

## 2. CRATEVA Linnaeus, Sp. Pl. 1: 444. 1753.

鱼木属 *yu mu shu*

Trees or sometimes shrubs, evergreen or deciduous, glabrous throughout. Twigs terete or angular, with lenticels, with pith or hollow. Stipules triangular, small, caducous. Leaves alternate, palmately compound; petiole long, distal portion near rachis often with glands; leaflets 3, disarticulating from petiole; petiolules short, thin when young, becoming thick in maturity; lateral leaflet blades with asymmetric base. Inflorescences at tip of new branches, corymbose racemes; rachis either with arrested growth after anthesis or growing through a leafy twig, often with obvious scars after pedicels fall; bract at base of pedicels, caducous. Flowers bisexual or unisexual by failure of one sex to develop. Pedicel long. Receptacle disklike, inner surface concave, with nectary, with sepal and petals on margin. Sepals 4, greenish, equal, obviously smaller than petals, deciduous. Petals 4, white, cream-colored, or yellow, equal, clawed, blade ovate to rhomboid with 4–6 secondary veins on each side of midvein. Stamens (8–)12–50; filaments basally connate to form a 1–4 mm androgynophore. Gynophore 2–8 cm but degenerated in staminate flower; ovary 1-locular, placentae 2, ovules many; style short or absent; stigma inconspicuous, knob-shaped. Fruit a berry, globose or ellipsoid, drooping; pericarp drying to gray, red, purple, or brown, leathery, firm, apically smooth or papillate; fruiting pedicel, receptacle, and gynophore woody and thickened. Seeds 25–50 per berry, embedded in creamy fetid or pungent mesocarp; seed coat smooth; cotyledons convolute, one longer and curved around other; radicle conical, short.

About eight species: worldwide in tropics and subtropics extending north to S Japan in Asia and south to N Argentina in America; five species in China.

Jacobs (Blumea 12: 206. 1964) treated *Crateva falcata* (Loureiro) Candolle (Prodr. 1: 243. 1824; *Capparis falcata* Loureiro, Fl. Cochinch. 1: 331. 1790) as a doubtful species, as did FRPS (32: 490. 1999). Jacobs considered that the name applied to either *C. formosensis* or *C. trifoliata*. The fact that it was cultivated (“Habitat prope Cantonem Sinarum, inculta”) suggests *C. religiosa*. However, Loureiro’s mention of falcate leaflets and red fruit would seem to preclude this. Jacobs could not locate a type. If a type could be found and clearly identified as either *C. formosensis* or *C. trifoliata*, then the name *C. falcata* would have priority in both cases. In the absence of a type and clear application of the name, it seems best to follow Jacobs and FRPS in treating *C. falcata* as a name of uncertain application.

- 1a. Fruit drying red, purple, or brown (immature fruit also), surface smooth; flowering before or with emergence of leaves; dried flowers orangish brown (especially base of flower).
  - 2a. Leaflet blade apices acuminate; leaflets of flowering twigs 10–12 cm, drying pale green to brownish green ..... 1. *C. formosensis*
  - 2b. Leaflet blade apices rounded to obtuse; leaflets of flowering twigs 4.5–8.5 cm, drying pale reddish brown ..... 2. *C. trifoliata*
- 1b. Fruit drying gray (immature fruit also), surface scabrous with roughish dry flat papillae; flowering well after emergence of leaves; dried flowers whitish, pinkish, or cream-colored.
  - 3a. Leaflet blades ovate-orbicular, very thin even at maturity, concolorous or nearly so, adaxially dull, apex acuminate and ca. 1/3 as long as blade; twigs mostly stramineous when dry; fruit 1.8–2.6 cm ..... 3. *C. religiosa*
  - 3b. Leaflet blades oblong-lanceolate, subleathery at maturity, abaxially dull and adaxially glossy, apically gradually tapered, apex less than 1/5 as long as blade; twigs mostly brownish when dry; fruit 2.5–5 cm.
    - 4a. Fruit ellipsoid, surface scabrous when immature, outer layer peeling to reveal a slightly smooth subsurface layer; seed with dorsal crest; leaflets 2.5–4.5 × as long as wide, secondary veins (7–)10–15(–22) on each side of midvein ..... 4. *C. magna*
    - 4b. Fruit globose, surface scabrous, with ash-yellow small flecks; seed without crest; leaflets 2–2.5 × as long as wide, secondary veins 5–10 on each side of midvein ..... 5. *C. unilocularis*

**1. *Crateva formosensis*** (Jacobs) B. S. Sun in C. Y. Wu, Fl. Reipubl. Popularis Sin. 32: 489. 1999.

台湾鱼木 *tai wan yu mu*

*Crateva adansonii* Candolle subsp. *formosensis* Jacobs, Blumea 12: 200. 1964.

Shrubs or trees, 2–21 m tall, to 1.5 m d.b.h., deciduous ± at flowering time. Twigs with growth flushes seldom exceeding 10 cm, wrinkly, ribbed, striped, with few lenticels. Petiole drying brown to black, 5–11 cm, glands obvious; petiolules 4–5 mm; leaflet blades 7–11.5 × 2.5–4 cm, membranous, concolorous, drying pale green to brown-green, secondary veins 4–6(or 7) on each side of midvein, apex acuminate to long acuminate. Inflorescences 9–12-flowered; axis 2(–4) cm. Pedicel 1.5–2.8 cm. Sepals drying dark brown, 3–4 mm. Petals yellow, drying light brown, claw ca. 4 mm, blade elliptic and 1.5–1.7 cm. Sta-

mens 10–15; filaments 2.5–3 cm; anthers ca. 3 mm. Gynophore 2.4–3.2 cm. Fruit red to reddish brown, ellipsoid, (2–)3–4.5 cm, smooth; fruiting gynophore 1.5–2(–3) mm thick. Seeds dull mahogany brown, small. Fl. Jun–Jul, fr. Aug–Jan.

Valleys, streambanks, dense forests, orchards, coastal thickets; near sea level to 400 m. N Guangdong, NE Guangxi, Taiwan [S Japan (Ryukyu Islands)].

**2. *Crateva trifoliata*** (Roxburgh) B. S. Sun in C. Y. Wu, Fl. Reipubl. Popularis Sin. 32: 489. 1999.

钝叶鱼木 *dun ye yu mu*

*Capparis trifoliata* Roxburgh, Fl. Ind., ed. 1832, 2: 571. 1832; *Crateva adansonii* Candolle subsp. *trifoliata* (Roxburgh) Jacobs; *C. erythrocarpa* Gagnepain; *C. roxburghii* R. Brown var. *erythrocarpa* (Gagnepain) Gagnepain.

Trees or shrubs, 1.5–5(–8) m tall, deciduous ± at flowering time. Twigs drying to red brown, striped. Petiole reddish brown, 4–6.5 cm; petiolules 3–5.5 mm; leaflet blades elliptic to obovate, 6–8 × 3.5–4.5 cm, subleathery, concolorous or abaxially slightly paler, drying dull olive brown, midvein and secondary veins pale red, secondary veins 5 or 6[or 7] on each side of midvein, slender, and slightly raised on both surfaces, reticulate veins not obvious, apex blunt, obtuse, rounded, or seldom acuminate. Inflorescences (4–)10–20-flowered; axis 2.5–5 cm. Flowers open before or as leaves emerge. Pedicel drying orangish red, 3.5–6 cm, at an angle of less than 45° from midvein. Sepals 3–5 × 2–3 mm. Petals white, drying yellow, claw 4–8 mm, blade orbicular and 1–2 cm. Stamens 15–26, purple; filaments 2–3 cm; anthers ca. 2(–3) mm. Gynophore (2.4–)3–5 cm; ovary elliptic, ca. 3 × 2 mm. Fruit drying reddish purple to brown, globose to ellipsoid, 3.2–3.6 cm, smooth, slightly shiny. Seeds ca. 25 per fruit, brownish black, reniform, 5–6 mm, smooth. Fl. Mar–May, fr. (Jul–)Aug–Sep.

Broadleaf or bamboo forests on sandstone or limestone, seashores; near sea level to 300 m. Guangdong, Guangxi (Beihai, Nandan), Hainan, S Taiwan, Yunnan [Cambodia, India, Laos, Myanmar, Thailand, Vietnam].

**3. *Crateva religiosa*** G. Forster, Diss. Pl. Esc. 45. 1786.

鱼木 yu mu

*Crateva membranifolia* Miquel.

Trees 3–15 m tall, to 40 cm d.b.h. Twigs light greenish to yellowish green when dried, with gray elongated lenticels. Petiole (5–)6–7(–10) cm, adaxially with minute triangular glands near rachis; petiolules 3–5(–7) mm; leaflet blades (4–)5.5–7(–10) × (2–)3–4 cm, 2–2.5 × as long as wide, thin and leathery, abaxially gray, adaxially dull green, midvein reddish, secondary veins 5–10 on each side of midvein, reticulate veins obvious, apex acuminate to abruptly acuminate. Inflorescences racemes or corymbs, 10–25-flowered, with branchlet just below flowers having fewer leaves; axis 3–7 cm, after flowering little elongated, often marked with pedicel scars; bracts 0.8–1.5 cm, leaflike or slender, caducous. Flowers open as leaves emerge. Pedicel 2–5[–9?] cm. Sepals ovate, 2–4.5 × 1.5–3 mm, apex acuminate. Petal white to yellow, claw 3.5–5 mm, blade 1.5–2.2 cm. Stamens 16–22[–30]; filaments 3–6 cm; anthers 2–3 mm. Gynophore 3.5–6.5 cm; ovary ovoid to subcylindric, 3–4 × 1–2 mm. Fruit ovoid to obovoid, 1.8–2.6[–3.5] cm; pericarp 5–10 mm thick, apically scabrous and gray to dust-colored with nearly circular ash-yellow flecks; stipe 2.5–3 mm in diam., thickened, woody. Seeds 25–30 per fruit, dark brown, 1.2–1.8 cm, tuberculate. Fl. Mar–May, fr. Jul–Aug(–Oct). 2n = 26.

Roadsides, fields; below 200 m. Guangdong, Hainan, Taiwan. [Bhutan, Cambodia, India, Indonesia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Vietnam; Pacific islands].

The flowers are noted as fragrant. The species is often planted as an ornamental in S China and other S and SE Asian countries. Its dried fruit are used in China as a medicinal drug.

**4. *Crateva magna*** (Loureiro) Candolle, Prodr. 1: 243. 1824.

沙梨木 sha li mu

*Capparis magna* Loureiro, Fl. Cochinch. 1: 33. 1790; *Crateva lophosperma* Kurz; *C. nurvala* Buchanan-Hamilton.

Trees [or shrubs] [2–]4–20 m tall, to 20 cm d.b.h. Twigs grayish brown, smooth or verrucose, with ± circular lenticels. Petiole (2–)5–12 cm, adaxially with several pale glands toward rachis; petiolules 2–6(–8) mm; leaflet blades ovate-lanceolate to oblong-lanceolate, 7–18 × 3–8 cm, 2.5–4.5 × as long as wide, papery to thinly leathery, abaxially dusty gray, adaxially brownish green and glossy, midvein pale red, secondary veins (7–)10–15(–22) on each side of midvein, reticulate veins obvious, apex acuminate to long acuminate. Inflorescences corymbose racemes, (3–)20–30(–40)-flowered, subtended by several leaves, axis (2–)3–5(–11) cm; peduncle 4–6(–12) cm but 12–28 cm after anthesis. Pedicel 3–4(–6) cm. Sepals lanceolate, 3–5(–10) × 1.2–1.5 mm. Petals white, claw (3–)5–10 mm, blade 1.5–2.5 cm with an abruptly acuminate apex. Stamens 11–17; filaments 2.5–5 cm; anthers 2–3 mm. Gynophore (3.5–)4–6 cm; ovary oblong-ellipsoid, terete, 5–6 × ca. 2 mm. Fruit oblong-ellipsoid to oblong-ovate, 2.5–5 cm, after drying with a thin yellow gray crust that falls off to reveal a smooth subsurface; stipe 1–3 mm wide. Seeds 30–50 per fruit, dark brown, 6–15 × 6–10 × 2–3 mm, slightly flattened, dorsally irregularly crested. Fl. Mar–Apr, fr. Aug–Sep.

Open forests, often along streams and lakes; below 1000 m. Guangdong (Xinyi), Guangxi (Longzhou), Hainan, S Xizang, Yunnan (Hekou, Mengla) [Bangladesh, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Thailand, Sri Lanka].

In India, the young fruit is eaten, and the leaves and root bark are used medicinally.

**5. *Crateva unilocularis*** Buchanan-Hamilton, Trans. Linn. Soc. London 15: 121. 1827.

树头菜 shu tou cai

Trees 5–10(–20)[–30] m tall. Twigs grayish brown, often hollow, with sparse whitish lenticels. Petiole (3–)5.5–9 cm, glands adaxially toward rachis; petiolules (2.5–)4–7 mm; leaflet blades elliptic, (6.5–)8–10 × 3–4(–5) cm, 2–2.5 × as long as wide, subleathery, glossy, abaxially drying gray, adaxially drying to brown, midvein reddish, secondary veins 5–8(–10) on each side of midvein, apex acuminate to abruptly acuminate. Inflorescences racemes or corymbs, 13–25(–35)-flowered, with a few leaves on basal part; rachis (2–)3–5(–7) cm, after flowering with little increase in length, often with pedicel scars. Pedicel 2–4 cm. Sepals linear to narrowly lanceolate, (3–)4–6 × 2–3 mm. Petal white to creamy but drying pinkish, claw 3–7 mm, blade 1.4–2.4 cm. Stamens 16–20; filaments (2–)3–4.5 cm; anthers 2–3 mm. Gynophore 4–6 cm; ovary oblong-ellipsoid, 3–4 × 1–2 mm. Fruit globose, 3–4 cm; pericarp 2–3 mm thick, apically scabrous, with nearly circular small ash-yellow flecks; stipe 3–7 mm in diam., thickened, woody. Seeds 30–50 per fruit, dull brown, lens-shaped, 8–10(–12) × 4–10 mm, smooth. Fl. Mar–Jul, fr. Jul–Aug.

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Wet areas, commonly cultivated; below 1500 m. Fujian, Guangdong, Guangxi, Hainan, Yunnan [Bangladesh, Bhutan, Cambodia, India, Laos, Myanmar, Nepal, Vietnam].

This species is reported to reach 30 m tall in India.

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