1–1.5 mm, glabrous or sparsely appressed pubescent. Corolla 3–4 mm. Stamens ca. 30. Disc flat or annular, with 5 epipetalous glands, pilose. Drupe green, subglobose, ca. 5 × 5 mm, apex with persistent erect calyx lobes. Fl. and fr. Jul–Nov.

Slopes in mixed forests; ca. 800 m. SW Guangdong, Guangxi [Vietnam].

**37. *Symplocos austrosinensis*** Handel-Mazzetti, Beih. Bot. Centralbl. 62(B): 29. 1943.

南国山矾 nan guo shan fan

Shrubs or small trees. Young branchlets thin, densely appressed puberulent; old branchlets dark brown, glabrous or slightly puberulent. Petiole 0.8–1.5 cm; leaf blade narrowly elliptic, 4–14 × 1.5–3.5 cm, papery, glabrous, base cuneate to broadly cuneate, margin entire or glandular denticulate, apex caudate-acuminate; lateral veins 5–10 per side. Inflorescences glomerules, ca. 10-flowered; bracts and bractlets persistent, ovate to broadly ovate, ca. 1 mm, sparsely appressed pubescent. Ovary ca. 1 mm, glabrous. Calyx lobes oblong, ca. 1 mm, glabrous, margin ciliate. Corolla 3–4 mm. Stamens 20–30. Disc annular, glabrous. Drupe brown to black when dry, cylindrical, 6–8 × ca. 3 mm. Fl. and fr. Jun–Oct.

\* Mixed forests; ca. 1000 m. N Guangdong, Guangxi, Guizhou, Hunan.

**38. *Symplocos congesta*** Benthams, Fl. Hongk. 211. 1861.

密花山矾 mi hua shan fan

*Bobua adinandrifolia* (Hayata) Kanehira & Sasaki; *B. congesta* (Benthams) Migo; *B. nakaii* (Hayata) Kanehira & Sasaki; *B. phaeophylla* (Hayata) Kanehira & Sasaki; *B. taiwaniana* Hatusima; *B. theifolia* Kanehira & Sasaki; *Dicalix congestus* (Benthams) Migo; *Symplocos adinandrifolia* Hayata; *S. cuspidata* Brand; *S. hayatae* Mori; *S. kudoi* Mori; *S. nakaii* Hayata; *S. phaeophylla* Hayata.

Trees or shrubs. Young branchlets tomentellous or at least with some patches of tomentum especially toward apex and at beginning of growth flushes, glabrescent; terminal buds tomentellous, with several scales. Petiole 0.5–1.5 cm; leaf blade elliptic to obovate, 8–10(–17) × 2–6 cm, papery, glabrous, base cuneate to broadly cuneate, margin entire or rarely dentate, apex acuminate to acute; lateral veins 5–10 per side. Inflorescences glomerules; bracts and bractlets persistent, brown tomentose, margin with 4 or 5 oblong glands. Ovary 0.5–1.5 mm, glabrous or appressed pubescent. Calyx glabrous, tube 0.5 mm, lobes 1.5–3.5 mm. Corolla 4–5 mm. Stamens ca. 50. Disc flat to annular, glabrous. Drupe purplish blue, cylindrical, 0.8–1.3 cm × 3–4 mm, apex with persistent erect calyx lobes. Fl. Aug–Nov, fr. Jan–Feb.

\* Mixed forests; 200–1500 m. Fujian, Guangdong, Guangxi, Hainan, Hunan, Jiangxi, Taiwan, Yunnan, Zhejiang.

**39. *Symplocos poilanei*** Guillaumin, Bull. Soc. Bot. France 71: 282. 1924.

丛花山矾 cong hua shan fan

*Dicalix chunii* (Merrill) Migo; *D. poilanei* (Guillaumin) Migo; *Symplocos chunii* Merrill; *S. fasciculiflora* Merrill; *S. glomerata* King ex C. B. Clarke subsp. *congesta* (Benthams) Nooteboom var. *poilanei* (Guillaumin) Nooteboom; *S. spathulata* H. L. Li.

Shrubs or small trees. Young branchlets glabrous; cataphylls numerous, along branchlets between leaf whorls, soon deciduous, glabrous, with pellucid glands at apical margin.

Leaves mostly crowded at end of growth flushes; petiole 0.8–1.5 cm; leaf blade obovate, 4–14 × 1.5–5.5(–6) cm, leathery, glabrous, base cuneate, margin entire or minutely dentate, apex mucronate-acuminate, acute, or obtuse; lateral veins 11–14 per side, adaxially slightly prominent. Inflorescences glomerules or much reduced spikes, to 1.5 cm, in axils of leaves and many from wood between whorls of leaves, axis tomentose-pubescent; bracts and bractlets persistent, ovate to suborbicular, tomentose, brown glandular punctate, margin ciliate. Ovary ca. 1 mm, glabrous. Calyx glabrous; tube ca. 0.5 mm; lobes ovate to suborbicular, ca. 1.5 mm, margin sometimes sparsely ciliate. Corolla ca. 4 mm. Stamens 40–60 or more. Disc low cylindrical to annular, glabrous. Drupe cylindrical, 6–8 × ca. 3 mm, apex with persistent erect calyx lobes. Fl. Jan–Sep, fr. Oct–May.

Mixed forests; 300–2000 m. Guangdong, Guangxi, Hainan [Vietnam].

**40. *Symplocos paniculata*** (Thunberg) Miquel, Ann. Mus. Lugduno-Batavi 3: 102. 1867.

白檀 bai tan

*Prunus paniculata* Thunberg in Murray, Syst. Veg. ed. 14, 463. 1784; *Cotoneaster coreanus* H. Léveillé; *Myrtus chinensis* Loureiro; *Palura chinensis* (Loureiro) Koidzumi; *P. chinensis* var. *pilosa* Nakai; *P. sinica* (Ker Gawler) Miers; *Prunus mairei* H. Léveillé; *Symplocos chinensis* (Loureiro) Druce; *S. chinensis* var. *vestita* (Hemsley) Handel-Mazzetti; *S. crataegoides* Buchanan-Hamilton ex D. Don; *S. hunanensis* Handel-Mazzetti; *S. simaensis* Qian Yi-yong; *S. sinica* Ker Gawler; *S. sinica* var. *vestita* Hemsley.

Shrubs or small trees, deciduous. Young branchlets glabrous or ± pilose; old branchlets glabrous. Petiole 3–7 mm; leaf blade ovate, elliptic-obovate, or broadly obovate, usually slightly rhombic, 1.5–11 × 1–5.5 cm, membranous to thin papery, abaxially glabrous or pubescent, adaxially glabrous or appressed hairy, base broadly cuneate to subcordate, margin sharply glandular dentate, apex acuminate to acute; lateral veins 4–10 per side. Panicles terminal, consisting of a raceme of cymose corymbs, 2–10 cm; bracts early deciduous, usually linear, 1(–3) mm, brown glandular. Pedicel 0–10 mm, slender, thickened in fruit, articulate at apex. Ovary obconic, 1–1.5 mm, glabrous or hairy, 2-locular; ovules 4 per locule. Calyx lobes light yellow, ovate to semi-orbicular, 1–1.5 mm, sometimes abaxially hairy, margin ciliate. Corolla 3–6 mm. Stamens 25–60. Disc 5-glandular, glabrous or hairy. Drupe bluish, rarely white, ovate-globose, 3–8 mm. Fl. Apr–Jun, fr. Sep–Nov.

Slopes in mixed forests; 800–2500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Yunnan, Xizang, Zhejiang [Bhutan, India, Japan, Korea, Laos, Myanmar, Vietnam].

**41. *Symplocos pendula*** Wight, Icon. Pl. Ind. Orient. 4(1): 11. 1848.

吊钟山矾 diao zhong shan fan

Shrubs or trees. Young branches glabrous, sparsely appressed fine hairy, or rarely rusty tomentose. Petiole 1–2 cm; leaf blade elliptic, obovate-elliptic, ovate, or sometimes orbicular, 2.5–12.5 × 1–6 cm, subleathery, base cuneate to rounded, margin entire or sparsely crenate, apex mucronate-acuminate to acute; lateral veins 4–11 per side. Racemes 1–4.5 cm; bracts oblong-ovate, 1–2 mm, apex obtuse; bractlets narrowly ovate, 1–1.2 mm, apex acute. Pedicel 3–6 mm. Ovary ca. 1.5 mm, semi-inferior with superior part subhemispheric, densely grayish hairy, 2-locular. Calyx together with ovary campanulate, together 3–5 mm; lobes very short and rounded. Corolla tubular-trumpetlike, 0.5–1.7 cm; lobes 5, as long as tube. Stamens many; filaments connate into a tube adnate to corolla tube except for apical 3–5 mm; stamen tube glabrous or hairy inside; free part of filaments fleshy, 1–3.5 × ca. 1 mm, constricted at apex into a short filiform part; anthers 30–80, inserted at various heights within stamen tube. Drupe fusiform, 1–1.5 cm × 3–6 mm, pubescent, apex with persistent erect calyx lobes. Fl. Jun–Aug.

500–1600 m. Fujian, Guangdong, Guangxi, Guizhou, S Hainan, Hunan, Jiangxi, Taiwan, Yunnan, Zhejiang [India, Indonesia, Japan, Malaysia, Myanmar, Vietnam].

- 1a. Ovary and calyx outside glabrous ..... 41a. var. *pendula*  
1b. Ovary and calyx outside short  
tomentose ..... 41b. var. *hirtistylis*

**41a. *Symplocos pendula* var. *pendula***

吊钟山矾(原变种) diao zhong shan fan (yuan bian zhong)

*Symplocos punctulata* Masamune & Syozi.

Racemes subglabrous to short tomentose. Ovaries and calyces glabrous. Fl. Jun–Jul.

Mixed forests; ca. 900 m. S Hainan [India, Malaysia].

**41b. *Symplocos pendula* var. *hirtistylis*** (C. B. Clarke) Nooteboom, Rev. Symploc. 42. 1975.

南岭山矾 nan ling shan fan

*Symplocos henschelii* (Moritz) Bentham ex C. B. Clarke var. *hirtistylis* C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 588. 1882; *Bobua confusa* (Brand) Kanehira & Sasaki; *Symplocos confusa* Brand; *S. confusa* var. *lysiostemon* Handel-Mazzetti.

Racemes, ovaries, and calyces outside short tomentose. Fl. Jun–Aug, fr. Sep–Nov.

Mixed forests; 500–1600 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Taiwan, Yunnan, Zhejiang [Indonesia, Japan, Malaysia, Myanmar, Vietnam].

**42. *Symplocos spectabilis*** Brand in Engler, Pflanzenr. IV. 242(Heft 6): 69. 1901.

绿春山矾 lu chun shan fan

Trees to 7 m tall. Twigs ca. 1 cm in diam. Petiole 2.5–3 cm, glabrous; leaf blade obovate, ca. 17 × 5–7 cm, thin leathery, glabrous, base cuneate to rarely rounded and narrowing into petiole, margin entire or denticulate, recurved, and cartilaginous, apex short acuminate; midvein abaxially very

prominent, adaxially impressed; lateral veins 14–18 per side, anastomosing toward margin or a faint intramarginal vein present, reticulate veins transverse to lateral veins, reticulation coarse and slightly prominent abaxially. Fascicles many, dense, from wood beneath leaves; bracts 3–4 mm, tomentose; bractlets 2–3 mm, tomentose. Ovary glabrous, 0.5–1 mm.

Calyx ca. 1.5 mm, glabrous; lobes semiorbicular, ca. 1 mm, margin ciliate. Corolla 5–7 mm. Stamens ca. 25, to 9 mm long. Disc glabrous, annular. Style glabrous, ca. 7 mm. Fruit not known.

Woods, often on steep slopes; ca. 2300 m. Yunnan [Myanmar].

