

12. BREYNIA J. R. Forster & G. Forster, Char. Gen. Pl. 73. 1775, nom. cons., not Linnaeus (1753).

黑面神属 hei mian shen shu

Li Bingtao (李秉滔 Li Ping-tao); Hans-Joachim Esser

Melanthesa Blume; *Melanthesopsis* Müller Argoviensis.

Shrubs or trees, monoecious; indumentum of simple hairs or absent. Leaves simple, alternate, distichous, petiolate; stipules triangular, ± caducous; leaf blade entire, abaxially drying dirty brownish and often glaucous-papillate, adaxially often drying blackish, pinnately veined. Inflorescences axillary, male flowers in few-flowered clusters in proximal axils, sometimes in small bracteate racemes, female flowers solitary in distal axils. Male flowers: calyx turbinate, funnelform, or hemispheric, fleshy, apex usually shortly 6-lobed, lobes usually incurved and concealing stamens; petals absent; disk lobes scalelike, at base of calyx lobes; stamens 3; filaments connate into cylindric column with parallel sessile anthers along sides; anthers 2-locular, longitudinally dehiscent; pistillode absent. Female flowers: calyx turbinate, hemispheric, campanulate, radial, or cup-shaped, 6-dentate to (5 or)6-fid, persistent, accrescent into saucer-shape or disk; ovary globose, truncate, or depressed, 3-locular; styles 3, bifid at apex, inserted within apical depression with lobed margin; ovules 2 per locule. Fruit usually a berry, globose or depressed globose, red, indehiscent, exocarp ± fleshy, harder when dry, with 3–6 trigonous cocci when mature. Seeds sharply 3-angled, yellow or reddish, smooth; testa thinner; caruncle absent; endosperm copious, fleshy; embryo curved; cotyledon slightly broad and flattened. *n* = 13, 16.

Between 26 and 30 species: tropical Asia, Australia, Pacific islands; five species in China.

Breynia disticha J. R. Forster & G. Forster f. *nivosa* (W. Bull) Croizat ex Radcliffe-Smith, the “snow bush,” is a widely grown ornamental shrub, often as a low hedge plant, with membranous, green-white-red variegated leaves and otherwise similar to *B. retusa* but never setting fruits in China.

Initial observations (Kawakita & Kato, Amer. J. Bot. 91: 1319–1325. 2004) suggested that there is a symbiotic relationship between species of *Breynia* and moths of the genus *Epicephala* similar to that observed in *Glochidion*.

- 1a. Leaves leathery; female flowers and fruits often several per axil; fruiting stigmas longer than 1 mm, deeply bifid 4. *B. fruticosa*
- 1b. Leaves papery to thinly leathery; female flowers and fruits solitary per axil; fruiting stigmas not longer than 1 mm, bifid or not.
 - 2a. Stamens connate into a 3-angled head with anthers on underside; female flowers and fruits with fused style; fruiting calyx enlarged, to 12 mm in diam. 3. *B. retusa*
 - 2b. Stamens connate into a cylindric head with anthers parallel along sides; female flowers and fruits with free stigmas, not fused at base; fruiting calyx hardly enlarging, less than 8 mm in diam.
 - 3a. Leaves papery to thinly leathery, with acuminate apex; fruits 6–7 mm in diam., with beaked apex 5. *B. rostrata*
 - 3b. Leaves papery, with rounded to acute apex; fruits 4–5 mm in diam., with smooth apex.
 - 4a. Leaf apex rounded; ovaries and fruits often stipitate above calyx 1. *B. officinalis*
 - 4b. Leaf apex acute; ovaries and fruits always sessile in calyx 2. *B. vitis-idaea*

1. *Breynia officinalis* Hemsley, J. Linn. Soc., Bot. 26: 427. 1894.

红仔珠 hong zi zhu

Breynia accrescens Hayata; *B. formosana* (Hayata) Hayata; *B. officinalis* var. *accrescens* (Hayata) M. J. Deng & J. C. Wang; *B. stipitata* Müller Argoviensis var. *formosana* Hayata.

Erect shrubs 1–3(–5) m tall, glabrous throughout, much branched; branches terete, slender. Stipules ovate-triangular, ca. 1 mm; petiole 2–3 mm; leaf blade elliptic or broadly elliptic, 2–4.5 × 1–3 cm, membranous, distichous, abaxially pruinose-green or glaucous, adaxially green, base acute to obtuse, apex obtuse to rounded; midvein and (3–)5–7 pairs lateral veins flattened adaxially, elevated abaxially. Flowers small, green, solitary or 2 or 3 in axillary fascicle. Male flowers: pedicels slender, 3–6 mm; sepals 6, broadly ovate, ca. 2 mm, subtruncate at apex; stamens 3, connate into capitate column. Female flowers solitary; pedicels 2–4 mm, hardly lengthening in fruit; sepals as in male, but shorter, 1–2 mm, slightly enlarged in

fruit; ovary ovoid; stigmas short, ca. 0.25 mm, free, undivided. Fruiting pedicel 3–4 mm; fruits often elevated by stalk of ca. 2 mm above calyx, ovoid, compressed at apex, ca. 5 mm in diam., apex sometimes obscurely beaked, with shallow apical rim, black-purple when fully mature, red and drying shiny brown. Seeds 3–4.5 × 1.8–2.5 × 1.7–2.5 mm, yellow-brown. Fl. year-round, fr. Jan, Oct.

Thickets, scrub; below 500 m. Fujian, Taiwan [Japan].

All parts are used as medicine for asthma, sore throat, and eczema.

Breynia officinalis has been included within the following, much more widespread species, *B. vitis-idaea*, but it can be distinguished by the differences in leaf shape (rounded, not acute, apex) and the presence of a basal stalk on the fruits.

2. *Breynia vitis-idaea* (N. L. Burman) C. E. C. Fischer, Bull. Misc. Inform. Kew 1932: 65. 1932.

小叶黑面神 xiao ye hei mian shen

Rhamnus vitis-idaea N. L. Burman, Fl. Indica, 61. 1768; *Breynia rhamnoides* Müller Argoviensis, nom. illeg. superfl.;

Melanthesa rhamnoides Blume, nom. illeg. superfl.;
Phyllanthus rhamnoides Retzius, nom. illeg. superfl.

Erect shrubs to 3 m tall, glabrous throughout, much branched; branches terete, slender. Stipules ovate-triangular, ca. 1.5–2 mm; petiole 2–3 mm; leaf blade elliptic (rarely ovate or broadly ovate), 2–5 × 1.5–3 cm, membranous, distichous, abaxially pruinose-green or glaucous, adaxially green, base obtuse, apex acute; midvein and 5–7 pairs lateral veins flattened adaxially, elevated abaxially. Flowers small, green, solitary or several in axillary racemes. Male flowers: pedicels slender, 2.5–4 mm; sepals 6, broadly ovate, ca. 2 mm, subtruncate at apex; stamens 3, connate into capitate column. Female flowers solitary; pedicels 3–4 mm, not lengthening in fruit; sepals as in male, but shorter, 1–2 mm, not enlarged in fruit; ovary ovoid; stigmas short, ca. 0.25 mm, free, undivided. Fruiting pedicel 3–4 mm; fruits ovoid, compressed at apex, 3.5–5 × 4–5 mm, apex sometimes obscurely beaked, without apical rim, red and turning black-purple when fully mature, drying shiny brown. Seeds 3–4.5 × 1.8–2.5 × 1.7–2.5 mm, yellow-brown. Fl. Mar–Sep, fr. May–Dec [elsewhere fl. and fr. ± year-round]. *n* = 16.

Montane slopes, scrub; 100–1000 m. Guangdong, Guizhou, Yunnan [Bangladesh, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam].

Plants from E China (Fujian and Taiwan) and Japan are here included in the previous species, *Breynia officinalis*.

3. *Breynia retusa* (Dennstedt) Alston, Ann. Roy. Bot. Gard. (Peradeniya) 11: 204. 1929.

钝叶黑面神 *dun ye hei mian shen*

Phyllanthus retusus Dennstedt, Schlüssel Hortus Malab. Register 1: 15; Register 2: 24; Register 3: 31. 1818; *Breynia hyposauropus* Croizat; *B. patens* (Roxburgh) Rolfe; *Melanthesopsis patens* (Roxburgh) Müller Argoviensis; *P. patens* Roxburgh.

Erect shrubs 0.5–3.5 m tall, glabrous throughout; branches slender. Stipules small, 1–2 × 0.6–0.7 mm; petiole 1–2.5 mm; leaf blade elliptic to slightly obovate, 1.5–3 × 0.7–1.5 cm, papery or thinly papery, abaxially grayish green or pruinose, adaxially green, base obtuse to rounded, apex rounded to subacute, mucronulate; lateral veins 3–7 pairs, slender, obscure. Flowers solitary or rarely 2 in axillary clusters. Male flowers: pedicels slender, ca. 1.5 mm; calyx campanulate to turbinate, 2–3 mm in diam., 6-lobed; sepals rounded to oblong; stamens 3, connate into 3-angled head, ca. 2 mm. Female flowers solitary; pedicels 0.5–1.5 mm; calyx campanulate, 6-lobed, ca. 4–6 mm in diam., ca. 1.5–3 mm high; sepals ovate-oblong, enlarged to ca. 12 mm in diam. in fruit; ovary globose; style present, very stout; stigmas with 3 short forked arms, ca. 0.5 mm. Fruiting pedicel 2–6 mm; capsules globose, 5–6 × 8–10 mm, exocarp fleshy, tardily dehiscent, red and ripening brown, apex smooth or with a shallow ring. Seeds 3.6–4 × 2.2–2.8 × 2.2–2.8 mm, yellow to red. Fl. Mar–Oct, fr. Feb–Mar, Jul–Aug.

Open forests, valley scrub; 300–2000 m. Guangxi, Guizhou, Xizang, Yunnan [Bangladesh, Bhutan, Cambodia, India, Laos, Malaysia (peninsular), Myanmar, Nepal, Sri Lanka, Thailand, Vietnam].

The roots are used as a medicine for meningitis; its leaves are used to relieve skin inflammation. The 3-angled anther head is somewhat

similar to that of some *Sauropus*.

4. *Breynia fruticosa* (Linnaeus) Müller Argoviensis in A. Candolle, Prodr. 15(2): 237. 1866.

黑面神 *hei mian shen*

Andrachne fruticosa Linnaeus, Sp. Pl. 2: 1014. 1753; *Melanthesa chinensis* Blume; *M. glaucescens* Miquel; *Melanthesopsis fruticosa* (Linnaeus) Müller Argoviensis; *M. lucens* (Poiret) Müller Argoviensis; *Phyllanthus lucens* Poiret; *P. turbinatus* Sims.

Erect shrubs 1–3(–5) m tall, glabrous throughout; stem gray-brown; branches compressed at upper part, purple; branchlets green. Stipules triangular-lanceolate, ca. 2 mm; petiole 3–4 mm; leaf blade ovate, broadly ovate, or rhombic-ovate, 3–7 × 1.8–3.5 cm, leathery, abaxially pruinose-green, adaxially dark green, base obtuse or acute, apex (obtuse or) acute to subacuminate; lateral veins 3–8 pairs. Flowers small, solitary or 2–4-flowered in axillary clusters, male in proximal axils, female in distal axils, sometimes male and female apart, inserted in different branchlets. Male flowers: pedicels 2–3 mm; calyx turbinate, ca. 2 mm, thickened, 6-dentate at apex; stamens 3, connate into a column. Female flowers usually several per axil; pedicels ca. 2 mm; calyx campanulate, shallowly 6-fid at apex, ca. 4 mm in diam.; sepals subequal, subtruncate and apiculate at apex, much enlarged in fruit to ca. 8 mm in diam., upper part radial-spreading into disk; ovary ovoid; stigmas 3, to ca. 0.6 mm, distinctly bifid at apex, lobes recurved, elongating in fruit to 1–2 mm. Fruiting pedicel ca. 5 mm; capsules globose, 5–6 × 6–8 mm, apex rounded, without apical rim, yellowish to orange; stigmas free, undivided or apically slightly bifid. Seeds 4.6–5 × ca. 3 × 3 mm, red. Fl. year-round, fr. May–Dec.

Montane slopes, scrub, sunny forest margins; 100–1000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Sichuan, Yunnan, Zhejiang [Laos, Thailand, Vietnam].

The roots and leaves are used as medicine for inflammation of intestine and stomach, sore throat, eczema, etc. The branches, leaves, and stem contain up to 12% tannins.

5. *Breynia rostrata* Merrill, Philipp. J. Sci. 21: 346. 1922.

喙果黑面神 *hui guo hei mian shen*

Evergreen shrubs or rarely trees, 4–5(–12) m tall, glabrous throughout; branches and leaf blade black when dry. Stipules triangular-lanceolate, slightly shorter than petioles; petiole 2–3 mm; leaf blade ovate- or oblong-lanceolate, 3–7 × 1.5–3 cm,

Fl. China 11: 207–209. 2008.

papery or thinly leathery, abaxially gray-green, adaxially green, base acute to obtuse, apex acuminate; lateral veins 3–7 pairs. Flowers male and female mixed in axillary clusters. Male flowers: pedicels ca. 3 mm; calyx funnelform, 2.5–3 mm in diam., 6-dentate at apex. Female flowers: pedicels ca. 3 mm; calyx 6-lobed; sepals unequal, biseriate, outer sepals broadly ovate, ca. 3 mm, inner sepals ovate, ca. 1 mm, apex acute, enlarged and reflexed in fruit; ovary globose, 2–3 mm; stigmas 3, bifid at apex, lobes erect. Capsules globose, 6–7 mm in diam., apex beaked, with persistent stigmas. Seeds ca. 3 mm. Fl. May–Dec, fr. Aug–Dec.

Montane forests or scrub-covered slopes; 100–1500 m. Fujian, Guangdong, Guangxi, Hainan, Yunnan, Zhejiang [Vietnam].

Breynia rostrata has been reported to be hepatotoxic.

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