

# 1. AQUILARIA Lamarck, Encycl. 1: 49. 1783, nom. cons.

沉香属 *chen xiang shu*

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*Agallochum* Lamarck; *Ophispermum* Loureiro.

Trees or treelets. Leaves alternate, leaf blade pinnately veined; veins slender, ascending toward margins and joining several intramarginal veins. Inflorescences axillary or terminal, umbelliform or paniculiform, usually without involucre; peduncle short or absent. Flowers bisexual, pedicellate, usually 5-merous. Calyx tube persistent, yellow or yellowish green, campanulate; lobes 5, reflexed or erect. Petaloid appendages twice as many as the lobes, inserted at throat of tube, scalelike, united in a ring at base, usually densely pubescent or puberulous. Stamens twice as many as calyx lobes, alternating with petaloid appendages; filaments short or absent; anthers oblong, dorsifixed, pubescent, connectives broad. Disk absent. Ovary sessile, pubescent, 2-loculed or incompletely 2-loculed; style very short; stigma capitate. Fruit a 2-valved loculicidal capsule, compressed laterally, obovoid, base enclosed by persistent calyx; pericarp leathery or woody. Seeds 2 or 1 by abortion, ovoid or ellipsoid, on carunclelike strongly tapered funicle; testa crustaceous, endosperm absent; cotyledons thick, plano-convex.

About 15 species: Bhutan, Cambodia, China, NE India, Laos, Malaysia, Myanmar, Thailand, Vietnam; two species (both endemic) in China.

Members of this genus are important as the source of agarwood, a very highly prized aromatic gum produced in the wood in response to injury. It is used as incense, in perfumery, and in traditional medicine. Trees have been over-harvested throughout the range of the genus, and most species are of conservation concern. The genus as a whole is included in Category 2 of CITES.

- 1a. Pericarp thickened, slightly rugose when dried; seeds densely brown-yellow pubescent, funicle 0.8–1 cm, slightly shorter or longer than seed; leaves 2–4 cm wide ..... 2. *A. yunnanensis*
- 1b. Pericarp thin, smooth when dried; seeds white sericeous or glabrous, funicle ca. 1.5 cm, longer than seed; leaves 2.8–6 cm wide ..... 1. *A. sinensis*

**1. *Aquilaria sinensis*** (Loureiro) Sprengel, Syst. Veg. 2: 356. 1825.

土沉香 *tu chen xiang*

*Ophispermum sinense* Loureiro, Fl. Cochinch. 1: 281. 1790; *Agallochum sinense* (Loureiro) Kuntze; *Aquilaria grandiflora* Bentham; *A. ophispermum* Poiret.

Trees 5–15 m tall. Bark dark gray, smooth; branchlets terete, rugose, puberulous, glabrescent. Petiole 5–7 mm, pubescent; leaf blade dark or purple-green, glossy adaxially, light green abaxially, orbicular or elliptic to oblong, sometimes obovate, 5–9 × 2.8–6 cm, leathery, both surfaces glabrous, but sometimes puberulous along margin, base broadly cuneate, apex acuminate or acute, apiculate; lateral veins 15–20 pairs, more conspicuous abaxially, veins and veinlets slender, subparallel, obscure. Inflorescence terminal, a loose panicle of umbels, many flowered. Flowers fragrant at night; pedicel 5–10 mm, densely yellow-gray pubescent. Calyx yellowish green; tube narrowly campanulate, 5–6 mm, exterior and interior densely pubescent; lobes 5, ovate, 3–5 mm, both surfaces pubescent, apex rounded and obtuse, or acute. Petaloid appendages 10, scalelike, inserted at throat of tube, obviously densely pilose at anthesis. Stamens 10; filaments ca. 1 mm; anthers linear-oblong, ca. 1.5 mm. Ovary ovoid, densely grayish white hairy; style obsolete or nearly so; stigma capitate. Capsule shortly stipitate, ovoid, 2–3 × ca. 2 cm, densely yellow pubescent, base tapering, apex apiculate; pericarp thin, smooth when dried. Seeds dark brown, ovoid, ca. 10 × 7.5 mm, white sericeous or glabrous; funicle conspicuous, ca. 1.5 × 0.4 cm, longer than seed, tapered at base, broad and compressed below seed. Fl. spring–summer, fr. summer–autumn.

• Lowland forests, sunny places on slopes or along roadsides. Fujian, Guangdong, Guangxi, Hainan.

*Aquilaria sinensis* has been very heavily exploited and is listed as vulnerable by the IUCN. The bark is used to make paper; the heart wood is prized for its fragrance.

**2. *Aquilaria yunnanensis*** S. C. Huang, Acta Bot. Yunnan. 7: 277. 1985.

云南沉香 *yun nan chen xiang*

Trees small, 3–8 m tall. Branchlets dark brown, puberulous. Petiole 4–5 mm, pubescent; leaf blade elliptic-oblong or oblong-lanceolate, rarely obovate, 7–11 × 2–4 cm, leathery, glabrous, glabrescent, or puberulous only on midrib, base cuneate or narrowly cuneate, apex caudate-acuminate, acumen 1–1.5 cm; veins usually branched, dense, conspicuous and raised abaxially, obscure adaxially. Inflorescence terminal or axillary, consisting of 1 or 2 umbels. Flowers fragrant; pedicel ca. 6 mm, slender. Calyx light yellow; tube campanulate, 6–7 mm, exterior pubescent, interior 10-ribbed, ribs pubescent; lobes 5, ovate-oblong, ca. 3 mm, nearly as long as tube, inside densely pubescent. Petaloid appendages ca. 1.5 mm, puberulous, apex rounded. Stamens 10, 1.5–2 mm; anthers linear, shorter than or equaling filaments. Ovary subglobose, ca. 3 mm, shiny, pubescent; style obscure; stigma capitate. Capsule obovoid, ca. 2.5 × 1.7 cm, base tapering and enclosed by erect, persistent calyx, corky when dried, apex rounded and apiculate; pericarp thickened, slightly rugose when dried, yellow pubescent. Seeds 1 or 2, ovoid, densely brown-yellow pubescent, apex obtuse; funicle 0.8–1 cm, slightly shorter or longer than seed.

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- Valley forests; ca. 1200 m. Yunnan.

This species has been confused with *Aquilaria sinensis* and is probably exploited in the same way. It is too poorly known for its conservation status to be assessed.

