

**Serratula spp.****Serratula Root****Radix Serratulae****Pinyin:** Guang dong sheng ma**Asteraceae**

*Serratula* is a botanical that is found as an adulterant in the trade of Chinese black cohosh, known as *sheng ma* (*Actaea* spp.) and thus may potentially find its way into domestic supplies of black cohosh (*Actaea racemosa*). A differentiation of the two species is provided under the entry for *Actaea racemosa*. *Serratula* is structurally different from *Actaea* species in that *Actaea* has no endodermis and no secretory ducts. After they are soaked in water during preparation of the sections, root slices of *Serratula* soften considerably and often rupture longitudinally.

**Transverse section:** Cork is absent; several rows of brown cells, partially ruptured; cortex consists of several rows of tangentially elongated parenchyma cells and, toward the inner border, narrow secretory ducts (some with brownish orange contents) form a ring around the endodermis; endodermis has a narrow Casparian strip; secondary phloem of parenchyma, with bundles of conducting tissue close to the cambium; secondary xylem

consists mainly of parenchyma, with vessels arranged in narrow radial rows with few fibers between vessels; pith and starch are absent.

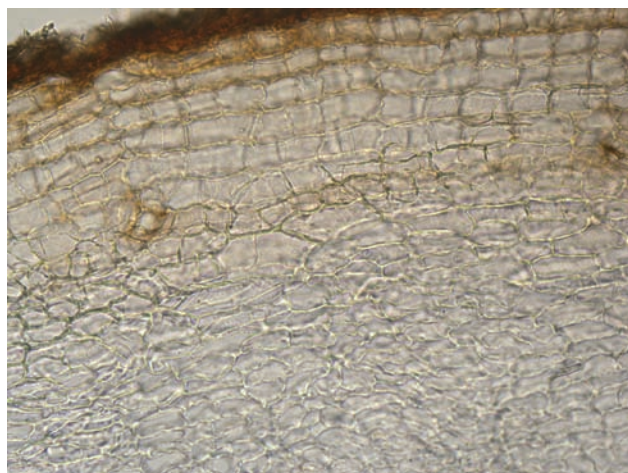
**Longitudinal section:** Vessels with scalariform or reticulate wall thickenings.

**Inulin:** Abundant in all parenchyma cells.

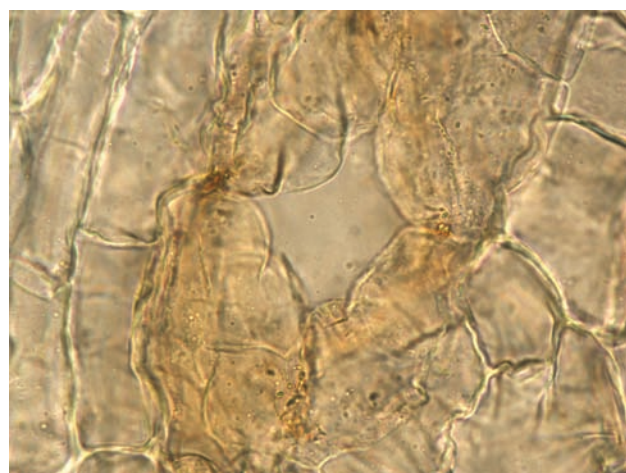
**Powder:** Inulin is present.



1



2



3