

**Senna alexandrina Mill.****Senna Leaf***Sennae Folium**Fabaceae*

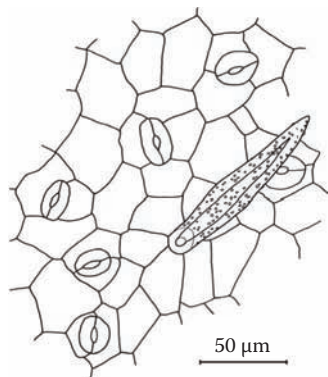
Senna leaf is one of the primary botanical laxatives used worldwide. It is rich in anthroquinone glycosides, which are compounds hydrolyzed in the intestines that subsequently stimulate intestinal peristalsis. Numerous species of senna can be used interchangeably and various works of botanical microscopy provide a differentiation between the species.

**Surface view:** Upper and lower epidermis are very similar: cells are polygonal and elongated over the veins, and some cells filled with mucilage are therefore larger than other epidermal cells; large amounts of cuticular wax (melted into small droplets due to boiling in chloral hydrate and then crystallized into birefringent aggregates); stomata on both surfaces are predominantly paracytic—some with three subsidiary cells and some with four surrounding cells (two subsidiary cells are parallel to the guard cells and two other cells are at the poles)—with stomata length approximately 25  $\mu\text{m}$ ; covering trichomes

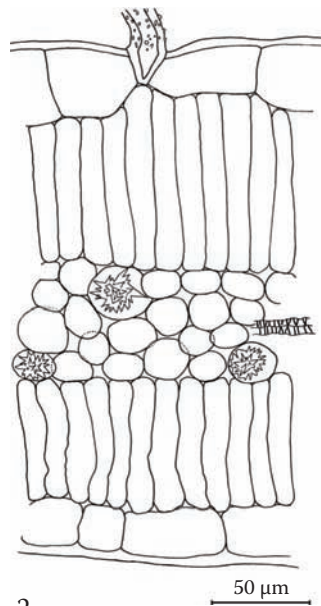
are frequent, unicellular, thick walled, and tapering, with cuticular warts, up to 100  $\mu\text{m}$  in length; most trichomes are appressed to the epidermis; epidermal cells are arranged in a rosette-like fashion around the bases of trichomes; circular scars occur where trichomes have broken off; large veins are accompanied by fibers and a calcium oxalate prism sheath, with prisms approximately 15  $\mu\text{m}$  in length; cluster crystals of calcium oxalate are scattered throughout the intercostal regions, up to 25  $\mu\text{m}$  diameter.

**Transverse section:** Leaf isolateral; epidermal cells rectangular with the inner wall convex, mucilage containing cells considerably larger, cuticle thick; palisade cells in one layer; palisade cells under upper epidermis are larger than the lower ones; upper ones have straight cell walls and lower ones wavy walls; narrow, spongy parenchyma contains cluster crystals of calcium oxalate.

**Powder:** Fragments of epidermis with paracytic stomata; unicellular covering trichomes; fibers with calcium oxalate prism sheath; transverse sections showing the isolateral leaf structure and cluster crystals; fragments of vessels with annular, helical walls or simple pits.



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