



## *Lomatium dissectum* – Lomatium

### ***Lomatium dissectum* 1:2 Fluid extract**

**Common Names:** Lomatium, Fern-leaf Biscuitroot, Desert Parsley, Cough Root, Indian Balsam

**Botanical family:** Apiaceae

**Part Used:** Root

**Dosage:** 15-40 ml per week

**Primary Active Constituents:** Major constituents are furanocoumarins; flavonoids; ichthyotoxic tetronic acids; Z-ligustilide; terpenes, sesquiterpenes, ascorbic acid, essential oil compounds.

**Warnings & Contraindications:** Phytosensitivity rash (rare), nausea (uncommon). Caution should be used with those sensitive to plants within the Apiaceae family. Possible additive effects to anticoagulant medications, therefore avoid before surgery. Best avoided during pregnancy and breastfeeding as safety not established.

**Primary Actions:** Antibacterial; Antimicrobial; Antiseptic; Antiviral; Expectorant (stimulating), Immune stimulant.

**Main Indications:** Specific for respiratory infections & high fevers, coughs, colds, influenza, pneumonia, tuberculosis, SARS and asthma; as well as other infections & related conditions including rotovirus, EBV, CMV, chronic fatigue syndrome, HIV, Hepatitis C, gingivitis, periodontal disease, candidiasis, urinary tract infections, shigellosis, viral encephalitis. Topically used for wounds, boils, warts, sores, burns, sprains & rheumatism.

### **Historical Use & Research Summary**

*Lomatium dissectum* (Lomatium) is a long-lived, slow-growing, tap-rooted, semi-arid perennial native of the Great plains, deserts and high mountains of the Pacific North West of North America (Buhner, 2013; Tilley, 2010; Meilleur, 1990). There are approximately 70-80 different species of Lomatium, and several species are used medicinally, however the most widely used is *Lomatium dissectum* (formerly classified as *Leptotaenia dissecta* until 1942) (Drum, 2006; Henry, 2009).

The species has been used for hundreds of years for food, medicine and ceremonial purposes by the native peoples of North America, and prized as a panacea for a myriad of health conditions (Buhner, 2013; Keville, 2003). It first came to prominent attention during the great influenza pandemic of 1918-1920, where a US physician working with the Washoe people of Northern Nevada reported a significant reduction in mortality amongst the native people using the herb compared to the general population (Ackerson, 2005; Buhner 2013).

Native Americans used Lomatium widely in human and veterinary medicine. Internally, it was used as an infusion, decoction or smoke to treat respiratory infections such as coughs, colds, sore throats, bronchitis, pneumonia and tuberculosis. External applications included as a wash, poultice, rub or steam bath for rashes, cuts, sores, smallpox, wounds, parasitic infections, swellings, sprains and broken bones (Meilleur, 1990; Keville, 2003; McCutcheon, 1995).

## Research Summary continued

### Antiviral / Immune enhancing activity

Lomatium is considered the primary antiviral herb by the US herbal community (Buhner, 2013), however despite a rich ethnobotanical heritage, there is limited scientific research on the plant (Zamacheck, 2014). Clinical reports demonstrate its wide use for a range of viral conditions, from the traditional use against respiratory and urinary tract infections, to apparent efficacy against chronic "slow" viral infections such as Epstein Barr virus, cytomegalovirus and human herpes viruses (Buhner, 2013; Ackerson, 2005; Adams Herbs, 2009).

It is thought that the antiviral activity of Lomatium is associated with the strongly aromatic, bitter and oily qualities of the mature roots (Buhner, 2013). The compounds within Lomatium penetrate the viral coat and inhibit ribonucleo-protein complex associated activity (Buhner, 2013). Lomatium seems to be exceptionally potent against H1N1 influenza viruses (Buhner, 2013). A recent *in vitro* study demonstrated an aqueous extract of Lomatium inhibited the secretion of chemokine CXCL10, high levels of which are correlated with a poor prognosis in influenza A infection (Zamacheck, 2014). A 1995 study reported in the Journal of Ethnopharmacology found Lomatium was the only extract to demonstrate activity against rotavirus, the diarrhoea causing double-stranded RNA virus which is a major global infectious disease causing gastroenteritis, by completely inhibiting the virus' cytopathic effects (Ackerson, 2005; McCutcheon, 1995). Additionally, a preliminary *in vitro* study of a related species, *Lomatium suksdorfii*, has demonstrated HIV-1 replication inhibition by virtue of the coumarin constituent suksdorfin, suggesting possible use in treatment of HIV infection (Lee, 1994).

Lomatium is also a stimulating expectorant, and may enhance immunity in the mucosa by increasing mucosal secretions of IgA antibodies (Bergner, 2005). Its traditional applications in bacterial and allergic respiratory conditions suggest either a local or systemic enhancement of host resistance, and possibly antispasmodic or anti-inflammatory effects (Bergner, 2005).

### Antimicrobial / Antibiotic activity

The Lomatium spp. contains a number of chemically unique coumarins including pyranocoumarins, furanocoumarins, prenyloxy coumarins, and prenyloxyfuranocoumarins which are thought to contribute to its strong antimicrobial activity (Buhner, 2013). Early preclinical studies conducted in 1948 & 1949 found antibacterial activity of aromatic extracts from *L. dissectum* to be active against a broad range of mostly gram-positive bacteria, as well as some gram-negative bacteria, including *Vibrio comma* and *Neisseria catarrhalis*; efficacy against a range of moulds and fungi was also reported (Buhner, 2013; Matson, 1949; Carlson, 1948).

*In vitro* evidence suggests that an extract of *L. dissectum* has antimicrobial activity against methicillin-resistant *Staphylococcus aureus*, *Corynebacterium michiganense*, *Bacillus cereus*, *Xanthomonas campestris*, *Phythium ultimum*, and *Rhizoctonia solani* (Natural Medicine, 2015).

This antimicrobial effect has been attributed to the presence

of tetronic acid constituents, known as 2-alkenyl-3-hydroxy-penta-2,4-dien-4-olides (Natural Medicine, 2015; Van Wagenen, 1986).

Lomatium has also shown efficacy against *Mycobacterium tuberculosis*, the primary bacteria responsible for tuberculosis infection, as well as two associated and hard-to-treat bacterial species, *M. avium* and *M. intracellulare*, (commonly referred to as M. avium complex or MAC). These are again emerging as important pathogens due to their increased incidence associated with AIDS, and multi-drug resistant strains of *M. tuberculosis* and *M. avium* (McCutcheon, 1997). *In vitro* studies demonstrated a methanolic extract of Lomatium root completely inhibited growth of these bacteria, with Lomatium's furanocoumarin constituents thought to be responsible for the anti-mycobacterial effect (McCutcheon, 1997).

### References

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## *Lomatium dissectum*

### Suggested Combinations

#### Influenza

- Echinacea
- Pleurisy root
- Andrographis

#### Viral infection (general)

- Astragalus
- Olive leaf
- Elderberry

#### Herpes infection (topical)

- Calendula
- Lemon Balm
- St John's wort

#### Tuberculosis

- Pelargonium
- Pukatea

