

***Senna alexandrina* Mill. (syn. *Cassia senna*, *C. angustifolia*, *C. acutifolia*)**

Senna Fruit (Pod)

Sennae alexandriae Fructus

Fabaceae

Senna fruit is one of the primary botanical laxatives used worldwide. It is rich in anthraquinone glycosides—compounds that are hydrolyzed in the intestines and subsequently stimulate intestinal peristalsis. Numerous species of senna can be used interchangeably, and various works of botanical microscopy provide a differentiation among the species. Historically, sand has been reported as a potential adulterant (Youngken 1930).

A. Fruit

Surface view: Exocarp consists of polygonal cells with numerous paracytic and anomocytic stomata approximately 25–33 μm in length; beads of cuticular wax are scattered over the surface; unicellular, tapering, covering trichomes are scattered, with thickened cell walls and numerous cuticular warts; two or more layers of fibers occur in the inner part of the mesocarp, fibers in each layer are oriented more or less parallel to one another, but in a different direction from those in the next layer; fibers have narrow cell walls and a distinct lumen; small cells attached to the fibers contain calcium oxalate prisms; endocarp of thin-walled, frequently crushed cells.

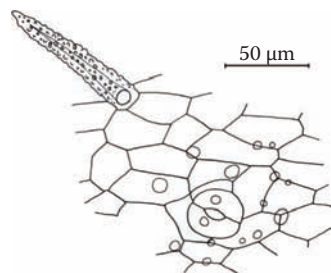
Transverse section: Exocarp narrow, consisting of thin-walled cells; several layers of parenchyma form the mesocarp; two or more layers of fibers occur in the endocarp; fibers in each layer are oriented more or less parallel to one another, but in a different direction from fibers in the next layer; attached to the fibers are small cells containing

calcium oxalate prisms; endocarp consists of thin-walled cells, frequently crushed.

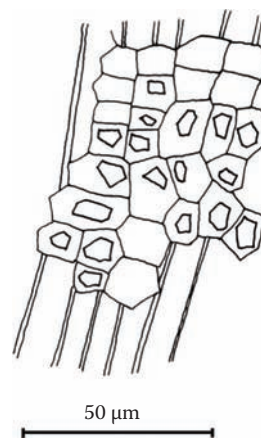
B. Seed

Surface view: Wrinkled surface; colorless cuticle, usually detached from the palisade cells where the cuticle detaches from the palisade cells, approximately 2 or 3 μm of the terminal end of the palisades (predetermined breaking line) remain attached to the cuticle; palisade layer has a hard consistency, turning soft and mucilaginous after soaking in water for several hours; palisade cells are approximately 10 μm diameter with a narrow lumen and sinuous anticlinal walls; where the palisade layer is detached, the hypodermis is visible and consists of cells showing a distinct ring approximately 20 μm diameter (so-called hourglass cells); between these hypodermal cells are conspicuous triangular intercellular spaces.

Transverse section: Cuticle is approximately 10 μm thick, usually detached; outer layers of testa are composed of palisade cells approximately 50 μm in length, thick walled with a very narrow cell lumen; underlying hypodermis of slightly thickened cells contracted in the middle (hourglass cells) results in large intercellular spaces; internal to the hypodermis are parenchyma cells of differing heights, resulting in the wrinkled surface of the seed; inner testa is similar to the hypodermis; palisade and hourglass cells are not lignified; palisade cells in uncleared mounts contain mucilage and can be stained with methylene blue; colorless endosperm consists of large, thin-walled cells containing striated mucilage and aleurone grains; endosperm may be absent; large, isolateral cotyledons.



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