

69. TRIADICA Loureiro, Fl. Cochinch. 2: 598, 610. 1790.

乌柏属 wu jiu shu

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Sapium sect. *Triadica* (Loureiro) Müller Argoviensis.

Trees or shrubs, monoecious or sometimes dioecious; indumentum absent; latex white. Leaves alternate or nearly opposite; petioles with 1 or 2 apical glands; leaf blade margin entire or serrate; venation pinnate, lowermost pair of veins originating at very leaf base, forming basal margin. Inflorescences terminal or axillary, spikelike or racemelike thyrses, sometimes branched; bracts with 2 large abaxial glands at base. Male flowers small, yellow, fascicled in axils of bracts; calyx membranous, cup-shaped, shallowly 2- or 3-lobed or -dentate; petals absent; disk absent; stamens 2–3; filaments free; anthers 2-celled, longitudinally dehiscent; pistillode absent. Female flowers larger than male, 1 per bract; calyx cup-shaped, 3-partite, or cylindrical and 3-dentate, rarely 2- or 3-sepaled; petals absent; disk absent; ovary 2- or 3-celled; ovules 1 per cell; styles usually 3, free or connate at base; stigma revolute, entire. Capsules globose, pyriform or 3-valved, rarely baccate, usually 3-celled, loculicidal, sometimes irregularly dehiscent. Seeds subglobose, usually covered by waxy aril; exocarp hard; endosperm fleshy; cotyledon broad and flattened.

Three species: E and S Asia; three species in China.

- 1a. Petiole with a single gland above; leaf blade subrotund, base cordate to rounded, apex rounded or rarely acute or incised 3. *T. rotundifolia*
1b. Petiole with a pair of glands above; leaf blade ovate to elliptic, base cuneate to obtuse (very rarely rounded), apex acute to acuminate.
2a. Leaf blade nearly as long as wide, apex acuminate; fruits 11–13 mm 1. *T. sebifera*
2b. Leaf blade distinctly longer than wide, apex acute to subacuminate; fruits 7–9 mm 2. *T. cochinchinensis*

1. *Triadica sebifera* (Linnaeus) Small, Florida Trees, 59. 1913.

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Croton sebifer Linnaeus, Sp. Pl. 2: 1004. 1753 [“*sebiferum*”]; *Excoecaria sebifera* (Linnaeus) Müller Argoviensis; *Sapium chihsinianum* S. K. Lee; *S. discolor* (Champion ex Benth) Müller Argoviensis var. *wenhshienense* S. B. Ho; *S. pleiocarpum* Y. C. Tseng; *S. sebiferum* (Linnaeus) Roxburgh; *S. sebiferum* var. *cordatum* S. Y. Wang; *S. sebiferum* var. *dabshense* B. C. Ding & T. B. Chao; *S. sebiferum* var. *multiracemosum* B. C. Ding & T. B. Chao; *S. sebiferum* var. *pendulum* B. C. Ding & T. B. Chao; *Triadica sinensis* Loureiro.

Trees to 15 m tall, monoecious, glabrous; bark dark green, with longitudinal stripes, pale brownish when older; branchlets spreading, lenticellate. Leaves alternate; stipules 1–1.5 mm; petiole 2.5–6 cm, 2-glandular at apex; leaf blade rhomboid, rhomboid-ovate, broadly ovate, or rarely rhomboid-obovate, 3–13 × 3–9 cm, papery, base broadly rounded, truncate, or sometimes shallowly cordate, margin entire, apex acutely acuminate; midrib slightly elevated on both surfaces, lateral veins 6–12. Flowers yellowish green in terminal 3–35 cm racemes, female in lower part, male in upper part or male throughout. Male flowers 10–15 per bract; bracts broadly ovate, 1.5–2 × 1.5–2 mm, basal glands nearly reniform; pedicels slender, 1–4 mm; bracteoles 3, unequal, margins lacerate; calyx cup-shaped, shallowly 3-lobed, lobes obtuse, irregularly serrulate; stamens 2 or 3, exceeding calyx; filaments free, nearly as long as globose anthers. Female flowers 1 per bract, sometimes with several additional male flowers; bracts 3-partite, lobes acuminate, glands as in male; pedicels stout, 2–5 mm; bracteoles as in male flowers; calyx 3-partite, lobes ovate or ovate-lanceolate; ovary ovoid-globose, smooth, 3-celled; styles 3, connate at base; stigma revolute. Infructescences up to

28 cm; capsules subglobose to pyriform-globose, black when mature, 11–13 mm in diam., 3-seeded; cocci deciduous; columella persistent. Seeds oblate, ca. 8 × 6–7 mm, black, covered with white, waxy aril. Fl. Apr–Aug, fr. Aug–Dec. $2n = 44$.

Wilds of the Huang He valley, forests on limestone, widely cultivated; below 100 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Jiangxi, Jiangsu, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Vietnam; cultivated in Africa, America, Europe, India].

The pressed seeds of *Triadica sebifera* are a source of fat, used for candles and soap. The bark and the seed oil contain a poisonous alkaloid. Its roots are used as a medicine to detoxify snakebites. The leaves are used in making a dark dye.

2. *Triadica cochinchinensis* Loureiro, Fl. Cochinch. 2: 610. 1790.

山乌柏 shan wu jiu

Excoecaria discolor (Champion ex Benth) Müller Argoviensis; *E. loureiroana* Müller Argoviensis; *Sapium cochinchinense* (Loureiro) Pax & K. Hoffmann (1912), not (Loureiro) Kuntze (1898); *S. discolor* (Champion ex Benth) Müller Argoviensis; *S. laui* Croizat; *Shirakia cochinchinensis* (Loureiro) Hurusawa; *Stillingia discolor* Champion ex Benth.

Trees to 12(–20) m tall, glabrous; branchlets gray-brown, lenticellate. Leaves alternate; stipules small, subovate, ca. 1 mm; petioles 2–7.5 cm, 2-glandular at apex; leaf blade elliptic or oblong-ovate, 4–10 × 2.5–5 cm, papery, reddish when young, base cuneate, apex obtuse or shortly acuminate, with several rounded glands on or near margin abaxially; midvein elevated on both surfaces, lateral veins 8–12 pairs, alternate or nearly opposite. Flowers monoecious in terminal racemes;

inflorescences 4–9 cm, female in lower part, male in upper part or throughout. Male flowers: pedicels 1–3 mm; bracts ovate, ca. 1.5 × 1 mm, glands oblong or reniform, ca. 2 × 1 mm at bilateral base, each bract 5–7-flowered; bractlets 1–1.2 mm; calyx cup-shaped, irregularly serrulate; stamens 2 or 3; filaments short; anthers globose. Female flowers: pedicels stout, terete, ca. 5 mm; bracts almost as in male, each bract only 1-flowered; calyx 3-partite to base, lobes triangular, 1.8–2 × ca. 1.2 mm, margins sparsely serrulate; ovary ovoid, 3-celled; styles 3, revolute. Capsules black, globose, 7–9 mm in diam.; columella persistent. Seeds subglobose, 4–5 × 3–4 mm in diam., with thinly waxy aril. Fl. Apr–Jun, fr. Jul–Oct.

Moist broad-leaved evergreen forests, subtropical forests, montane forests or brushwood; 100–1100 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

Sapium cochinchinense (Loureiro) Kuntze is based on *Excoecaria cochinchinensis* Loureiro, whereas *S. cochinchinense* (Loureiro) Pax & K. Hoffmann is an illegitimate later homonym based on *Triadica cochinchinensis*.

The timber of *Triadica cochinchinensis* is used for matchsticks and tea boxes. The roots and leaves are used as medicine for traumatic injury and to detoxify snakebites. The seed oil is used to make soap.

3. *Triadica rotundifolia* (Hemsley) Esser, Harvard Pap. Bot. 7: 19. 2002.

圆叶乌桕 *yuan ye wu jiu*

Sapium rotundifolium Hemsley, J. Linn. Soc., Bot. 26: 445. 1891; *Baccaurea esquirolii* H. Lévillé; *S. rotundifolium* var. *obcordatum* S. K. Lee.

Trees up to 12 m tall, glabrous; branchlets robust. Leaves alternate; stipules small, glandular, caducous; petioles 3–7 cm, with 1 gland at apex; leaf blade subrotund, 5–11 × 6–12 cm, base rounded to shallowly cordate, margin entire, apex rounded, rarely acute or incised; lateral veins 10–15 pairs. Flowers unisexual, monoecious, densely fascicled in terminal racemes, female in lower part, male in upper part, sometimes male throughout. Male flowers: pedicels cylindrical, 1–3 mm; bracts ovate, ca. 2 × 2 mm, margins fimbriate, base bilateral, each with 1 gland; bracteoles narrowly ovate, less than 1 mm; calyx cupular, shallowly 3-lobed; stamens (1 or)2(or 3); filaments shorter; anthers subglobose. Female flowers: pedicels robust, ca. 2 mm; calyx 3-lobed, lobes broadly ovate, ca. 1 mm, margins serrulate; ovary ovate, 3-lobed; styles 3, connate at base; stigma revolute. Capsules subglobose, 8–10 mm in diam. Seeds oblate, ca. 5 mm in diam., with waxy arils. Fl. Apr–Jun, fr. Jul–Oct.

Limestone montane forests; 100–500 m. Guangdong, Guangxi, Guizhou, Hunan, Yunnan [N Vietnam].

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