

Equisetum arvense L.

Horsetail Herb

Herba Equiseti

Equisetaceae

Various species of horsetail have been used in Western herbal traditions as a urinary tract antiseptic, a source of silica, and a mild diuretic. In Chinese herbal medicine, horsetail (*E. hiemale*; mu ze) is used to help clear red eyes and treat visual obstructions. The various species may be traded interchangeably and are similar microscopically.

A. Main Stem

Surface view: Epidermal cells are axially elongated with slightly wavy anticlinal walls and a warty cuticle; paracytic stomata are arranged in several longitudinal rows in the grooves between the ribs; subsidiary cells have ridges of cellulosic wall thickening arranged radially around the stomatal pore.

Transverse section: The outline shows a regular sequence of ribs and grooves; beneath the epidermis are large bundles of fibers at the ribs and small ones at the grooves; chlorenchyma is located on the slopes of the ribs between fiber groups; broad cortex; a ring of vascular bundles occurs interior to the endodermis; a series of lacunae

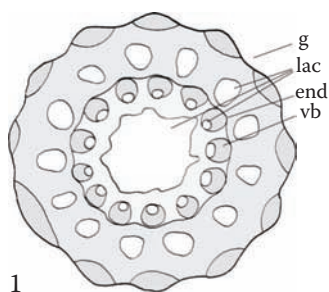
are present, with central lacuna the largest; a ring of small lacunae is located just outside the central cavity, each at the interior end of a vascular bundle and radially aligned with a rib; a second ring of lacunae is located exterior to these in the cortex; each lacuna in this ring is alternate with the lacunae of the interior ring, radially aligned with a groove, and of a larger diameter; conspicuous endodermis.

Longitudinal section: Scalariform vessels.

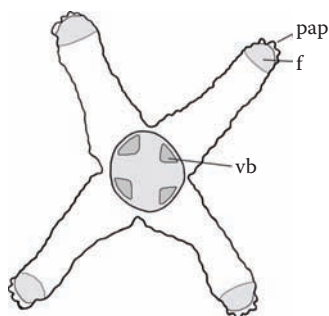
B. Lateral Stem

Transverse section: Alate, usually with four wings; wing tips characterized by bicellular papillae, each cell sharing a common wall; papillae appear rectangular, trapezoidal, or, rarely, conical in outline; fibers occur at the wing tips; endodermis is present; vascular bundles surround a central pith; lacunae are absent. A transverse section through the main stem (preferably in the middle region of the plant) is essential in order to distinguish *Equisetum arvense* raw material from that of its congeners.

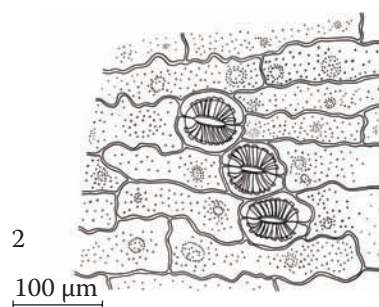
Powder: Fragments of epidermis with bicellular papillae; paracytic stomata with radial striations on subsidiary cells; fibers; scalariform vessels; parenchyma.



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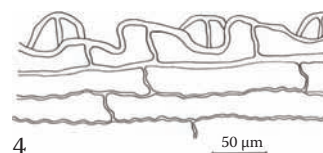


3



2

100 μm



4

50 μm