

4. CRATOXYLUM Blume, Verh. Batav. Genootsch. Kunsten 9: 172, 174. 1823.

黄牛木属 *huang niu mu shu*

Li Xiwen (李锡文 *Li Hsi-wen*), Li Jie (李捷); Peter F. Stevens

Hornschurchia Blume, Catalogus, 15. 1823, not Nees (1821).

Trees or shrubs, deciduous to evergreen. Twigs with nodes sometimes flattened, mostly with interpetiolar lines; apical bud abortive or not; buds with scales or not. Leaves opposite, sessile to petiolate, entire, abaxially often pruinose to waxy, often finely translucent-punctate between veins, secondary veins \pm widely spaced, tertiary veins reticulate. Inflorescence cymose, terminal and/or axillary; bracteoles caducous, minute. Flowers bisexual, homostylous or heterostylous, pedicellate. Sepals 5, \pm unequal, leathery, usually accrescent. Petals 5, white to deep crimson or pink, sometimes tinged orange and green, often with punctiform or linear dark resinous glands, sometimes with \pm adnate adaxial near-basal scalelike appendage. Stamen fascicles apparently 3 (2 + 2 + 1), with filaments ca. 2/3 united; anthers subsistent, dorsifixed, sometimes with \pm prominent resinous connective gland. Fascicledodes 3, alternating with fascicles, scalelike, sometimes minute. Ovary 3-loculed, with [3–]5–16[–18] erect or ascending ovules on lower half of each placenta; styles 3, free, often divergent; stigmas punctiform, truncate or somewhat thickened, slightly papillose. Capsule \pm woody, ellipsoid to narrowly cylindrical, dehiscent loculicidally, with persistent columella. Seeds obovoid to cylindrical, with unilateral wing 2.5–3 \times as long [or wing all around and smaller]; embryo cylindrical.

About six species: Cambodia, S and SW China, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam, all S of ca. 24° N; two species in China.

- 1a. Leaves with secondary veins ascending, not or irregularly joining; inflorescences terminal and axillary; flowers homostylous; stamen fascicles short and broad; fascicledodes recurved-cucullate; twigs and leaves glabrous; petals without appendage 1. *C. cochinchinense*
- 1b. Leaves with secondary veins spreading, regularly joining toward margin; inflorescences axillary, often on old growth; flowers heterostylous; stamen fascicles long and slender; fascicledodes never recurved; twigs and leaves sometimes villous; petals with minute, basal appendage 2. *C. formosum*

1. *Cratoxylum cochinchinense* (Loureiro) Blume, Mus. Bot. 2: 17. 1856.

黄牛木 *huang niu mu*

Hypericum cochinchinense Loureiro, Fl. Cochinch. 2: 472. 1790; *Ancistrolobus ligustrinus* Spach; *Cratoxylum biflorum* (Lamarck) Turczaninow; *C. chinense* Merrill; *C. ligustrinum* (Spach) Blume; *C. petiolatum* Blume; *C. polyanthum* Korthals; *C. polyanthum* var. *ligustrinum* (Spach) Dyer; *Elodes chinensis* (Retzius) Hance; *H. biflorum* Lamarck (1797), not Choisy (1821); *H. chinense* Retzius (1788), not Osbeck (1757), nor Linnaeus (1759); *Oxycarpus cochinchinensis* Loureiro; *Stalagmites erosipetala* Miquel.

Shrubs or trees, deciduous, 1.5–18(–25) m tall, glabrous. Trunk with clusters of long thorns on lower part. Bark gray-yellow or gray-brown, smooth or finely striate. Twigs somewhat compressed, glabrous and pink when young, interpetiolar scars not always continuous. Petiole 2–3 mm, glabrous; leaf blade abaxially gray-green, adaxially green, elliptic to oblong or lanceolate, 3–10.5 \times 1–4 cm, papery, both surfaces glabrous, abaxially with pellucid or dark glands, midvein abaxially raised, adaxially impressed; secondary veins 8–12 pairs, oblique, not or irregularly joining at the margins; veins and veinlets reticulate, raised on both surfaces, base obtuse to cuneate, apex abruptly acute or acuminate. Cymes axillary or extra-axillary and terminal, (1 or) 2 or 3-flowered, pedunculate; peduncles 3–10 mm or longer. Pedicel 2–3 mm. Flowers 1–1.5 cm in diam. Sepals accrescent, oblong, 5–7 \times 2–5 mm, with dark linear glands on

entire surface, apex rounded. Petals deep crimson to pink or pinkish yellow, obovate, 5–10 \times 2.5–5 mm, with dark linear glands between veins, base cuneate, apex rounded; petal-scale absent. Stamen fascicles 4–8 mm, stalk broad to slender, with 40–55 stamens. Fascicledodes oblong to obovate, cucullate, to 3 \times 1–1.5 mm, apex thickened and recurved; connective with gland or not. Ovary conic, ca. 3 mm, glabrous; styles ca. 2 mm. Capsule brown, ellipsoid, 0.8–1.2 cm \times 4–5 mm, to 2/3 covered by

persistent calyx. Seeds (5 or)6–8 per locule, 6–8 × 2–3 mm. Fl. Apr–May, fr. after Jun.

Secondary forests, thickets, dry sunny mountain slopes, hills; below 1200 m. S Guangdong, S Guangxi, S Yunnan [Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

This plant is xerophilous. The wood is hard and valuable for woodcuts. The young fruit is used as a spice for cooking. The roots, bark, and twigs are used as a medicine for colds and diarrhea. The young leaves are used as a substitute for tea.

2. *Cratoxylum formosum* (Jack) Dyer in J. D. Hooker, Fl. Brit. India 1: 258. 1874.

越南黄牛木 *yue nan huang niu mu*

Shrubs or trees, deciduous, 3–6 m tall. Trunk with spreading, long thorns on lower part. Bark exfoliating in flakes. Twigs somewhat compressed, ± tetragonous when young, becoming terete; interpetiolar scars interrupted. Petiole 5–7 mm, glabrous; leaf blade abaxially greenish, adaxially green, elliptic to oblong, 4–10 × 2–4 cm, abaxially with pellucid glands, midvein raised abaxially, impressed adaxially; secondary veins 8–10 pairs, broadly spreading, anastomosing regularly near leaf margin; tertiary veins and veinlets reticulate, base rounded, apex obtuse or acute. Cymes 5–8-flowered, in axils of fallen leaves. Pedicels 3–5 mm. Flowers ca. 1.3 cm in diam. Sepals elliptic or oblong-lanceolate, 5–6 × 2–3 mm, apex obtuse. Petals obovate or obovate-oblong, 1.1–1.5 cm, ciliate and brown-glandular on upper half of margin, narrowly clawed at base; petal-scale indistinct, ca. 2 mm, base cuneate, apex truncate and denticulate. Stamen fascicles ca. 1 cm, with 20–30 stamens; filament ca. as long as stalk; connectives with glands or not. Fascicledes ligulate, 1–1.5 mm, attenuate. Ovary narrowly conic, ca. 4 mm, glabrous; styles ca. 3.5 mm. Capsule dark brown, oblong, 0.6–1.5 cm, up to 1/2 enclosed by persistent calyx. Seeds 6–8 per locule, 3–7 mm. Fl. Mar–Apr, fr. after May.

Thickets, open secondary forests; below 1000 m. S Guangxi, Hainan, S Yunnan [Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

- 1a. Young twigs, leaves, pedicels, and sepals glabrous 2a. subsp. *formosum*
1b. Young twigs, leaves, pedicels, and sepals densely villous 2b. subsp. *pruniflorum*

2a. *Cratoxylum formosum* subsp. **formosum**

越南黄牛木(原亚种) *yue nan huang niu mu* (*yuan ya zhong*)

Elodes formosa Jack, Malayan Misc. 2(7): 24. 1822 [“*Elodea*”]; *Hypericum biflorum* Choisy (1821), not Lamarck (1797).

Young twigs, leaves, pedicels, and sepals glabrous; connective without glands.

Thickets; below 600 m. Hainan [Cambodia, Indonesia, Laos, Malaysia, Philippines, Thailand, Vietnam].

2b. *Cratoxylum formosum* subsp. **pruniflorum** (Kurz) Gogelein, Blumea 15: 469. 1967.

红芽木 *hong ya mu*

Tridesmis pruniflora Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 41: 293. 1872; *Cratoxylum dasyphyllum* Handel-Mazzetti; *C. pruniflorum* (Kurz) Kurz.

Young twigs, leaves, pedicels, and sepals densely villous; connective with glands.

Open secondary forests, thickets in mountain regions; below 1000 m. S Guangxi, S Yunnan [Cambodia, Myanmar, Thailand, Vietnam].

The wood is reddish, hard, and fine-grained, and is used for making woodcuts. The bark is used as a medicine for diarrhea in domestic animals. The young leaves are used as a substitute for tea.

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