

Species (Family)

Tanacetum vulgare L. (Asteraceae/Compositae)

Synonym(s)

Chrysanthemum vulgare (L.) Bernh., *Tanacetum*

Part(s) Used

Herb

Pharmacopoeial and Other Monographs

BHP 1983^(G7)

PDR for Herbal Medicines 2nd edition^(G36)

Legal Category (Licensed Products)

Tansy is not included in the GSL.^(G37)

Constituents^(G22,G51,G64)

Steroids β -Sitosterol (major), campesterol, cholesterol, stigmasterol and taraxasterol.⁽¹⁾

Terpenoids α -Amyrin (major), β -amyrin, sesquiterpene lactones including arbusculin-A, tanacetin, germacrene D, crispolide,^(2,3) tanacetols A and B.^(4,5)

Volatile oils 0.12–0.18%. Major components as β -thujone (up to 95%) and camphor, others include α -pinene, borneol, 1,8-cineole, umbellone and sabinene. At least ten different chemotypes have been identified in which camphor was the most frequently occurring main component and thujone second.⁽⁴⁾

Other constituents Gum, mucilage, resin and tannins.

Food Use

Tansy is listed by the Council of Europe as a natural source of food flavouring (Category N3). This category indicates that tansy can be added to foodstuffs in the traditionally accepted manner, although there is insufficient information for an adequate assessment of potential toxicity. In addition, the Council of Europe recommends that the concentration of thujones present in food products is restricted to 0.5 mg/kg.^(G16) Tansy oil is prohibited from use as a food flavouring

by the Food Additives and Contaminants Committee (FACC) in view of the thujone content.^(G44)

In the USA, tansy is prohibited from sale by botanical dealers or by mail order as the dried herb.^(G22)

Herbal Use

Tansy is stated to possess anthelmintic, carminative and antispasmodic properties and to act as a stimulant to abdominal viscera. Traditionally, it has been used for nematode infestation, topically for scabies (as a decoction) and pruritus ani (as an ointment), and specifically for roundworm or threadworm infestation in children.^(G7)

Dosage

Dried herb 1–2 g or by infusion three times daily.^(G7)

Liquid extract 1–2 mL (1:1 in 25% alcohol) three times daily.^(G7)

Pharmacological Actions

In vitro and animal studies

In vitro antispasmodic activity on rabbit intestine, and *in vivo* choleric activity in the dog have been documented for tansy extracts.⁽⁶⁾ It was suggested that the choleric action might be attributable to caffeic acid, a known bile stimulant that is present in tansy.⁽⁶⁾ Anthelmintic activity in dogs has been described for tansy oil, an ether extract of the oil, and for β -thujone.⁽⁶⁾ Daily intragastric doses of a tansy extract given to rabbits have been found to reduce serum lipid concentrations and inhibit further development of hypercholesterolaemia.⁽⁶⁾ In addition, it was noted that recovery of blood sugar concentrations was inhibited in animals given twice daily doses. *In vitro* antifungal activity in 15 pathogenic and non-pathogenic fungi has been reported.⁽⁶⁾

Clinical studies

Aqueous infusions and alcoholic extracts have been reported to be clinically effective bile stimulants in patients with liver and gall bladder disorders.⁽⁶⁾ The treatment alleviated pain and increased appetite and digestion.

Side-effects, Toxicity^(G58)

Tansy oil contains the toxic ketone β -thujone. Symptoms of tansy oil poisoning are attributable to the thujone content and include rapid and weak pulse, severe gastritis, violent spasms and convulsions.^(G22) Documented fatalities have mainly been associated with ingestion of the oil, although fatal cases of poisoning have occurred with infusions and powders.^(6,7) An oral LD₅₀ value for tansy oil is stated as 1.15 g/kg body weight.⁽⁷⁾ The ratio of toxic to therapeutic dose has been reported as 2.5:1 and it was noted that all tansy preparations should be administered with castor oil.⁽⁶⁾ Tansy yields potentially allergenic sesquiterpene lactones which have been implicated in the aetiology of contact dermatitis. Instances of contact dermatitis to tansy have been documented.^(6,G51)

In vitro and *in vivo* antitumour activity has been documented for tansy.⁽⁶⁾

Contra-indications, Warnings

Tansy oil is toxic and should not be used internally or externally.^(G58) Fatalities have been reported following ingestion of infusions and extracts. Tansy contains allergenic sesquiterpene lactones and may cause an allergic reaction. Tansy has been reported to affect blood sugar concentrations in animals and may interfere with hypoglycaemic therapy.

Pregnancy and lactation Tansy is contra-indicated in pregnancy and lactation. Tansy is reputed to affect the menstrual cycle and uteroactivity has been documented in animal studies. The volatile oil contains β -thujone, a known hepatotoxin.

Pharmaceutical Comment

Pharmacological activities documented for tansy have been associated with the sterol and triterpene constituents. Tansy yields an extremely toxic volatile oil, which should not be used internally or externally.^(G58) In view of this, the use of tansy as a herbal remedy is not justified even though documented studies have supported the traditional uses of the herb as a choleric and anthelmintic agent.

References

See also General References G7, G16, G22, G31, G32, G36, G37, G44, G51, G58 and G64.

- 1 Chandler RF *et al.* Herbal remedies of the Maritime Indians: Sterols and triterpenes of *Tanacetum vulgare* L. (Tansy). *Lipids* 1982; 17: 102-106.
- 2 Chandra A *et al.* Germacranolides and an alkyl glucoside from *Tanacetum vulgare*. *Phytochemistry* 1987; 26: 1463-1465.
- 3 Appendino G. Crispolide, an unusual hydroperoxy-sesquiterpene lactone from *Tanacetum vulgare*. *Phytochemistry* 1982; 21: 1099-1102.
- 4 Holopainen M *et al.* A study on tansy chemotypes. *Planta Med* 1987; 53: 284-287.
- 5 Appendino G *et al.* Tanacetols A and B, non-volatile sesquiterpene alcohols, from *Tanacetum vulgare*. *Phytochemistry* 1983; 22: 509-512.
- 6 Opdyke DLJ. Tansy oil. *Food Cosmet Toxicol* 1976; 14: 869-871.
- 7 Hardin JW, Arena JM, eds. *Human Poisoning from Native and Cultivated Plants*, 2nd edn. North Carolina: Duke University, 1974: 150-153.