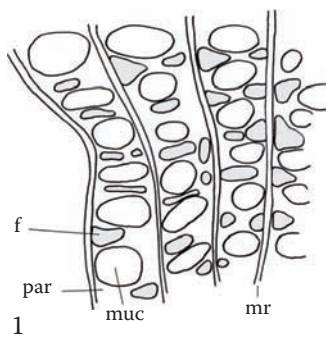


***Ulmus rubra* Muhl.**  
**Slippery Elm Inner Bark**  
*Ulmus rubrae* Cortex  
*Ulmaceae*

Slippery elm bark is one of the most highly regarded of herbal demulcents among American herbalists. It is used as a rich source of soothing and nourishing mucilage. Unfortunately, slippery elm supplies have been limited by Dutch elm disease. This limited supply has resulted in the adulteration of elm bark with starchy powders such as rice powder. The bark may be traded with the outer bark present or removed (rossed). The outer bark of slippery elm contains little to no mucilage and should be removed. The ideal qualitative test for slippery elm bark is a morphological characterization along with a swelling index test to ensure identity and adequate yields of mucilage.

**Transverse section:** Parenchyma cells of secondary phloem, roundish in outline, alternate with regularly arranged narrow medullary rays one to six cells broad; medullary ray cells are radially elongated; narrow groups of fibers with small lumens are arranged tangentially between rays; large mucilage-containing cells, 50–160 μm diameter, alternate with parenchyma and fiber groups; calcium oxalate prisms 10–20 μm long are abundant along fibers and within the parenchyma cells.



**Tangential section (tgs):** Medullary rays are elliptical in outline; fibers are arranged in a network that follows the outlines of the medullary rays; mucilage-containing idioblasts; parenchyma cells appear elongated with beaded cell walls.

**Starch:** Absent.

**Powder:** Fibers in longitudinal view accompanied by rows of calcium oxalate prisms; network of fibers; parenchyma with beaded cell walls; mucilage-containing idioblasts; mucilage.

