

Damiana

Species (Family)

Turnera diffusa Willd. var. *aphrodisiaca* Urb. (Bigno-Turneraceae) and related species indigenous to Texas and Mexico.

Synonym(s)

Damiana aphrodisiaca, *Turnera*, *Turnera aphrodisiaca* L.F. Ward, *Turnera microphyllia* Desv.

Part(s) Used

Leaf, stem

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^(G6,G22,G40,G41,G64)

Carbohydrates Gum 13.5%, starch 6%, sugars.

Cyanogenetic glycosides Tetraphyllin B.⁽¹⁾

Phenolic glycoside Arbutin (up to 0.7%).⁽²⁾

Tannins 3.5%. Type unspecified.

Volatile oils 0.5–1.0%. At least 20 components including 1,8-cineole (11%), *p*-cymene (2%), α - and β -pinene (2%), thymol, α -copaene, δ -cadinene and calamene. The presence of 1,8-cineole and *p*-cymene has been disputed.⁽²⁾

Other constituents Acids (fatty, plant), alkanes (e.g. hexacosanol-1 and triacontane), damianin (7%) (a bitter principle), flavone, β -sitosterol, resin (6.5%).⁽³⁾

Food Use

Damiana is used in foods and is listed by the Council of Europe as a natural source of food flavouring

(category N2). This category indicates that damiana can be added to foodstuffs in small quantities with a possible limitation of an active principle (as yet unspecified) in the final product.^(G16) In the USA, damiana is approved for food use.^(G41)

Herbal Use

Damiana is stated to possess antidepressant, thymoleptic, mild purgative, stomachic and reputedly aphrodisiac properties.⁽⁴⁾ It has been used for depression, nervous dyspepsia, atonic constipation, coital inadequacy, and specifically for anxiety neurosis with a predominant sexual factor.^(G6,G7,G8,G64)

Dosage

Dried leaf 2–4 g or by infusion three times daily.^(G6,G7)

Liquid Extract of Damiana (BPC 1934) 2–4 mL.

Pharmacological Actions

In vitro and animal studies

Hypoglycaemic activity has been reported in mice following both oral and intraperitoneal administration of damiana.⁽⁵⁾ An ethanolic extract was stated to exhibit CNS-depressant activity although no other experimental details were available.⁽⁶⁾

Antibacterial activity against *Escherichia coli*, *Proteus mirabilis*, *Pseudomonas aeruginosa* and *Staphylococcus aureus* has been documented for a mixed herbal preparation, with some of the activity attributed to damiana.⁽⁷⁾ The same herbal preparation was also reported to inhibit acetylcholine-induced spasm of the isolated guinea-pig ileum, although none of the antispasmodic activity was attributed to damiana.⁽⁷⁾

Arbutin is stated to be responsible for the urinary antiseptic properties (*see Uva-ursi*). However, the arbutin content of damiana is much less than that quoted for *uva-ursi* (0.7% and 5 to 18%, respectively).

The roots of various *Turnera* species have exhibited utero-activity.^(G30)

Clinical studies

A herbal preparation containing damiana as one of the ingredients was reported to have a favourable effect on the symptoms of irritable bladder associated with functional and neurohormonal disorders, and on bacterial bladder infections.⁽⁷⁾

Side-effects, Toxicity

Tetanus-like convulsions and paroxysms resulting in symptoms similar to those of rabies or strychnine poisoning have been described in one individual following the ingestion of approximately 200 g damiana extract; cyanide poisoning was considered to be a possible cause. No other reported side-effects for damiana were located.

High doses of arbutin (e.g. 1 g) are considered to be toxic, although the concentration of arbutin documented for damiana (1 g arbutin is equivalent to more than 100 g plant material) is probably too low to warrant concerns over safety.

Contra-indications, Warnings

Excessive use should be avoided because of the presence of cyanogenetic glycosides and arbutin; damiana may interfere with existing hypoglycaemic therapy.

Pregnancy and lactation The safety of damiana has not been established. In view of the lack of toxicity data and possible cyanogenetic constituents, doses greatly exceeding amounts used in foods should not be taken during pregnancy or lactation.

Pharmaceutical Comment

There is limited chemical information available on damiana. There has been little documented evidence to justify the herbal uses, and the reputation of damiana as an aphrodisiac is unproven.^(7,8) In view of the lack of toxicity data and reported cyanogenetic and arbutin constituents, excessive use of damiana should be avoided.

References

See also General References G6, G9, G10, G16, G22, G30, G31, G32, G36, G37, G40, G41, G43 and G64.

- 1 Spencer KC, Siegler DS. Tetraphyllin B from *Turnera diffusa*. *Planta Med* 1981; 43: 175-178.
- 2 Auterhoff H, Häufel H-P. Inhaltsstoffe der damiana-droge. *Arch Pharm* 1968; 301: 537-544.
- 3 Domínguez XA, Hinojosa M. Mexican medicinal plants. XXVIII Isolation of 5-hydroxy-7,3',4'-trimethoxy-flavone from *Turnera diffusa*. *Planta Med* 1976; 30: 68-71.
- 4 Braun JK, Malone MH. Legal highs. *Clin Toxicol* 1978; 12: 1-31.
- 5 Pérez RM *et al.* A study of the hypoglycemic effect of some Mexican plants. *J Ethnopharmacol* 1984; 12: 253-262.
- 6 Jiu J. A survey of some medical plants of Mexico for selected biological activity. *Lloydia* 1966; 29: 250-259.
- 7 Westendorf J. Carito-In-vitro-Untersuchungen zum Nachweis spasmolytischer und kontraktiler Einflüsse. *Therapiewoche* 1982; 32: 6291-6297.
- 8 Lowry TP. Damiana. *J Psychoactive Drugs* 1984; 16: 267-268.