

# *Ligusticum porteri* J. M. Coult. & Rose

**Standardized Common Name:** Osha

**Other Common Names:** Chuchupate, Mountain Lovage, Porter's Lovage

**Family:** Apiaceae (Umbelliferae)

**Taxonomy:** There are about eight species of *Ligusticum* in North America, ranging from Canada and the Pacific Northwest to northern Mexico. Other western species have similar traditional uses and may be included within Osha, though not by the *Herbs of Commerce* definition.

**Description:** Perennial herb, 0.5–1.0 m tall. Large leaves basal, long-petioled, (1–)2–3-ternate-pinnately compound, ovate, to 30 cm long; leaflets (0.5–)2–5 cm long, highly dissected, the lobes narrowly elliptic to lanceolate, obtuse or acute, sometimes toothed; stem leaves few, smaller, with short broad sheathing petiole. Inflorescence a large terminal compound umbel, subtended by 2 or more smaller, opposite or whorled lateral compound umbels. Umbels 11–24-rayed, bractless or rarely with a single linear bract; umbels sometimes with few small, linear bracteoles. Flowers tiny, white; sepals reduced, petals 5, stamens 5. Fruit a schizocarp of 2 mericarps, oblong, 5–8 mm long, laterally compressed; mericarps terete, with 5 prominent ribs; val-  
lecular vittae 4–6, commissural vittae 8–10.

**Parts in Commerce:** Root with rootstock

## **Identification:**

- Taproots 1 to several, plump, seldom branching
- Upper portion of taproot (rootstock) covered with fibrous leaf remains
- Lateral roots cylindrical, irregularly bent
- Largest roots may be 8–15(–20) mm in diameter
- Root bark pale brown, not purple
- Root contains a yellowish oil
- Cross-section of root shows several-layered bark; broad ring of parenchyma, broken into convoluted radiating strands; narrow ring of secondary phloem; large, often off-center, multi-branched xylem (always over 25% of total root diameter)
- Cross-section of rootstock shows thin bark; large cortex parenchyma broken into separate radiating strands; ring of numerous short xylem wedges; large pith, sometimes with irregular air spaces
- All parts with irregularly arranged secretory canals, the largest in the pith of the rootstock, sometimes fusing to form very large canals
- Preliminary evidence suggests that *L. porteri* may have smaller canals than other species, single canals being frequently under 0.1 to 0.2 mm in diameter, whereas other species have single canals of at least 0.15 mm and often 0.5 mm or more
- Odor strong, fragrant, somewhat resembling celery, slightly unpleasant but not fetid
- Taste bitter, slightly numbing

Dried roots are dark and longitudinally wrinkled; the pericycle frequently separates and the vascular tissue splits into stiff strands. Dried cut surfaces may have small orange beads of dried oil from the secretory canals.

**Adulterants:** *Ligusticum porteri* is often confused with *Conioselinum scopulorum* J. M. Coult. & Rose, which has a similar range, is very closely related, and has also been used as a food and medicine. Though the aboveground portions of the two species look very similar, *Ligusticum* has fibrous leaf base remains covering the upper portion of the rootstock, whereas the rootstock of *Conioselinum* is smooth and dark brown. The roots of *C. scopulorum* are smaller and less odorous.

Also, *C. scopulorum* has at least one partial circle of fiber bundles in the rhizomatous portion, though not the root, and more layers of the root bark are corky. If adulteration of sliced material with *C. scopulorum* is suspected, thin

slices from the rootstock portion may be checked for the presence of fiber bundles. Fiber bundles are most easily observed by using a stain for lignin; the simplest of these is to place thin hand-sections in a drop of phloroglucinol solution (1% to 2% in 95% ethanol) and add a small drop of hydrochloric acid. In all roots, the xylem will turn red; fiber bundles will show up as additional deep red spots at the outside of the vascular tissue. This feature can be observed with a dissecting microscope.

#### References:

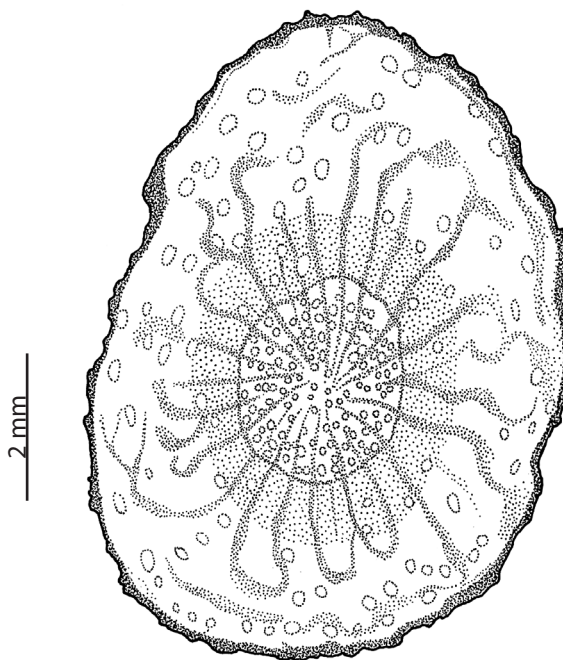
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**Figure 38:** *Ligusticum porteri* root cross-section.