Holy Thistle

Species (Family)

Cnicus benedictus L. (Asteraceae/Compositae)

Synonym(s)

Blessed Thistle, Carbenia Benedicta, Carduus Benedictus, Cnicus

Part(s) Used

Herb

Pharmacopoeial and Other Monographs

BHC 1992[G6]
BHP 1996[G9]
Complete German Commission E[G3]
Martindale 32nd edition[G43]
PDR for Herbal Medicines 2nd edition[G36]

Legal Category (Licensed Products)

GSL[G37]

Constituents[G2,G6,G30,G40,G62,G64]

Lignans Arctigenin, nortracheloside, 2-acetyl nortracheloside and trachelogenin.[1]

Polyenes Several polyacetylenes.[2]

Steroids Phytosterols (e.g. *n*-nonacosan, sitosterol, sitosteryl glycoside, stigmasterol).[3]

Tannins Type unspecified (8%).

Terpenoids Sesquiterpenes including cnicin 0.2–0.7%,[4] yielding salonitenolide as aglycone,[5] and artemisiifolin. Shoot and flowering head are reported to be devoid of cnicin.[4] Triterpenoids including α-amyrenone, α-amyrin acetate, α-amyrine, multiflorenol, multiflorenol acetate and oleanolic acid.[3]

Volatile oils Many components, mainly hydrocarbons.[6]

Other constituents Lithospermic acid, mucilage, nicotinic acid and nicotinamide complex, resin.

Food Use

Holy thistle is listed by the Council of Europe as natural source of food flavouring (category N2). This category indicates that holy thistle 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, holy thistle is permitted for use in alcoholic beverages.[G65]

Herbal Use[G2,G6,G7,G8,G64]

Holy thistle is stated to possess bitter stomachic, antidiarrhoeal, antihaemorrhagic, febrifuge, expectorant, antibiotic, bacteriostatic, vulnerary and antiseptic properties. Traditionally, it has been used for anorexia, flatulent dyspepsia, bronchial catarrh, topically for gangrenous and indolent ulcers, and specifically for atonic dyspepsia, and enteropathy with flatulent colic.

Dosage

Dried flowering tops 1.5–3.0 g or by infusion three times daily.[G6,G7]

Liquid extract 1.5–3.0 mL (1:1 in 25% alcohol) three times daily.[G6,G7]

Pharmacological Actions

In vitro and animal studies

Antibacterial activity has been reported for an aqueous extract of the herb, for cnicin, and for the volatile oil.[6–9] Activity has been documented against *Bacillus subtilis*, *Brucella abortus*, *Brucella bronchoseptica*, *Escherichia coli*, *Proteus* species, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Streptococcus faecalis*. The antimicrobial activity of holy thistle has been attributed to cnicin and to the polyacetylene constituents.[9]

Cnicin has exhibited *in vivo* anti-inflammatory activity (carrageenan-induced rat-paw oedema test) virtually equipotent to indomethacin.[004,] Antitumour activity has been documented in mice against sarcoma 180 for the whole herb,[8] and against lymphoid leukaemia for cnicin;[8] cnicin has also been reported to exhibit *in vitro* activity against KB

cells.[8] An α-methylene-γ-lactone moiety is thought to be necessary for the antibacterial and antitumour activities of cnicin.[8]

Lithospermic acid is thought to be responsible for the antigonadotrophic activity documented for holy thistle.[G30] The sesquiterpene lactone constituents are stated to be bitter principles.[G62]

Tannins are generally known to possess astringent properties.

Side-effects, Toxicity

None documented for holy thistle. The toxicity of cnicin has been studied in mice: the acute oral LD_{50} was stated to be 1.6–3.2 mmol/kg body weight and intraperitoneal administration was reported to cause irritation of tissue. In the writhing test, cnicin was found to cause abdominal pain with an ED_{50} estimated as 6.2 mmol/kg.[4]

Antitumour activity has been documented for the whole herb and for cnicin (*see In vitro* and animal studies).

Contra-indications, Warnings

None documented for holy thistle. Plants containing sesquiterpene lactones with an α-methylene-γ-lactone moiety are generally considered to be allergenic, although no documented hypersensitivity reactions to holy thistle were located. Holy thistle may cause an allergic reaction in individuals with a known hypersensitivity to other members of the Compositae (e.g. chamomile, ragwort, tansy).

Pregnancy and lactation The safety of holy thistle has not been established. In view of the lack of toxicity data, excessive use of holy thistle during pregnancy and lactation should be avoided.

Pharmaceutical Comment

The chemistry of holy thistle is well documented and the available pharmacological data support most of the stated herbal uses, although no references to human studies were located. In view of the lack of toxicity data, excessive use of holy thistle should be avoided.

References

See also General References G2, G3, G6, G9, G16, G30, G31, G36, G37, G40, G43, G56, G62 and G64.

1 Vanhaelen M, Vanhaelen-Fastré R. Lactonic lignans from *Cnicus benedictus*. *Phytochemistry* 1975; 14: 2709.

2 Vanhaelen-Fastré R. Constituents polyacetyleniques de *Cnicus benedictus* L. *Planta Med* 1974; 25: 47–59.

3 Ulubelen A, Berkan T. Triterpenic and steroidal compounds of *Cnicus benedictus*. *Planta Med* 1977; 31: 375–377.

4 Schneider G, Lachner I. A contribution to analytics and pharmacology of Cnicin. *Planta Med* 1987; 53: 247–251.

5 Vanhaelen-Fastré R, Vanhaelen M. Presence of saloniténolide in *Cnicus benedictus*. *Planta Med* 1974; 26: 375–379.

6 Vanhaelen-Fastré R. Constitution and antibiotical properties of the essential oil of *Cnicus benedictus*. *Planta Med* 1973; 24: 165–175.

7 Cobb E. Antineoplastic agent from *Cnicus benedictus*. British Patent 1,335,181 (Cl.A61k) 24 Oct 1973, Appl.54,800/69 (via *Chemical Abstracts* 1975; 83: 48189j).

8 Vanhaelen-Fastré R. Antibiotic and cytotoxic activities of cnicin isolated from *Cnicus benedictus*. *J Pharm Belg* 1972; 27: 683–688.

9 Vanhaelen-Fastré R. *Cnicus benedictus*: Separation of antimicrobial constituents. *Plant Med Phytother* 1968; 2: 294–299.