

Eucalyptus

Species (Family)

Eucalyptus globulus Labill. (Myrtaceae)

Synonym(s)

Fevertree, Gum Tree, Tasmanian Bluegum

Part(s) Used

Leaf

Pharmacopoeial and Other Monographs

BHP 1996^(G9)

BP 2001^(G15)

Complete German Commission E^(G3)

Martindale 32nd edition^(G43)

PDR for Herbal Medicines 2nd edition^(G36)

Ph Eur 2002^(G28)

Legal Category (Licensed Products)

GSL^(G37)

Constituents^(G2,G22,G41,G48,G64)

Flavonoids Eucalyptin, hyperoside, quercetin, quercitrin and rutin.

Volatile oils 0.5–3.5%. Eucalyptol (cineole) 70–85%. Others include monoterpenes (e.g. α -pinene, β -pinene, *d*-limonene, *p*-cymene, α -phellandrene, camphene, γ -terpinene) and sesquiterpenes (e.g. aromadendrene, alloaromadendrene, globulol, epiglobulol, ledol, viridiflorol), aldehydes (e.g. myrtenal) and ketones (e.g. carvone, pinocarvone).

Other constituents Tannins and associated acids (e.g. gallic acid, protocatechuic acid), caffeic acid, ferulic acids, gentisic acid, resins and waxes

Food Use

Eucalyptus is listed by the Council of Europe as a natural source of food flavouring (leaves, flowers and preparations: category N4, with limits on eucalyptol) (see Appendix 23).^(G17) Both eucalyptus and eucalyptol (cineole) are used as flavouring agents in many food products.^(G41) In the USA, eucalyptus is

approved for food use and eucalyptol is listed as a synthetic flavouring agent.^(G41)

Herbal Use

Eucalyptus leaves and oil have been used as an antiseptic, febrifuge and expectorant.^(G2,G41,G64)

Dosage

Eucalyptol (cineole BPC 1973) 0.05–0.2 mL.

Eucalyptus Oil (BPC 1973) 0.05–0.2 mL.

Fluid extract 2–4 g.

Oil for local application 30 mL oil to 500 mL lukewarm water.

Pharmacological Actions

In vitro and animal studies

Hypoglycaemic activity in rabbits has been documented for a crude leaf extract rich in phenolic glycosides. Purification of the extract resulted in a loss of activity.^(G41) Expectorant and antibacterial activities have been reported for eucalyptus oil and for eucalyptol.^(G41) Various *Eucalyptus* species have been shown to possess antibacterial activity against both Gram-positive and Gram-negative organisms. Gram-positive organisms were found to be the most sensitive, particularly *Bacillus subtilis* and *Micrococcus glutamiosus*.⁽¹⁾

In vitro antiviral activity against influenza type A has been documented for quercitrin and hyperoside.^(G41)

Clinical studies

Eucalyptus oil has been taken orally for catarrh, used as an inhalation and applied as a rubefacient.^(G45) A plant preparation containing tinctures of various herbs including eucalyptus has been used successfully in the treatment of chronic suppurative otitis.⁽²⁾ The efficacy of the preparation was attributed to the antibacterial and anti-inflammatory actions of the herbs included.

Side-effects, Toxicity

Externally, eucalyptus oil is stated to be generally non-toxic, non-sensitising and non-phototoxic.^(G58) Undiluted eucalyptus oil is toxic and should not be taken internally. A dose of 3.5 mL has proved fatal.^(G45) Symptoms of poisoning with eucalyptus oil include epigastric burning, nausea and vomiting, dizziness, muscular weakness, miosis, a feeling of suffocation, cyanosis, delirium and convulsions.

Contra-indications, Warnings

Eucalyptus may interfere with existing hypoglycaemic therapy. Eucalyptus oil should be diluted before internal or external use.

Pregnancy and lactation Eucalyptus oil should not be taken internally during pregnancy.

Pharmaceutical Comment

Eucalyptus is characterised by its volatile oil components. Antiseptic and expectorant properties have been attributed to the oil, in particular to the principal component eucalyptol. The undiluted oil is toxic if taken internally. Essential oils should not be applied to the skin unless they are diluted with a carrier vegetable oil.

References

See also General References G2, G3, G9, G15, G16, G19, G22, G28, G31, G36, G37, G41, G43, G48, G58 and G64.

- 1 Kumar A *et al.* Antibacterial properties of some *Eucalyptus* oils. *Fitoterapia* 1988; 59: 141-144.
- 2 Shaparenko BA *et al.* On use of medicinal plants for treatment of patients with chronic suppurative otitis. *Zh Ushn Gorl Bolezn* 1979; 39: 48-51.