

Silybum marianum* (L.) Gaertn.*Milk Thistle Fruit***Silybi marianae Fructus**Asteraceae*

An extract of milk thistle seed is the primary botanical preparation used in Europe for supporting a healthy liver and treating liver disease. Both oral and injectable preparations are used. The injectables are highly regarded as an effective treatment against poisoning with the potentially deadly death angel mushroom, *Amanita phalloides*. Milk thistle seeds are generally not subject to adulteration.

A. Fruit

Surface view: Polygonal exocarp cells with heavily thickened walls; acuminate apices of the lumens of these cells appear slit-like and are arranged in pseudoparallel formation.

Transverse section: Exocarp of colorless palisade cells, approximately 25–75 μm long, with an acuminate outer end of the cell lumen and very thick outer wall; a subepidermal cell layer of thin-walled colorless cells alternating with red pigment cells; mesocarp of roundish pitted cells; endocarp cells are often compressed, with large calcium oxalate prismatic crystals.

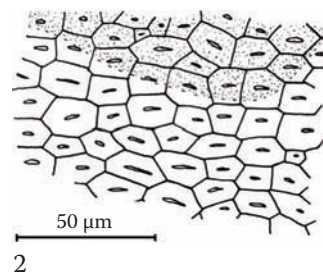
Longitudinal section: Elongated mesocarp cells.

B. Seed

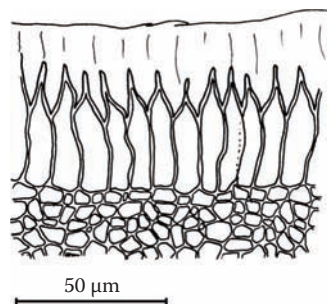
Surface view: Testa epidermis of polygonal yellow sclereids.

Transverse section: Undulate testa epidermis consists of yellow elongate to S-shaped macrosclereids, approximately 100 μm long, arranged in a palisade layer, with colorless secondary walls and a small lumen; subepidermal rows of cells cannot be differentiated, although cells close to the sclerenchyma contain calcium oxalate prismatic crystals; endosperm is a single cell layer of rounded, slightly thickened cells around the cotyledons; thin-walled, elongate cotyledon cells contain small calcium oxalate cluster crystals, approximately 6 μm diameter, and oil globules.

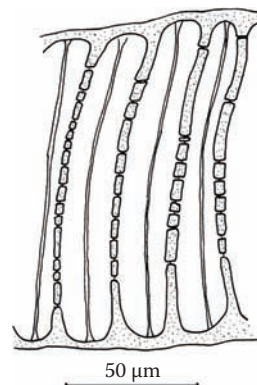
Powder: Fragments of exocarp palisades, some with attached red and colorless cells of the mesocarp; palisades in transverse section; sclereids of the testa; cotyledons with oil globules and calcium oxalate cluster crystals; prismatic crystals of calcium oxalate.



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