**Elecampane**

*Species (Family)*

*Inula helenium* L. (Asteraceae/Compositae)

**Synonym(s)**

Alant, *Aster helenium* (L.) Scop., *Aster officinalis* All., *Helenium grandiflorum* Gilib., Horseheal, Inula, Scabwort, Yellow Starwort

An elecampane extract has been referred to as helenin. Alantolactone is also known as elecampane camphor, alant camphor, helenin and inula camphor.

**Part(s) Used**

Rhizome, root

**Pharmacopoeial and Other Monographs**

BHC 1992\(^{(G6)}\)
BHP 1996\(^{(G9)}\)
Martindale 32nd edition\(^{(G43)}\)
PDR for Herbal Medicines 2nd edition\(^{(G36)}\)

**Legal Category (Licensed Products)**

GSL\(^{(G37)}\)

**Constituents\(^{(G2,G6,G41,G64)}\)**

**Carbohydrates** Inulin (up to 44%), mucilage.

**Terpenoids** β- and γ-sitosterols, stigmasterol and damaradienol (sterols), friedelin.

**Volatile oils** 1–4%. Mainly contains sesquiterpene lactones including alantolactone, isoalantolactone and dihydroalantolactone (eudesmanolides), alantic acid and azulene.

**Other constituents** Resin.

**Pharmacological Actions**

**In vitro and animal studies**

Elecampane infusion has exhibited a pronounced sedative effect in mice.\(^{(G41)}\) Alantolactone has been reported to exhibit hypotensive, hyperglycaemic (large doses) and hypoglycaemic (smaller doses) actions in animals.\(^{(G41)}\) Antibacterial properties have also been documented. Alantolactone and isoalantolactone have been reported to exhibit high bactericidal and fungicidal properties *in vitro*.\(^{(G41)}\)

The volatile oil has been reported to exert a potent smooth muscle relaxant effect *in vitro* on guinea-pig ileal and tracheal muscle.\(^{(1)}\)

Various activities have been documented for *Inula racemosa*: an extract lowered plasma insulin and glucose concentrations in rats 75 minutes after oral administration,\(^{(2)}\) counteracted adrenaline-induced hyperglycaemia in rats,\(^{(2)}\) exhibited negative inotropic and chronotropic effects on the frog heart,\(^{(2)}\) and
provided a preventative and curative action against experimentally induced myocardial infarction in rats. Pretreatment was found to be most effective.

Sesquiterpene lactones with antitumour activity have been isolated from *Helenium microcephalum.*

**Clinical studies**

Alantolactone has been used as an anthelmintic in the treatment of roundworm, threadworm, hookworm and whipworm infection.

*Inula racemosa* has been reported to prevent ST-segment depression and T-wave inversion in patients with proven ischaemic heart disease, and to have a beneficial effect on angina pectoris.

**Side-effects, Toxicity**

Elecampane has been reported to cause allergic contact dermatitis. Sensitising properties have been documented for the volatile oil and for alantolactone and isoalantolactone. In *vitro* cytotoxicity has been reported for alantolactone and isoalantolactone.

**Contraindications, Warnings**

Elecampane may cause an allergic reaction, particularly in individuals with an existing allergy or sensitivity to other plants in the Asteraceae family. Elecampane may interfere with existing hypoglycaemic and antihypertensive treatment.

**Pregnancy and lactation**

The safety of elecampane taken during pregnancy has not been established. In view of the lack of toxicity data, the use of elecampane during pregnancy and lactation should be avoided.

**Pharmaceutical Comment**

The pharmacological actions documented for elecampane seem to be attributable to the sesquiterpene lactone constituents, in particular alantolactone and isoalantolactone. The demulcent action of mucilage and reported *in vivo* antispasmodic activity of the volatile oil support the traditional uses of this remedy in coughs. In addition, alantolactone has been utilised as an anthelmintic. A number of interesting cardiovascular activities have been documented for a related species, *I. racemosa.* Whether the constituents responsible for these actions are also present in elecampane is unclear. In view of the paucity of toxicity data for elecampane, excessive or prolonged use should be avoided.

**References**

*See also* General References G2, G6, G9, G16, G31, G36, G37, G41, G43, G48, G51, G58 and G64.

7. Stampf JL et al. The sensitising capacity of helenin and two of its main constituents the sesquiterpene lactones alantolactone and isoalantolactone: a comparison of epicutaneous and intradermal sensitising methods in different strains of guinea pig. *Contact Dermatitis* 1982; 8: 16-24.