

4. SHOREA Roxburgh ex C. F. Gaertner, Suppl. Carp. 47. 1805.

娑罗双属 suo luo shuang shu

Pentacme A. Candolle.

Trees usually large, prominently buttressed. Bark usually fissured, flaky. Stipules caducous, large or small; leaf blade \pm leathery, tertiary veins parallel, margin entire. Flowers in axillary or terminal lax cymose panicles; bracts persistent, caducous, or absent. Sepals with 3 outer larger than 2 inner. Petals white, yellow, or pink, usually pubescent. Stamens (12–)15 or 20–100; anthers ovoid, oblong, or panduriform; connective subulate-cuspidate or stout, club-shaped; valves equal or outer one slightly larger. Ovary ovoid, pubescent; style subulate; stigma entire or 3-toothed. Fruit usually 1-seeded, closely surrounded by thickened bases of accrescent calyx segments; sepals developed into lorate wings, outer 3 much larger than 2 inner.

About 200 species: Bhutan, Cambodia, China, NE India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Thailand, Vietnam; two species in China.

- 1a. Trees evergreen with laminated inner bark; anthers ellipsoid, glabrous, connective appendages filiform, glabrous; stamens (*S. sect. Anthoshorea* (Pierre) F. Heim) 1. *S. assamica*
1b. Trees deciduous without laminated inner bark; anthers panduriform, setose toward apex, connective appendages short, stout, sparsely setose (*S. sect. Shorea*) 2. *S. robusta*

1. *Shorea assamica* Dyer in J. D. Hooker, Fl. Brit. India 1: 307. 1874.

云南娑罗双 yun nan suo luo shuang

Shorea assamica Dyer subsp. *yingjiangensis* Y. K. Yang & J. K. Wu; *S. siamensis* Miquel var. *borealis* Y. K. Yang & J. K. Wu.

Trees evergreen, emergent, to 50 m tall, with aromatic white resin smears. Bark dark brown or grayish brown, irregularly exfoliating in scales; inner bark laminated; wood pale, not hard. Branchlets densely grayish yellow tomentose, orbicular lenticellate. Stipules oblong or falcate-ovate, ca. 2 cm, longitudinally 10- or 11-veined, densely grayish yellow tomentose, persistent on juveniles; petiole ca. 1 cm, densely yellow tomentose; leaf blade ovate-elliptic, 6–12 \times 3–6 cm, thinly leathery, midvein raised abaxially and conspicuously impressed adaxially, lateral veins 12–19 pairs, pinnate, slender, tertiary veins loosely scalariform and conspicuous, abaxially stellate pubescent, adaxially tomentose along midvein, base rounded or slightly cordate, margin entire, apex acuminate. Flowers in axillary or terminal cymose panicles; bracts caducous. Sepals: outer 3 elliptic and ca. 8 mm, inner 2 lanceolate and ca. 6 mm, all grayish yellow tomentose. Petals yellowish white, contorted, narrowly oblong, longitudinally 11-veined, appressed tomentose outside. Stamens 15; anthers ellipsoid, glabrous; connective appendages filiform, ca. 3 mm glabrous. Ovary ovoid, sparsely pubescent; nut to 1.5 \times 1.5 cm; style narrowly cylindrical; stigma 3-lobed. Sepal lobes winglike; long wings linear-oblong, 8–10 \times ca. 1.5 cm, longitudinally 10–14-veined, short wings linear-lanceolate, 3–5 cm; all tomentellate. Fl. Jun–Jul, fr. Dec–Jan of following year.

Tropical valley forests; below 1000 m. SE Xizang, W Yunnan

[India, Indonesia (Sumatra), Malaysia, Myanmar, Philippines, Thailand].

This is a rare species in China, threatened by habitat loss. *Shorea assamica* subsp. *globifera* (Ridley) Symington accounts for the extra-Chinese distribution.

2. *Shorea robusta* C. F. Gaertner, Suppl. Carp. 48. 1805.

娑罗双 suo luo shuang

Trees to 40 m tall, \pm tardily deciduous; trunk to 2 m in diam.; crown spreading. Bark gray to dark reddish brown, becoming fissured and flaky; inner bark not laminated; wood hard; heartwood dark brown. Branchlets densely buff scabrous-pubescent. Stipules fugacious, lanceolate, small, lepidote; petiole 2–2.5 cm, buff scabrous-pubescent; leaf blade 10–40 \times 5–24 cm, ovate to oblong, thinly leathery, midvein prominent abaxially and conspicuous adaxially, lateral veins ca. 12 pairs prominent abaxially, tertiary veins densely scalariform, glabrous, base obtuse to cordate, apex acuminate. Flowers subsessile, on panicles to 25 cm; branches racemose, secund; bracts caducous, minute. Petals strongly contorted, creamy-yellow or sometimes with a medium pink stripe, 1–1.5 cm \times ca. 5 mm, linear. Sepals ovate, to 2 mm in bud, subequal, densely buff pubescent. Stamens many; anthers panduriform, setose toward apex; connective appendages short, stout, exceeding anther apex, sparsely setose. Ovary ovoid, densely buff pubescent. Fruit sepals unequal, spatulate, sparsely pubescent, 3 longer to 8 \times 1.5 cm, 2 smaller to 3.5 \times 0.5 cm; nut ovoid, ca. 5 \times 12 mm. Fl. Feb–May, fr. May–Jul.

Gregarious in savanna woodlands; below 800 m. SE Xizang [Bhutan, India, Nepal].

This is a rare species in China.

