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Artichoke leaf

Latin Name: *Cynara scolymus*

Pharmacopeial Name: Cynarae folium

Other Names: globe artichoke

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Overview

Globe artichoke is a perennial herb native to Mediterranean southern Europe and northern Africa and the Canary Islands (Leung and Foster, 1996). Its cultivation in Europe dates back to ancient Greece and Rome (Grieve, 1971). It is cultivated in North Africa as well as in other subtropical regions (Iwu, 1993). The material of commerce comes as whole or cut dried leaves obtained mainly from southern Europe and northern Africa (BHP, 1996).

Artichoke leaf has been used as a choleric and diuretic in traditional European medicine since Roman times (Bianchini and Corbetta, 1977). Traditional medicinal uses of artichoke pertain to liver function. Artichoke leaf is considered choleric (bile increasing), hepatoprotective, cholesterol-reducing, and diuretic (Kirchhoff et al., 1994). In Germany, it is used today as a choleric (BAnz, 1998; Meyer-Buchtela, 1999) for its lipid-lowering, hepato-stimulating, and appetite-stimulating actions (Hnsel et al., 1992; Meyer-Buchtela, 1999). In German pediatric medicine, herbs with a relatively low bitter value (8002000), such as artichoke leaf, are considered suitable for the treatment of appetite disorders (Schilcher, 1997).

Modern human studies have investigated its choleric activity for treatment of digestive disorders (Kirchhoff et al., 1994). An article by Kraft summarized various post-marketing surveillance studies conducted on patients with dyspepsia and/or diseases of the liver or bile duct. The studies included anywhere from 417 to 557 patients and treatment duration ranged from 4 to 6 weeks. Statistically significant reduction of symptoms (e.g., abdominal pain, bloating, flatulence, and nausea) were reported for the surveillance studies referred to in this paper. Artichoke preparations were well tolerated (up to 95% of cases) with a low rate of side-effects (Kraft, 1997).

In one clinical trial, 20 men with acute or chronic metabolic disorders were separated at random into two groups. The test group was given a standardized artichoke extract (Hepar SL forte, Seturner, Germany) of 320 mg in a capsule dissolved in 50 ml water, taken intraduodenally. Results were assessed by measuring intraduodenal bile secretions, which increased 127.3% after 30 minutes, 151.5% after 60 minutes, and 94.3% after 90 minutes. The relative differences for the placebo were significant. The researchers concluded that artichoke extract can be used for the treatment of digestive disorders characterized by poor assimilation of fat due to insufficient bile secretion. No adverse side effects were observed (Kirchhoff et al., 1994).

Pharmacopeial grade artichoke leaf consists of the dried radical leaves of *Cynara scolymus* L. Botanical identification is carried out by thin-layer chromatography (TLC), macroscopic and microscopic evaluations, and organoleptic tests. The dried leaf must contain not less than 25% water-soluble extractive (BHP, 1996).

Description

Artichoke leaf consists of the fresh or dried leaf of *C. scolymus* L. [Fam. Asteraceae] and its preparations in effective dosage. The preparation contains caffeoylquinic acid derivatives such as cynarin and bitter principles.

Chemistry and Pharmacology

Artichoke leaf contains up to 2% phenolic acids, mainly 3-caffeoylquinic acid (chlorogenic acid), plus 1,5-di-*O*-caffeoylquinic acid (cynarin), and caffeic acid; 0.4% bitter sesquiterpene lactones of which 47.83% is cynaropicrin; 0.11.0% flavonoids including the glycosides luteolin-7-*b*-rutinoside (scolymoside), luteolin-7-*b*-*D*-glucoside and luteolin-4-*b*-*D*-glucoside; phytosterols (taraxasterol); sugars; inulin; enzymes; and a volatile oil consisting mainly of the sesquiterpenes *b*-selinene and caryophyllene (Hnsel et al., 1992; Leung and Foster, 1996; Meyer-Buchtela, 1999; Newall et al., 1996).

The Commission E reported choleric activity.

The *British Herbal Pharmacopoeia* reported hepatic action (BHP, 1996). *In vivo*, artichoke leaf has demonstrated hepatoprotective and hepatostimulating properties (Adzet et al., 1987; Maros et al., 1966). The *Merck Index* reported the therapeutic category of cynarin, an active principle of artichoke, as choleric (Budavari, 1996). The *African Pharmacopoeia* reported diuretic and anti-atherosclerotic actions (Iwu, 1993). Artichoke leaf has shown cholesterol-lowering and lipid-lowering activity in rats and humans (Lietti, 1977). Human studies have validated carminative, spasmolytic, antiemetic, and choleric actions (Kraft, 1997).

Uses

The Commission E approved artichoke leaf for dyspeptic problems.

The *African Pharmacopoeia* indicates its use for the treatment of liver dysfunction (Iwu, 1993). Preparations of artichoke have been used for bloating, nausea, and impairment of digestion (Bruneton, 1995). It is specifically indicated for 'dyspeptic syndrome' though its proven lipid-lowering actions suggest that it may also be useful as a prophylactic against atherosclerosis (Kraft, 1997).

Contraindications

Known allergies to artichokes and related species (Asteraceae or Compositae).

Obstruction of bile ducts.

In case of gallstones, use only after consulting a physician.

Side Effects

None known.

Use During Pregnancy and Lactation

No restrictions known.

Interactions with Other Drugs

None known.

Dosage and Administration

Unless otherwise prescribed: 6 g per day of dried cut leaves, pressed juice of fresh plant, and other equivalent galenic preparations for internal use.

Leaf: 2 g, three times daily.

Infusion: Artichoke leaf is not typically prepared as an infusion.

Dry extract 12:1 (w/w): 0.5 g single daily dose.

Fluidextract 1:1 (g/ml): 2 ml, three times daily.

Tincture 1:5 (g/ml): 6 ml, three times daily.

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Additional Resources

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1) The Overview section is new information.

2) Description, Chemistry and Pharmacology, Uses, Contraindications, Side Effects, Interactions with Other Drugs, and Dosage sections have been drawn from the original work. Additional information has been added in some or all of these sections, as noted with references.

3) The dosage for equivalent preparations (tea infusion, fluidextract, and tincture) have been provided based on the following example:

- Unless otherwise prescribed: 2 g per day of [powdered, crushed, cut or whole] [plant part]
- Infusion: 2 g in 150 ml of water
- Fluidextract 1:1 (g/ml): 2 ml
- Tincture 1:5 (g/ml): 10 ml

4) The References and Additional Resources sections are new sections. Additional Resources are not cited in the monograph but are included for research purposes.

This monograph, published by the Commission E in 1994, was modified based on new scientific research. It contains more extensive pharmacological and therapeutic information taken directly from the Commission E.

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