

21. DICHROA Loureiro, Fl. Cochinch. 1: 301. 1790.

常山属 *chang shan shu*

Huang Shumei (黄淑美 *Hwang Shu-mei*); Bruce Bartholomew

Shrubs or subshrubs. Leaves opposite, rarely alternate apically on stem. Inflorescence terminal, a corymbose cyme or panicle. Flowers bisexual. Calyx tube adnate to ovary, obconical; lobes 5(or 6). Petals 5(or 6), variously colored, induplicate-valvate in bud. Stamens 4–10(–20); filaments filiform or subulate; anthers ellipsoid to ovoid, 2-loculed. Ovary semi-inferior to subinferior, incompletely 3–5-loculed; placentation parietal; ovules numerous. Styles 2–6, free or connate only at base, divergent; stigma oblong to subglobose. Fruit a fleshy berry, 1-valved, slightly dry. Seeds ovoid, minute; seed coat membranous, reticulate; embryo surrounded by fleshy endosperm.

Twelve species: mainly in E Asia and adjacent islands; six species (four endemic) in China.

- 1a. Ovary semi-inferior; flower buds subglobose; styles (2 or)3(or 4), stigma subglobose; filaments subulate.
 - 2a. Leaf blade densely villous abaxially, glabrous adaxially; inflorescence a corymbose cyme, 5–7 cm 5. *D. mollissima*
 - 2b. Leaf blade crisped pubescent on both surfaces; inflorescence a corymbose panicle, 10–22 cm 6. *D. yunnanensis*
- 1b. Ovary inferior to 3/4 so; flower buds obovoid to oblong-obovoid; styles 4–6 (sometimes 3 in *D. hirsuta*), stigma oblong; filaments filiform.
 - 3a. Branchlets, petioles, and leaf veins crisped pubescent or glabrous; inflorescence a corymbose panicle 1. *D. febrifuga*
 - 3b. Branchlets, petioles, and leaf veins both crisped pubescent and pellucid villous; inflorescence a corymbose cyme.
 - 4a. Calyx lobes obtusely deltoid, ca. 1 mm, glabrous 2. *D. daimingshanensis*
 - 4b. Calyx lobes lanceolate, 2.5–6 mm, hirsute.
 - 5a. Petals densely hirsute on both surfaces; anthers glabrous; leaf blade apex acute 3. *D. yaoshanensis*
 - 5b. Petals glabrous or sparsely hirsute abaxially; anthers with filiform hairs or glabrous; leaf blade apex acuminate to caudate 4. *D. hirsuta*

1. *Dichroa febrifuga* Loureiro, Fl. Cochinch. 1: 301. 1790.
常山 *chang shan*

?*Cyanitis sylvatica* Reinwardt ex Blume; ?*Dichroa sylvatica* (Reinwardt ex Blume) Merrill.
Shrubs 1–2 m tall. Branchlets, petioles, and veins glabrous or crisped pubescent. Petiole 1.5–5 cm; leaf blade sometimes purplish abaxially, elliptic, obovate, elliptic-oblong, or lanceolate, 6–25 × 2–10 cm, papery, abaxially glabrous or crisped pubescent along veins, rarely sparsely hirsute, adaxially glabrous, secondary veins 8–10 on both sides of midvein, base cuneate, margin serrate to coarsely so, rarely undulate, apex acute to acuminate. Inflorescence a corymbose panicle, 3–20 cm. Flower buds obovoid, 6–10 mm; pedicel 3–5 mm. Calyx lobes 4–6, broadly deltoid, apex acute. Petals reflexed at maturity, blue or white, oblong-elliptic, slightly fleshy. Stamens 10–20; filaments connate when young, free at maturity, filiform; anthers ellipsoid. Ovary inferior to 3/4 so. Styles 4(–6), clavate; stigma oblong. Berry dark blue when mature, 3–7 mm in diam. Seeds ca. 1 mm. Fl. Feb–Apr, fr. May–Aug. Mixed forests on mountain slopes or in valleys; 200–2000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Taiwan, Xizang [Bhutan, Cambodia, N India, ?Indonesia, Laos, Myanmar, Nepal, Sikkim, Thailand, Vietnam].

Dichroa sylvatica, from Indonesia, may be synonymous with *D. febrifuga*.

Dichroa febrifuga is used medicinally.

2. *Dichroa daimingshanensis* Y. C. Wu, Bot. Jahrb. Syst. 71: 179. 1940.

大明常山 *dai ming chang shan*

Subshrubs 1–3 m tall. Branchlets, petioles, and veins crisped pubescent and pellucid villous. Petiole ca. 1.3 cm; leaf blade elliptic-oblong to obovate-elliptic, 7–16 × 2.5–7 cm, papery, abaxially sparsely villous, adaxially appressed hirsute, secondary veins 6–9 on both sides of midvein. Inflorescence a corymbose cyme, 5–10 × 3–5 cm; peduncle 1–2 cm. Flower buds oblong-obovoid, ca. 5 mm; pedicel ca. 4 mm. Calyx tube sparsely villous; lobes 5 or 6, obtusely deltoid, ca. 1 mm, glabrous. Petals 5 or 6, blue-white, broadly lanceolate to oblong-ovate, 5–6 × 1.5–2 mm, slightly fleshy, glabrous on both surfaces, margin recurved at maturity, apex acute. Stamens 10–12; filaments filiform, ca. 5 mm; anthers dimorphic: reflexed oblong-ellipsoid and erect ovoid, sparsely villous. Ovary subinferior. Styles 4(–6), clavate, ca. 3.5 mm; stigmas oblong, oblique. Berry subglobose, ca. 5 mm, glabrous or sparsely villous. Seeds brownish, pyriform, ca. 0.8 mm. Fl. Mar–May, fr. Sep–Oct.

• Forests in valleys; 400–800 m. Guangxi, Guizhou.

3. *Dichroa yaoshanensis* Y. C. Wu, Bot. Jahrb. Syst. 71: 180. 1940.

罗蒙常山 *luo meng chang shan*

Subshrubs basally prostrate, ca. 3 m tall. Branchlets, petioles, veins, and inflorescences adherent crisped pubescent and slightly pellucid villous. Petiole slender, 1–7 cm; leaf blade elliptic to ovate-elliptic, 5–17 × 3–7.5 cm, papery, both surfaces hirsute except along veins, secondary veins 5–11 on both sides of midvein, base cuneate to obtuse, margin serrate, apex acute. Inflorescence a corymbose cyme, aggregate, 2–4(–6) cm wide; peduncle 5–10 mm. Flower buds blue, oblong-obovoid, 5–7 mm; pedicel ca. 5 mm. Calyx lobes 5 or 6, lanceolate, 2.5–6 mm, densely hirsute. Petals oblong-lanceolate, 4–5 × 1.7–2 mm, densely hirsute on both surfaces. Stamens 10–12, ca. 7 mm; filaments filiform, unequal; anthers ellipsoid to ovoid, glabrous. Ovary subinferior. Styles 4 or 5, ca. 4 mm; stigmas oblong, oblique. Berry subglobose, 4–5 mm, sparsely villous. Fl. May–Jul, fr. Sep–Nov.

• Mixed forests in valleys; 500–1200 m. Guangdong, Guangxi, Hunan, Yunnan.

4. *Dichroa hirsuta* Gagnepain in Lecomte, Fl. Indo-Chine 2: 690. 1920.

硬毛常山 ying mao chang shan

Shrubs 2–2.5 m tall. Branchlets, petioles, veins, and inflorescences crisped pubescent and pellucid villous. Petiole 1–1.5 cm; leaf blade lanceolate to elliptic-lanceolate, 10–15 × 3.5–6 cm, papery, abaxially densely hispidulous, adaxially hirsute, secondary veins 8–10 on both sides of midvein, base attenuate, margin serrate, apex acuminate to caudate. Inflorescence a corymbose cyme, aggregate, 3–5 cm wide; peduncle 3–5 mm. Flower buds obovoid, ca. 3 mm in diam.; pedicel ca. 2 mm. Calyx tube hirsute; lobes 5 or 6, lanceolate, 4–6 mm, hirsute. Petals 5, ovate-lanceolate, ca. 3 × 2 mm, abaxially glabrous or sparsely hirsute. Stamens 10–12; filaments filiform, often partly curved; anthers with filiform hairs. Ovary ca. 3/4 inferior. Styles 3–5; stigmas oblong. Berry 3–4 mm, hirsute. Fl. Apr–May, fr. Jul–Oct.

Mixed forests; 400–1500 m. Guangxi, Yunnan [Vietnam].

5. *Dichroa mollissima* Merrill, Philipp. J. Sci. 23: 245. 1933.

海南常山 hai nan chang shan

Shrubs ca. 2 m tall. Branchlets, petioles, and adaxial surface of leaf blades villous. Branchlets gray-yellow to brown, terete, glabrescent. Petiole 2–4 cm; leaf blade oblong-elliptic to -obovate, 8–16 × 2.5–6.5 cm, papery, abaxially densely villous, adaxially glabrous, secondary veins 5–8 on both sides of midvein, tertiary veins adaxially elevated, base cuneate, margin sparsely serrate distally from middle, apex acuminate to caudate. Inflorescence a corymbose cyme, 5–7 × ca. 10 cm. Flower buds subglobose, ca. 2.5 cm. Calyx tube cupular, ca. 1.5 mm; lobes 5, ovate, ca. 1 mm, glabrous, apex acute to acuminate. Petals white or blue. Stamens 10–12; filaments subulate, 1.2–2 mm; anthers reflexed, ovoid-ellipsoid, adnate to filament in bud. Ovary semi-

inferior. Styles 3 or 4, robust, ca. 1.5 mm; stigma subglobose. Berry oblong, ca. 4.5 × 6 mm, pubescent or glabrous. Seeds ellipsoid, slightly oblique. Fl. Jun–Jul, fr. Sep–Dec.

• Mixed forests in valleys; 1000–1800 m. Hainan.

6. *Dichroa yunnanensis* S. M. Hwang, Acta Phytotax. Sin. 25: 387. 1987.

云南常山 yun nan chang shan

Shrubs 1.5–2 m tall. Branchlets terete, pubescent. Petiole 3–5 cm; leaf blade oblong-elliptic to -lanceolate, 20–25 × 8–10 cm, papery, abaxially crisped pubescent especially along veins, adaxially sparsely crisped pubescent and hirsute, secondary veins 8–10 on both sides of midvein, abaxially elevated, tertiary veins sparse, base broadly cuneate, margin serrulate, apex shortly acuminate. Inflorescence a corymbose panicle, 10–20 × 3–5 cm, densely crisped pubescent, many flowered. Flower buds subglobose; pedicel 3–5 mm. Calyx tube cupular, sparsely crisped pubescent; lobes 5, deltoid, ca. 1 mm, glabrous. Petals 5, blue or white, ovate-oblong to -lanceolate, ca. 2 mm, glabrous, margin reflexed at maturity, apex acute. Stamens 10; filaments subulate, ca. 2 mm; anthers ovoid, ca. 2 mm. Ovary semi-inferior, 4-loculed. Styles (2 or)3(or 4), ca. 2 mm, villous; stigmas subglobose. Berry dark blue when mature, globose, ca. 5 mm in diam. Seeds brownish, obliquely ovoid-globose, less than 1 mm. Fl. May–Jun, fr. Jul–Aug.

• Forests; ca. 2000 m. Yunnan.

Although one of the present authors (Huang) considers *Dichroa yunnanensis* to be a distinct species, Bartholomew feels that additional study is needed to determine if it is really distinct from *D. febrifuga*.

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