

### 13. COCCULUS Candolle, Syst. Nat. 1: 515. 1817, nom. cons.

木防己属 mu fang ji shu

*Nephroia* Loureiro.

Woody vines, erect shrubs, or small trees. Leaf blade entire or lobed, not peltate, palmately veined. Inflorescences axillary or terminal, cymose or thyrsoid. Male flowers: sepals 6 (or 9) in 2 (or 3) whorls, imbricate, outer sepals smaller, inner sepals larger and concave; petals 6, apex 2-lobed, lobes divaricate, with basal reflexed auricles; stamens 6 or 9, free, anthers dehiscing with a transverse slit. Female flowers: sepals and petals as in male flowers; staminodes 6 or absent; carpels 3 or 6, style columnar, stigma reflexed. Drupes obovate or rotund, slightly flat, style scar near base; endocarp bony, horseshoe-shaped, abaxially verruculose or ridged; condyle with 2 distinct lateral chambers, each with a large lateral aperture. Seed horseshoe-shaped; embryo with radicle short; endosperm scanty; cotyledons linear and flattened.

About eight species: Africa, E, SE, and S Asia, Pacific islands, Central and North America; two species in China.

Female material of this genus is difficult to distinguish from that of the genus *Pachygone*.

- 1a. Twining vines; petiole 1–3(–5) cm, whitish tomentose or pubescent; basal lateral veins of leaves comparable to distal lateral veins, usually obscure beyond middle of leaf blade; carpels 6; petals involute at base ..... 1. *C. orbiculatus*
- 1b. Erect shrubs or small trees; petiole to 1 cm, glabrous; basal lateral veins of leaves much more prominent than distal lateral veins, well defined beyond middle of leaf blade; carpels 3; petals flat ..... 2. *C. laurifolius*

**1. *Cocculus orbiculatus*** (Linnaeus) Candolle, Syst. Nat. 1: 523. 1817.

木防己 mu fang ji

Woody vines. Young branches striate, puberulent to subglabrous. Petiole 1–3(–5) cm, whitish tomentose or pubescent; leaf blade variable in shape, linear-lanceolate to broadly ovate, narrowly elliptic to rotund, oblanceolate to obovate, sometimes 3(–5)-lobed, 3–8(–10) cm, variable in width, papery to thinly leathery, both surfaces puberulent to glabrous, base rounded to truncate, occasionally broadly cuneate or shallowly cordate, margin entire, apex acute or obtuse, with a finely mucronate acumen, sometimes slightly emarginate or 2-lobed, palmately 3(or 5)-veined, basal pair of veins usually obscure beyond middle of leaf blade, slightly raised abaxially. Inflorescences axillary, cymose, few flowered, or many flowered arranged in a narrow terminal or axillary thyrse, up to 10 cm or longer, puberulent. Male flowers: bracteoles 1 or 2, ca. 0.5 mm, closely adnate to sepals, puberulent; sepals 6, outer whorl ovate or elliptic-ovate, 1–1.8 mm, inner whorl broadly elliptic to rotund, sometimes broadly obovate, up to 2.5 mm or slightly longer; petals 6, 1–2 mm, with sides shortly above base folded inward around opposite filament, apex divided into 2 acuminate or acute lobes; stamens 6, shorter than petals. Female flowers: sepals and petals as in male flower; staminodes 6, minute; carpels 6, glabrous. Drupes rotund, red to reddish purple, usually 7–8 mm in diam.; endocarp bony, 5–6 mm in diam., abaxially ornamented with branched ridges.

Sparse forests, shrublands, village margins, forest margins; near sea level to 1200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [E India, Indonesia, Japan, Laos, Malaysia, Nepal, Philippines; introduced in Indian Ocean islands (Mauritius, Réunion) and Pacific islands (Hawaii)].

- 1a. Sepals glabrous ..... 1a. var. *orbiculatus*
- 1b. Sepals puberulent abaxially ..... 1b. var. *mollis*

**1a. *Cocculus orbiculatus* var. *orbiculatus***

木防己(原变种) mu fang ji (yuan bian zhong)

*Menispermum orbiculatum* Linnaeus, Sp. Pl. 1: 341. 1753; *Cocculus cuneatus* Benth; *C. sarmentosus* (Loureiro) Diels; *C. sarmentosus* var. *linearis* Yamamoto; *C. sarmentosus* var. *pauciflorus* Y. C. Wu; *C. sarmentosus* var. *stenophyllum* Merrill; *C. thunbergii* Candolle; *C. trilobus* (Thunberg) Candolle; *M. trilobum* Thunberg; *Nephroia cuneifolia* Miers; *N. dilatata* Miers; *N. pubinervis* Miers ex Benth; *N. pycnantha* Miers; *N. sarmentosa* Loureiro.

Sepals glabrous.

Shrublands, village margins, forest margins. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [Indonesia,

Japan, Malaysia, Philippines; introduced in Indian Ocean islands (Mauritius, Réunion) and Pacific islands (Hawaii)].

**1b. *Cocculus orbiculatus* var. *mollis*** (Wallich ex J. D. Hooker & Thomson) H. Hara, Bull. Univ. Mus. Univ. Tokyo 2 [Fl. E. Himalaya 2nd Rep.]: 35. 1971.

毛木防己 mao mu fang ji

*Cocculus mollis* Wallich ex J. D. Hooker & Thomson, Fl. Ind. 1: 193. 1855; *C. lenissimus* Gagnepain; *C. mokiangensis* W. Y. Lien.

Sepals puberulent abaxially.

Sparse forests, shrublands. NW Guangxi, SW Guizhou, Sichuan, S Yunnan [E India, Nepal].

**2. *Cocculus laurifolius*** Candolle, Syst. Nat. 1: 530. 1817.

樟叶木防己 zhang ye mu fang ji

*Cinnamomum esquirolii* H. Léveillé.

Erect shrubs or small trees, rarely climbing, usually 1–5(–8) m. Branches striate; branchlets slightly angular, glabrous. Petiole usually less than 1 cm, glabrous; leaf blade elliptic, ovate, or long elliptic to lanceolate-elliptic, rarely oblanceolate, 4–15 × 1.5–5 cm, thinly leathery, both surfaces glabrous and glossy, base cuneate or acute, apex acute and attenuate, palmately 3-veined, basal pair of veins well-defined beyond middle of leaf blade, reticulate veins fine, raised on both surfaces. Inflorescences axillary, cymose or thyrsoïd, 1–5 cm, glabrous. Male flowers: sepals 6, outer whorl subelliptic, 0.8–1 mm, inner whorl ovate-elliptic to broadly elliptic-rotund, ca. 1.3 mm; petals 6, obcordate, 0.2–0.4 mm, base not reflexed inward, apex 2-lobed; stamens 6, ca. 1 mm. Female flowers: sepals and petals as in male flower; staminodes 6, minute; carpels 3, glabrous. Drupes black, rotund, slightly flattened, 6–7 mm; endocarp bony, abaxially ornamented with branched ridges. Fl. spring to summer, fr. autumn.

Shrublands, open forests. S Guizhou, NW Hunan, Taiwan, Xizang (Gyirong) [India, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Thailand].

*Cocculus laurifolius* is frost resistant and grown as a slow-growing ornamental tree in the S United States.

An alkaloid in the bark has a muscle-relaxing effect, similar to that of curare. The plant has also been used as a diuretic and as a vermifuge.

