

***Illicium anisatum* L.**

Shikimi Fruit

Illicii anisati Fructus

Illiciaceae

Species of *Illicium* are used for the treatment of colic in infants and children. The primary species used is Chinese star anise, *I. verum*. However, shikimi fruits, also known as Japanese star anise, have adulterated the *I. verum* market since at least 1881 and have been associated with causing seizures in children. With standard light microscopy, the anatomy of shikimi fruit is extremely similar to that of star anise except for differences in the palisade cells of the endocarp, astrosclereids of the columella, and macrosclereids of the testa. Electron microscopy can pick up more specific and detailed differences between the species but still may not provide a definitive differentiation.

A. Fruit

Transverse section: Palisade cells of the endocarp are approximately 290–350 μm in length; near the ventral suture, the palisade cells are gradually replaced with a layer of sclereids. (This is in contrast to Tschirch and Oesterle, 1900, who found an abrupt change from thin-walled palisade cells to thick-walled sclereids toward the ventral suture.)

B. Columella

Longitudinal section or powder: Astrosclereids are rounded and not highly branched, approximately 100–120 μm long.

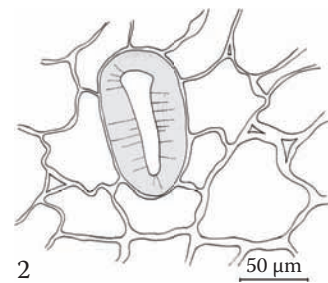
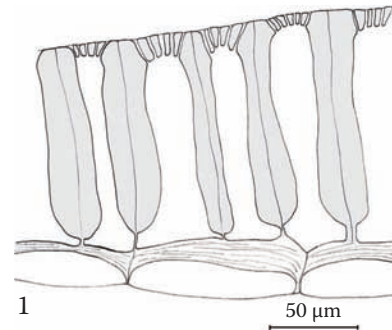
C. Seed

Testa macrosclereids are approximately 140–150 μm long, with a circular, largely unbranched lumen; subepidermal cell layer has intercellular spaces.

Note: This observation is in contrast to that of Zänglein et al., 1989.

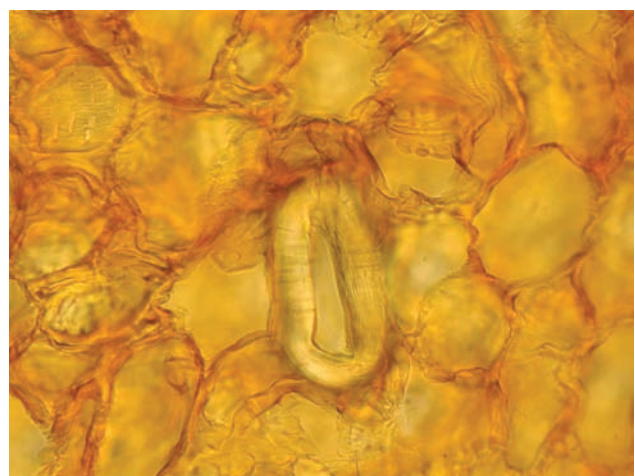
Powder: Oil droplets; large, colorless fragments of endosperm; palisades of endocarp in transverse section and surface view; sclereids of testa in surface view; few brown fragments of mesocarp, some with secretory cavities; sclereids from the mesocarp; fragments of testa with

calcium oxalate prisms; sclereids of the columella are too rare to find with certainty.



Drawings

1. Macrosclereids of the testa (*ts*).
2. Astrosclereid of the columella (*ls*).



1