

***Plantago lanceolata* L.**  
**English Plantain Leaf (Lance-  
 Leafed Plantain)**

*Plantaginis lanceolatae Folium*  
*Plantaginaceae*

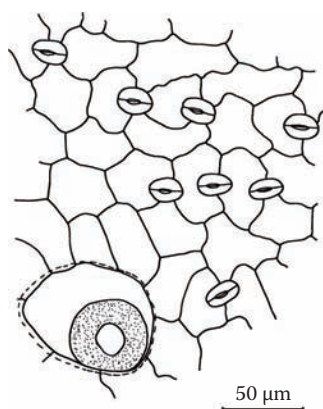
The leaves of plantain are commonly used as a garden and wilderness first-aid plant applied to cuts, scratches, burns, and bites. It is also taken to stop internal bleeding and used externally in compresses and salves. Two primary types of plantain are commonly used: lance- or narrow-leafed and broad-leafed (*P. major*) plantain. These can be used interchangeably. Plantain has occasionally been known to be adulterated with lance-leafed digitalis (*Digitalis lanata*), resulting in toxicity in those who consume it. The two plants can be readily distinguished from each other microscopically by comparison of the trichomes. *D. lanata* is characterized by the presence of glandular trichomes with a unicellular stalk and bicellular head; those of *P. lanceolata* consist of a unicellular stalk and multicellular, narrow, conical head. For a more detailed differentiation of the two species, see *D. lanata*.

**Surface view:** Both leaf surfaces are very similar; epidermal cells have rounded or slightly wavy anticlinal walls; anomocytic and diacytic stomata, approximately 25–30  $\mu\text{m}$  long, are arranged in rows; glandular hairs are abundant but inconspicuous, approximately 60–100  $\mu\text{m}$  long, and consist of a unicellular stalk and multicellular, narrow, conical head; the basal cell is inserted into the epidermis and is much smaller than other epidermal

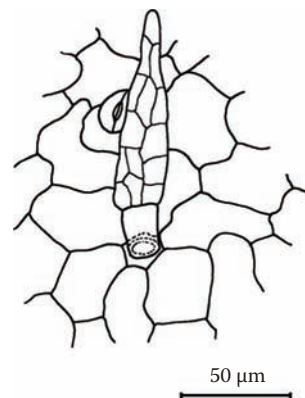
cells; long covering trichomes, up to several millimeters in length and consisting of four or more cells, may be sparse or dense; a spheroidal and very large basal cell is inserted into the epidermis; the cell above the basal cell is small, thick walled, and cylindrical; all other cells are very long; the third and fourth cells are thick walled at the base and acute at the apex, and the tip of the third is clasped by the fourth like a claw; additional cells similar in morphology to the fourth may occur; broken covering trichomes leave a large, circular cicatrix considerably larger than the other epidermal cells.

**Transverse section:** Bifacial or isolateral, depending on leaf orientation on the living plant; calcium oxalate is absent.

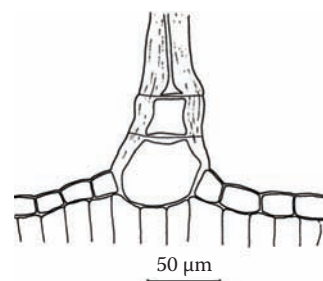
**Powder:** Fragments of epidermis with anomocytic and diacytic stomata in rows; glandular hairs; cicatrices from broken covering trichomes; fragments of covering trichomes.



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