

Illicium verum Hook. f.

Standardized Common Name: Star Anise

Other Common Names: Chinese Anise, Chinese Star Anise

Family: Illiciaceae or Magnoliaceae

Parts in Commerce: Fruits

Identification:

- Fruit an aggregate of woody follicles, usually 8, occasional individual fruits 6–13; in fresh fruit upright, after drying radiating outward from receptacle, the dried fruit over 3 cm in diameter
- Pedicel over 2 cm long, curved near the fruit, with a small ring at the base
- Follicles boat-shaped, 12–20 mm long, laterally compressed, often unequal in size
- Upper edge dehiscent to expose single seed
- Apex of follicle with short blunt straight beak, not sharply curved upward at the tip
- Outer surface reddish-brown, slightly wrinkled; inner surface yellowish-brown, smooth, glossy
- Seed elliptical, 7–9(–10) mm long, laterally compressed, reddish brown, smooth, glossy, with oily kernel
- Odor and taste aromatic, pleasant, similar to anise

Adulterants: A repeatedly observed adulterant that poses a known safety hazard is *I. anisatum* L. (Japanese anise), for which *I. religiosum* Sieb. & Zucc. is a commonly used synonym. Despite the specific epithet, it is primarily used for ornament and has toxic seeds that have been employed as fish poison. Each fruit comprises 7–8 follicles. The apical beak is sharply curved upwards, and the fol-

licles may be slightly smaller than those of *I. verum* and have a strongly wrinkled surface. The pedicel is straight, not curved near the fruit. The taste is said to be aromatic but bitter and unpleasant, and the odor to resemble that of saffras, cloves or balsam.

Oh et al.'s recent examination of seed anatomy provides potentially useful macroscopic and microscopic characters as well. At the hilar end of the seed, the large depressed area of the hilum is bordered, at one of the narrow ends, by a small raised structure called a strophiole. The micropyle forms a curved slit, which is separated from the hilum by the strophiole. In *I. verum*, the strophiole has a roughly rectangular appearance, with a swelling at the long side facing the hilum. In *I. anisatum*, the connections of the strophiole to the lateral sides of the seed outside the hilum are narrow, leaving a central part that is hemispherical (to rather triangular) in shape. The micropylar slit is crescent-shaped and fairly broad in *I. verum*, but long and very narrow throughout in *I. anisatum*. It must be noted that Oh et al.'s results were derived from single individuals of each species; however, features of this type often do not vary much within a species.

Youngken described microscopic and simple chemical tests for distinguishing powdered material, which might also be useful if the identity of whole material were doubtful. The powder of *I. verum* heated in dilute potassium hydroxide (lye) was said to produce a reddish color, to be contrasted with a yellowish-brown color in the case of *I. anisatum*. Such a test should not be performed unless adequate ventilation is ensured, as boiling lye produces toxic fumes.

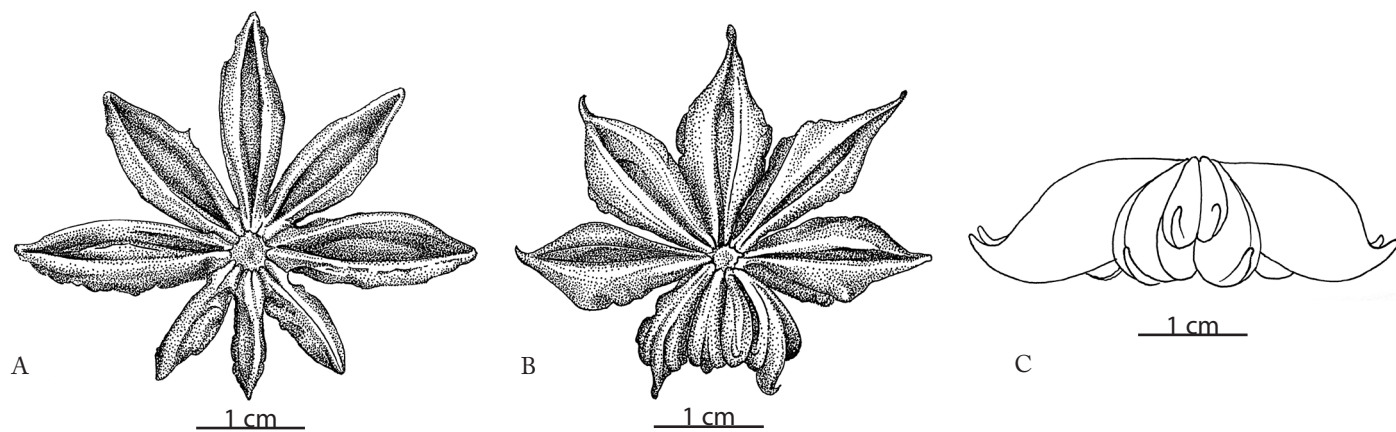


Figure 36. a, *Illicium verum* fruit; b–c, *I. anisatum* fruit and cross-section.

Taxonomy: The genus includes about 34 to 42 species in Asia and the New World, with a center of diversity in China. *Illicium verum* is native to China but is extinct in the wild and exists only in cultivation.

Description: Tree, 4–10(–20) m high, with gray bark. Leaves evergreen, leathery, alternate or clustered in whorls, usually oblong-elliptical to obovate or oblanceolate, to 15 cm long; apex variable, usually acuminate; base cuneate; blade glandular-dotted. Flowers axillary, solitary, globose, 1–1.5 cm in diameter; tepals 7–12, spirally arranged, the largest almost orbicular, initially whitish then turning pink to purple; stamens 11–20, with short filaments; carpels 6–9(–15), separate. Fruit an aggregate of (6–)8(–13) radiating follicles; follicles 12–20 mm long, boat-shaped, dehiscent along upper edge, brown, 1-seeded; apex with short straight beak; seed elliptical, brownish, glossy.

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