

TORICELLIACEAE

鞘柄木科 qiao bing mu ke

Xiang Qiuyun (向秋云 Jenny Xiang)¹; David E. Boufford²

Trees or shrubs, dioecious. Branches spreading, thick, with conspicuous leaf scars; pith soft, white, wide in relation to twig. Leaves alternate, petiolate, estipulate, simple; petiole elongate, expanding at base, sheathing; leaf blade broadly cordate to nearly orbicular, papery, unlobed or slightly lobed, lobes 5–7(–9), glabrous or pubescent, trichomes multicellular, glandular, veins palmate, 5–7(–9), margin entire or serrate. Inflorescences racemiform panicles, terminal, pendulous. Flowers unisexual, shortly pedicellate, bracteolate. Staminate flowers: calyx 5-dentate, teeth small, unequal; petals 5, narrowly elliptic, apex inflexed; stamens 5, filaments short, anthers oblong, locules 2, longitudinally dehiscent; vestigial styles 1–3, minute. Carpellate flowers: calyx lobes 3–5, unequal, acutely triangular; petals and vestigial stamens absent; ovary inferior, locules 3 or 4, often only 1 locule with a pendulous ovule; styles 3, persistent, 3–4 mm, thick, apex often 2-lobed; stigmas 3, often curved and extending downward. Fruit drupelike, purple red or black, ovoid or obliquely ovoid, crowned by persistent calyx and styles; stone of fruit with a triangular germination valve. Seeds linear, curved; embryo at apex of fleshy endosperm.

One genus and two species: Bhutan, China, N India, Nepal, Sikkim; two species (one endemic) in China.

Hu Wenkuang. 1990. *Toricellia*. In: Fang Wenpei & Hu Wenkuang, eds., *Fl. Reipubl. Popularis Sin.* 56: 35–38.

1. *TORICELLIA* de Candolle, Prodr. 4: 257. 1830.

鞘柄木属 qiao bing mu shu

Morphological characters and geographical distribution are the same as those of the family.

- 1a. Leaf blade unlobed, margin serrate 1. *T. tiliifolia*
1b. Leaf blade slightly 5–7-lobed (or angled); margin entire or dentate 2. *T. angulata*

¹ Botany Department, North Carolina State University, Campus Box 7612, Raleigh, North Carolina 27695-7612, U.S.A.

² Harvard University Herbaria, 22 Divinity Avenue, Cambridge, Massachusetts 02138-2020, U.S.A.

1. *Toricellia tiliifolia* de Candolle, Prodr. 4: 257. 1830 [*“tiliaefolia”*].

鞘柄木 qiao bing mu

Trees, deciduous, 3–12 m tall. Bark grayish black; old branches gray-green, glabrous. Leaves with petiole light green, 4.5–8.5 cm, glabrous; leaf blade 10–15 × 8–16.5 cm, papery, sparsely pubescent with soft trichomes, veins palmate, 7–9, conspicuous abaxially, base shallowly cordate, unlobed, margin serrate, apex acute. Inflorescences 12–22 cm, slightly pubescent. Staminate flowers: calyx tube shortly cylindrical, calyx lobes shortly triangular or sometimes not obvious; petals white, narrowly elliptic, ca. 5 mm, glabrous; stamens alternate petals; filaments ca. 0.5 mm, glabrous; anthers oblong, ca. 1.5 mm; disk flat, subcircular; pedicel 2–2.5 mm, sparsely pubescent or nearly glabrous, subtended by two bracteoles; bracteoles lanceolate, 1–2.5 mm. Carpellate flowers: calyx of carpellate flowers subovate, teeth of calyx triangular, acute; floral disk inconspicuous, flat; ovary ovoid, locules 3 or 4, glabrous. Fruit ovoid, 5–6 mm, ca. 3 mm in diam., glabrous. Fl. Nov–Mar, fr. Mar–Apr. $2n = 24$.

Broad-leaved forests, forest margins, open slopes; 1600–2600 m. SE Xizang, W Yunnan [Bhutan, NE India (Darjiling), Nepal, Sikkim].

2. *Toricellia angulata* Oliver, Hooker’s Icon. Pl. 19: t. 1893. 1889.

角叶鞘柄木 jiao ye qiao bing mu

Shrubs or trees, deciduous, 2.5–8 m tall. Bark gray; old branches yellow-gray. Leaves with petiole green, 2.5–8 cm, glabrous; leaf blade 6–15 × 5.5–15.5 cm, thinly papery, veins palmate, 5–7(–9), conspicuous on both surfaces, slightly 5–7(–9)-lobed, lobes near base smaller, glabrous, base truncate to shallow cordate, margin entire or dentate, apex acuminate to caudate. Staminate inflorescence 5–30 cm, densely pubescent. Staminate flowers: calyx tube obconical, calyx lobes triangular; petals oblong-lanceolate, ca. 1.8 mm; stamens alternate petals; filaments ca. 0.5 mm, glabrous; anthers oblong, ca. 1.5 mm; disk pulvinate, circular; pedicel ca. 2 mm, slender, sparsely pubescent, subtended by two bracteoles; bracteoles narrowly lanceolate, 0.3–1.3 mm. Carpellate inflorescence usually to 35 cm. Carpellate flowers: calyx of carpellate flowers bell-shaped, glabrous; teeth of calyx lanceolate, ciliate at apex; floral disk inconspicuous, flat; ovary obovoid, locules 3. Fruit ovoid, ca. 4 mm in diam. Fl. Apr, fr. Jun. $2n = 24^*$.

- Forest margins, streamsides; 900–2000 m. S Gansu, Guangxi, Guizhou, W Hubei, Hunan, Shaanxi, Sichuan, SE Xizang, Yunnan.

Plants with lobed or angled leaves with a dentate margin are intermediate between *Toricellia tiliifolia* (with unlobed leaves with a serrate margin) and typical *T. angulata* (with lobed leaves with an entire margin). The intermediate form has a wider distribution than both extremes in China. *Toricellia tiliifolia* is more restricted to SE Xizang and Yunnan, and the typical *T. angulata* occurs in W Hubei, E and SE Sichuan, and SE Xizang. The intermediate form, which occurs in S Gansu, Guangxi, Guizhou, W Hubei, Hunan, Shaanxi, Sichuan, and Yunnan, has been recognized as a separate species, *T. intermedia* Harms ex Diels (Bot. Jahrb. Syst. 29: 507. 1901), or as *T. angulata* var. *intermedia* (Harms) H. H. Hu (J. Arnold Arbor. 13: 336. 1932). The intermediates may represent hybrids between *T. tiliifolia* and *T. angulata*, or introgression from *T. tiliifolia* into *T. angulata*. Cytological and molecular studies are needed to test these hypotheses. Because the lobed leaf blade in the intermediate plants appears to be a more stable feature than the serrate margin, we here treat the intermediate plants as part of the species with lobed leaves, *T. angulata*.

The intermediate plants are used medicinally in folk remedies. Alcoholic beverages infused with the roots or bark are used to cure injuries. Macerated roots and bark are used as pastes to cure injuries to livestock.