

9. CARRIEREA Franchet, Rev. Hort. (Paris) 68: 498. 1896.

山羊角树属 shan yang jiao shu shu

Trees, dioecious (?sometimes monoecious), deciduous; stipules minute, very early caducous. Leaves alternate; petiole elongate, sometimes with glands at apex or along length; leaf blade pinnate-veined, 3-veined from base, margin obtusely glandular-serrate. Flowers hypogynous, unisexual, in terminal or axillary, few flowered panicles or racemes; bracts present; pedicels articulate, with a pair of  $\pm$  persistent bracteoles just below articulation. Sepals 5, nearly free, valvate, ovate, with base often appearing strongly cordate when sepals erect, papery, inside with glands at base near margin, margins conspicuously conduplicate. Petals absent. Disk glands absent. Staminate flowers: stamens many, free, inserted on slightly domed receptacle; filaments filiform; anthers oblong or ellipsoid, connective usually curved, bringing both locules to face in same direction (toward periphery of flower); abortive ovary very small. Pistillate flowers: smaller than staminate flowers; staminodes many, surrounding ovary base, resembling stamens but reduced; ovary 1-loculed; placentas 3 or 4, filiform, finally woody, persistent; ovules numerous; styles 3 or 4, very short; stigmas erect, spreading or strongly reflexed against ovary, flattened, irregularly 3-lobed. Capsule fusiform or narrowly ovoid, large, 3-valvate, outer layer of pericarp thin, dehiscent, inner layer thin, woody, persistent, valves characteristically splitting from apex and base and remaining attached by persistent woody placental strips; styles caducous. Seeds many, arranged vertically, compressed-flat, winged; wing flat, papery, not encircling seed, instead extending from one end only; seed proper small.

Two species: China, Vietnam; two species (one endemic) in China.

In fruit, forms of *Carrieria calycina* with smaller capsules can be difficult to distinguish from *C. dunniana*. The leaf length-to-width ratio can be helpful.

- 1a. Sepals 1.5–2 cm, base cordate; bracts 10–30 mm, bracteoles 4–8 mm; capsule 3–7 cm ..... 1. *C. calycina*  
1b. Sepals 0.5–1 cm, base cuneate or only slightly cordate; bracts 5–7 mm, bracteoles 2.5–5 mm; capsule  
2.5–4 cm ..... 2. *C. dunniana*

1. *Carrieria calycina* Franchet, Rev. Hort. (Paris) 68: 498. 1896.

山羊角树 shan yang jiao shu

*Carrieria rehderiana* Sleumer.

Trees, 12–16 m tall; bark black-brown; branchlets grayish, glabrous. Petiole (2.5–)3–7 cm, pubescent or glabrous; leaf blade greenish abaxially, deep green adaxially, variable in shape, ovate-oblong, oblong, or slightly obovate, less often elliptic, (8–)9–14  $\times$  4–6 cm, mostly 1.7–2.2  $\times$  as long as broad, thinly leathery, both surfaces glabrous or abaxially sparsely tomentose along veins, 3-veined at base, lateral veins 4 or 5 pairs, base rounded to cordate, margin remotely serrate, often coarsely so, apex obtuse, contracting abruptly to a short acumen to 1(–2) cm, or more rarely leaf apex acute. Inflorescence terminal, to ca. 10-flowered, 5–10 cm including flowers, pubescent to tomentose; bracts lanceolate to narrowly ellipsoid, 1–3 cm, papery, both surfaces sparsely to densely appressed hairy; flowers sweetly scented. Pedicels 1.2–3 cm, 2-bracteolate near middle; bracteoles opposite, narrowly oblong, 4–8 mm, papery, pubescent, glandular along margin toward base,  $\pm$  persistent. Sepals broadly ovate, 1.5–2 cm, in older flowers longer and narrower, both sides yellowish tomentose, inside more densely so, base cordate when sepal erect, apex obtuse. Staminate flowers: stamens with filaments unequal in length, longest 1–1.5 cm, glabrous; anthers narrowly ellipsoid, 1–1.2 mm. Pistillate flowers: staminodes like stamens but much reduced; ovary oblong-ovoid, densely yellowish appressed-pubescent; placentas 3 or 4; styles 3 or 4, 0.5–1 mm,  $\pm$  connate, densely pubescent as ovary, stigmas erect to reflexed, drying black, flattened, triangular, 2–3 mm, irregularly lobed, glabrous or abaxially

pubescent. Capsule fusiform, slightly curved, 3–8 cm, tomentose; seed including wing 1–1.5 cm; wing oblong-obovate, asymmetric; seed proper ca. 5 mm. Fl. May–Jun, fr. Jul–Oct.

• Forests, forest margins; 1300–1600 m. Guangxi, Guizhou, Hubei, Hunan, Sichuan, Yunnan.

The type specimen of *Carrieria calycina* (*Cavalerie* 2925) at K includes both staminate and pistillate flowers. *Carrieria rehderiana* is here a new synonym of *C. calycina*.

2. *Carrieria dunniana* H. Léveillé, Repert. Spec. Nov. Regni Veg. 9: 458. 1911.

贵州嘉丽树 gui zhou jia li shu

Trees, 5–10 m tall; bark gray-brown; branchlets grayish, glabrous. Petiole 1–3 cm, slender, glabrous; leaf blade greenish abaxially, deep green adaxially, ovate to oblong, 7–12  $\times$  3–5.5 cm, 2.2–2.8  $\times$  as long as broad (based on a small sample), thinly leathery, abaxially glabrous or sparsely tomentose along veins, adaxially glabrous, palmately 3-veined from base, lateral veins 4 or 5 pairs, base rounded, margin remotely serrate, apex broadly acute, contracting gradually or more abruptly to an acumen 1–2 cm. Inflorescence terminal, to ca. 10 cm, 8–15-flowered; rachis pubescent to tomentose, hairs spreading to semiappressed, whitish, short; bracts ovate, 5–7 mm, papery, both surfaces sparsely appressed hairy, with one or two small glands on margin at base, apex rounded. Pedicels 1.5–1.8 cm, 2(or 4)-bracteolate near middle; bracteoles similar to bracts, opposite or subopposite, broadly oblong, ovate, or elliptic, 2.5–5 mm, both surfaces sparsely appressed pubescent, scarcely or not glandular at margin near base. Sepals obovate to elliptic, 5–10 mm, both sides yellowish tomentose, base not or only slightly cordate when sepal erect, apex obtuse. Staminate flowers: stamens with filaments unequal, longest

3–5 mm, glabrous; anthers ca. 0.5 mm; pistillode very small. Pistillate flowers: staminodes like stamens but much reduced; ovary ovoid, ca. 4 mm, very densely yellowish pubescent, placentas 3; styles 3, very short (0.5–1 mm), connate at least at base to form a thick column, densely pubescent as ovary; stigmas strongly reflexed, drying black, 2–3 mm, flattened, narrowly triangular, bifurcate in distal half with branches irregularly lobed at apex, abaxially sparsely hairy, adaxially glabrous. Capsule fusiform, 2.5–4 cm. Fl. May–Jun, fr. Aug–Oct.

Broad-leaved forests, forest margins on mountain slopes; 1500–1700 m. Guangdong, Guangxi, Guizhou, Yunnan [N Vietnam].

The type specimen of *Carrierea dunniana* (Cavalerie 3001, Guizhou) at K includes both pistillate and staminate flowers.

