
# ARTICHOKE EXTRACT

**2 Fluid Ounces / 60 ml** **Retail Price: $21.95**

Artichoke is popular for its pleasant bitter taste, which is attributed mostly to a plant chemical called *cynarin* found in the green parts of the plant. Cynarin is considered one of artichoke's main biologically active chemicals. Other documented "active" chemicals include flavonoids, sesquiterpene lactones, polyphenols and caffeoylquinic acids. Raintree Nutrition's Concentrated Artichoke Extract uses new and proprietary extraction methods to concentrate and preserve the active ingredients found in this wonderful plant. Concentration and extraction methods provide the equivalent of 500 mg of artichoke leaf per milliliter of extract. For more information on artichoke, please see the Raintree website and online **Tropical Plant Database**.

**Traditional Uses**:* for gallstones and as a liver and gallbladder bile stimulant; for high cholesterol; for digestive disorders; for irritable bowel syndrome, Crohn's disease, and other bowel problems; to support liver function

**Ingredients:** Artichoke leaf (*Cynara scolymus*) extracted in distilled water, vegetable glycerine, and ethanol.
**Suggested Use:** 60 drops (2 ml) 2 or more times daily or as desired.
**Contraindications:** None known.
**Drug Interactions:** May enhance the effects of anti-cholesterol drugs.
**Other Observations:**

- Artichoke has demonstrated antihepatotoxic (liver detoxifying) effects in animal studies. This effect may speed the clearance of certain drugs required to be metabolized in the liver.

**Clinical Documentation and Research:*** This Raintree product has not been the subject of any clinical research. Available third-party documentation and published research on artichoke, can be found at the Raintree website and at **PubMed**. A partial listing of published research on artichoke is shown below:

**Anti-cholesterol Actions:**

Lupattelli, G., et al. "Artichoke juice improves endothelial function in hyperlipemia." *Life Sci*. 2004 Dec; 76(7): 775-82.
Thompson Coon, J. S., et al. "Herbs for serum cholesterol reduction: a systematic view." *J. Fam. Pract*. 2003; 52(6): 468-78.
Shimoda, H., et al. "Anti-hyperlipidemic sesquiterpenes and new sesquiterpene glycosides from the leaves of artichoke (*Cynara scolymus L.*): structure requirement and mode of action." *Bioorg. Med. Chem. Lett.* 2003; 13(2): 223–28.
Gebhardt, R. "Inhibition of cholesterol biosynthesis in HepG2 cells by artichoke extracts is reinforced by glucosidase pretreatment." *Phytother. Res.* 2002; 16(4): 368–72.
Wegener, T. "The status of herbal antilipemic agents." *Wien. Med. Wochenschr.* 2002; 152(15-16): 412-7.
Englisch, W., et al. "Efficacy of artichoke dry extract in patients with hyperlipoproteinemia." *Arzneimittelforschung* 2000; 40(3): 260–65.
Gebhardt, R. "Anticholestatic activity of flavonoids from artichoke (*Cynara scolymus* L.) and of their metabolites." *Med. Sci. Monit.* 2001 May; 7 Suppl 1:316-20.
Gebhardt, R. "Inhibition of cholesterol biosynthesis in primary cultured rat hepatocytes by artichoke (*Cynara scolymus L.*) extracts." *J. Pharmacol. Exp. Ther.* 1998; 286(3): 1122–28.
Brown, J. E., et al. "Luteolin-rich artichoke extract protects low density lipoprotein from oxidation *in vitro*." *Free Radic. Res.* 1990; 29(3): 247–55.
Wojcicki, J., et al. "Cynarin and hyperlipidemia" *Wiad. Lek*. 1977 Oct; 30(19): 1539-41.
Pristautz, H., et al. "Cynarin in the modern management of hyperlipemia." *Wien. Med. Wochenschr*. 1975; 125(49): 705–9.
Montini, M., et al. "Controlled application of cynarin in the treatment of hyperlipemic syndrome. Observations in

60 cases." *Arzneimittelforschung* 1975; 25(8): 1311–14.
Bobnis, W., et al. "Case of primary hyperlipemia treated with cynarin." *Wiad. Lek.* 1973; 26(13): 1267–70.
Grogan, J. L., et al. "Potential hypocholesterolemic agents: dicinnamoyl esters as analogs of cynarin." *J. Pharm. Sci.* 1972; 61(5): 802–3.

**Digestive Actions:**

Emendorfer, F., et al. " Antispasmodic activity of fractions and cynaropicrin from *Cynara scolymus* on guinea-pig ileum." *Biol. Pharm. Bull*. 2005; 28(5): 902-4.
Emendorfer, F., et al. "Evaluation of the relaxant action of some Brazilian medicinal plants in isolated guinea-pig ileum and rat duodenum." *J. Pharm. Pharm. Sci.* 2005 Mar; 8(1): 63-8.
Wittemer, S. M., et al. " Bioavailability and pharmacokinetics of caffeoylquinic acids and flavonoids after oral administration of Artichoke leaf extracts in humans." *Phytomedicine*. 2005; 12(1-2): 28-38.
Bundy, R., et al. "Artichoke leaf extract reduces symptoms of irritable bowel syndrome and improves quality of life in otherwise healthy volunteers suffering from concomitant dyspepsia: a subset analysis." *J. Altern. Complement. Med.* 2004 Aug; 10(4): 667-9.
Holtmann, G., et al. "Efficacy of artichoke leaf extract in the treatment of patients with functional dyspepsia: a six-week placebo-controlled, double-blind, multicentre trial." *Aliment. Pharmacol. Ther.* 2003 Dec; 18(11-12): 1099-105.
Walker, A. F., et al. "Artichoke leaf extract reduces symptoms of irritable bowel syndrome in a post-marketing surveillance study." *Phytother. Res.* 2001; 15(1): 58–61.
Wegener, T., et al. "Pharmacological properties and therapeutic profile of artichoke (*Cynara scolymus* L.)" *Wien. Med. Wochenschr*. 1999; 149(8-10): 241-7.

**Actions on Gallstones & the Gallbladder:**

Glasl, S., et al. "Choleretic effects of the Mongolian medicinal plant *Saussurea amara* in the isolated perfused rat liver." *Planta Med.* 2006 Dec 19;
Benedek, B., et al. "Choleretic effects of yarrow (*Achillea millefolium* S.L.) in the isolated perfused rat liver. *Phytomedicine*. 2006 Nov; 13(9-10): 702-6.
Hiner, A. N., et al. " Kinetic study of the effects of calcium ions on cationic artichoke (*Cynara scolymus L.*) peroxidase: calcium binding, steady-state kinetics and reactions with hydrogen peroxide." *Biochimie.* 2004; 86(9-10): 667-76.
Saenz Rodriguez, T., et al. "Choleretic activity and biliary elimination of lipids and bile acids induced by an artichoke leaf extract in rats." *Phytomedicine.* 2002 Dec; 9(8): 687-93.
Gebhardt, R. "Anticholestatic activity of flavonoids from artichoke (*Cynara scolymus L.*) and of their metabolites." *Med. Sci. Monit.* 2001; (7) Suppl. 1: 316–20.

**Liver Protective Actions:**

Speroni, E., et al. "Efficacy of different *Cynara scolymus* preparations on liver complaints." *J. Ethnopharmacol*. 2003 Jun; 86(2-3): 203-11.
Betancor-Fernandez, A., et al. "Screening pharmaceutical preparations containing extracts of turmeric rhizome, artichoke leaf, devil's claw root and garlic or salmon oil for antioxidant capacity." *J. Pharm. Pharmacol*. 2003; 55(7): 981-6.
Gebhardt, R. "Prevention of taurolithate-induced hepatic bile canalicular distortions by HPLC-characterized extracts of artichoke (*Cynara scolymus*) leaves." *Planta Med.* 2002; 68(9): 776–79.
Aktay, G., et al. "Hepatoprotective effects of Turkish folk remedies on experimental liver injury." *J. Ethnopharmacol*. 2000 Nov; 73(1-2): 121-9.
Adzet, T., et al. "Hepatoprotective activity of polyphenolic compounds from *Cynara scolymus* against $CCl_4$ toxicity in isolated rat hepatocytes." *J. Nat. Prod.* 1987; 50(4): 612–17.
Maros, T., et al. "Effects of *Cynara scolymus* extracts on the regeneration of rat liver. 1." *Arzneimittelforschung* 1966; 16(2): 127–29.

**Antioxidant & Cellular Protective Actions:**

Li, H., et al. "Flavonoids from artichoke (*Cynara scolymus* L.) up-regulate endothelial-type nitric-oxide synthase gene expression in human endothelial cells." *J. Pharmacol. Exp. Ther.* 2004 Sep; 310(3): 926-32.
Stoev, S. D., et al. "Experimental mycotoxicosis in chickens induced by ochratoxin A and penicillic acid and intervention with natural plant extracts." *Vet. Res. Commun.* 2004 Nov; 28(8): 727-46.

Jimenez-Escrig, A., et al. "*In vitro* antioxidant activities of edible artichoke (*Cynara scolymus L.*) and effect on biomarkers of antioxidants in rats." *J. Agric. Food Chem.* 2003 Aug; 51(18): 5540-5.
Wang, M., et al. "Analysis of antioxidative phenolic compounds in artichoke (*Cynara scolymus L.*)." *J. Agric. Food Chem.* 2003 Jan; 51(3): 601-8.
Llorach, R., et al. "Artichoke (*Cynara scolymus L.*) byproducts as a potential source of health-promoting antioxidant phenolics." *J. Agric. Food Chem.* 2002 Jun; 50(12): 3458-64.
Cervellati, R., et al. "Evaluation of antioxidant activity of some natural polyphenolic compounds using the Briggs-Rauscher reaction method." *J. Agric. Food Chem.* 2002 Dec; 50(26): 7504-9.
Zapolska-Downar, D., et al. "Protective properties of artichoke (*Cynara scolymus*) against oxidative stress induced in cultured endothelial cells and monocytes." *Life Sci.* 2002; 71(24): 2897.
Perez-Garcia, F., et al. "Activity of artichoke leaf extract on reactive oxygen in human leukocytes." *Free Rad. Res.* 2000; 33(5): 661–65.
Gebhardt, R., et al. "Antioxidative and protective properties of extracts from leaves of the artichoke (*Cynara scolymus* L.) against hydroperoxide-induced oxidative stress in cultured rat hepatocytes." *Toxicol. Appl. Pharmacol.* 1997; 144(2): 279–86.

**Antimicrobial Actions:**

Yang, B., et al. "Metabolic profile of 1,5-dicaffeoylquinic acid in rats, an in vivo and in vitro study." *Drug Metab. Dispos.* 2005; 33(7): 930-6.
Zhu, X. F., et al. "Antifungal activity of *Cynara scolymus* L. extracts." *Fitoterapia*. 2005; 76(1): 108-11.
Zhu, X., et al. "Phenolic compounds from the leaf extract of artichoke (*Cynara scolymus L.*) and their antimicrobial activities." *J. Agric. Food Chem*. 2004 Dec; 52(24): 7272-8.

This Raintree product is distributed through health food stores, health practitioners and by **Raintree Nutrition**. Please contact a health professional concerning other observations and/or effects of this product and/or if you have any disease, condition, or illness for which you are seeking treatment or products for.

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* The statements contained herein have not been evaluated by the Food and Drug Administration. This product is not intended to treat, cure, or prevent any disease.