

181. *ILLICIAM VERUM* Hook. f. (MAGNOLIACEAE) — Star-Anise, Chinese Anise



Dried fruit has a pleasant, aromatic, anise-like aroma and taste. Used whole, not ground, as a flavoring agent in confections, candy, chewing gum, and tobacco. Orientals chew the seeds after meals to promote digestion and sweeten the breath. Oil is used in animal feeds, in scented soaps, toothpaste, creams, detergents, perfumes, etc., to improve the flavor of some medicines. Japanese use the ground bark as incense. Used in cough medicines and cough drops. Highest use levels are *circa* 570 ppm in alcoholic beverages and 680 ppm in candies (numbers derived from Pimpinella but according to Leung,²⁹ anise oil and star anise oil are used interchangeably in the U.S., both being officially recognized as anise oil).

Reported to be anodyne, antiseptic, carminative, diuretic, expectorant, lactagogue, pediculicide, piscicide, stimulant, and stomachic, star anise is a folk remedy for cholecystitis, colic, constipation, dysentery, dyspepsia, extrophy, favus, halitosis, hernia, insomnia, lumbago, otalgia, rheumatism, scabies, spasms, and toothache.^{32 41} A medicinal tea is made from the leaves in China.

Star anise contains *circa* 5% volatile oil (*circa* 2.5% in seed, 10% in follicle) with *trans*-anethole as its major ingredient. Other constituents include estragole, 1,4-cineole, beta-bisabolene, beta-farnesene, alpha-copaene, *cis*- and *trans*-alpha-bergamotene, caryophyllene, nerolidol, methylanisoate, *trans*-methylisoeugenol, cadinene, foeniculin, 3-carene, *d*-alpha-pinene, phellandrene, alpha-terpineol, hydroquinone, traces of *cis*-anethole, and safrole. Presence of safrole disputed.²⁹ *Hager's Handbook* adds *n*-decyl-, palmitic-, tiglic-, benzoic-, salicylic-, and anisic-acids, a reddish brown resin, tannin, protocatechuic acid, shikimic acid (carcinogenic), and quinic acid. The seed contains 20% fatty oils with 45% oleic-, 24% linoleic-, 23% palmitic-, and 2.5% stearic-acid. Leaves contain 1% essential oil with an ethole and anisaldehyde.

Toxicity — Chinese star anise should not be confused with Japanese star anise *I. lanceolatum* A. C. Smith, which is highly poisonous. A 10 to 15% aqueous extract is used as an agricultural insecticide in China.²⁹ Toxicities of anethole, isosafrole, and safrole were discussed by Buchanan¹¹⁷ (GRAS § 182.10 and 182.20).²⁹