

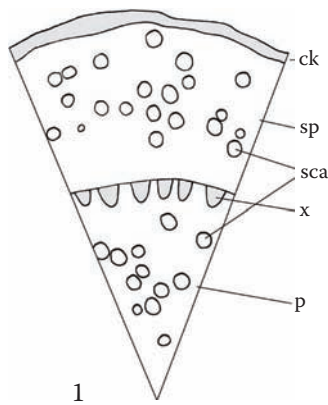
Ligusticum porteri J. M. Coult. & Rose
Osha Rhizome and Root

Ligustici Rhizoma cum Radix
Apiaceae

Osha, also known as bear root, is native to the American Southwest and the Rocky Mountains. It and other closely related species are considered sacred among many Native American tribes and are used medicinally and ritualistically. Osha is primarily used in herbal medicine for upper respiratory infections. It has a very limited growing range, preferring growth above 8,000-foot elevation. Thus, it is an environmentally sensitive botanical and this should be taken into consideration before use.

A. Rhizome

Transverse section: Narrow or broad, red-brown cork layer with occasional secretory ducts; secondary phloem with numerous large secretory ducts embedded in very loose parenchyma; parenchyma is arranged in radial rows near the cambium; secretory ducts, up to 500 µm diameter, become smaller toward the vascular cambium; ducts may contain a yellow secretion; small oil droplets from the ducts are scattered over the entire section; secondary phloem with inconspicuous medullary rays; secondary xylem of very small individual vascular bundles that taper inward, separated by broad medullary rays; vessels up to 60 µm diameter embedded in parenchyma, which may be thin walled or slightly thickened; fibers may occur in the xylem of old rhizomes; large pith with numerous large secretory ducts similar to those in the secondary phloem.



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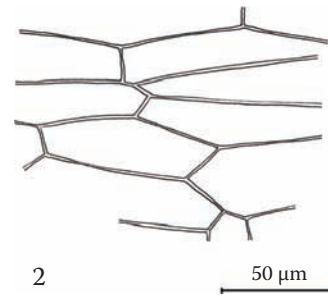
Longitudinal section: Vessels with reticulate or scalariform walls; secretory ducts.

B. Root

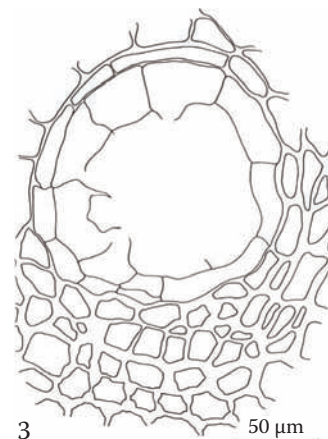
Transverse section: Narrow cork; secondary phloem has two distinct zones: (1) outer zone has large secretory ducts up to 450 µm in diameter and medullary rays that are conspicuous, wavy, a few cells broad, and composed of loose tissue, disintegrating along radial cell rows during preparation; (2) inner zone has few small secretory canals and compact parenchyma in radial rows; secondary xylem has vessels embedded in thin-walled or slightly thickened parenchyma, narrow medullary rays often do not reach all the way to the primary xylem, which is in the center; details of cell structure are similar to those for rhizome; starch is present.

Starch: Found in all parenchyma cells; mostly simple, roundish or ovate granules, up to 12 µm long; larger granules show a dot-like hilum.

Powder: Fragments of parenchyma with oil droplets; secretory ducts; reticulate or scalariform vessels; cork; starch.



2



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