

# Milk Thistle (*Silybum marianum*)

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**Claims** – Milk thistle is believed to be protective for the liver and improve its function. It is commonly used to treat cirrhosis, chronic hepatitis, and gallbladder disorders.<sup>1</sup> It has been recently suggested that it may help reduce liver toxicity associated with chemotherapy.<sup>2</sup> Other treatment claims include lowering cholesterol levels, reducing insulin resistance in people with type 2 diabetes who also have cirrhosis, and reducing growth of cancer cells in breast, cervical, and prostate cancers.<sup>1</sup>

Although used widely worldwide, with an estimated cost reaching \$180 million in Germany alone, there is little clinical evidence to recommend its use.<sup>3</sup> While animal studies have shown protection from hepatotoxins such as acetaminophen, radiation, and iron overload, no high-quality human trials have provided conclusive evidence to support or refute recommendation of this herbal for the treatment of liver disease or any other indication.<sup>3</sup> A recent Cochrane Collaboration review of randomized clinical trials found no significant effect of milk thistle on overall mortality of people with alcoholic and/or hepatitis B or C virus liver disease, whether looking at all combined trials or in the high-quality trials alone.<sup>4</sup>

**Dosage** – Silymarin, and one of its components silybin, are believed to be active components and are extracted from the seeds of the milk thistle plant to prepare capsules, extracts, powders, and tinctures.<sup>1</sup> Clinical studies have tended to use a range of 400 to 600 mg per day of milk thistle extract, standardized to 70% – 80% silymarin, which would provide about 300 – 450 mg of silymarin per day. In an independent analysis, the amounts of silymarin actually found in some available milk thistle supplements at their suggested daily serving sizes yielded anywhere from about 100 to 1,000 mg of silymarin per day.<sup>5</sup>



**Safety** – A review of randomized clinical trials of people with liver disease of various etiologies, indicates that milk thistle is safe and well-tolerated in recommended doses, with the same number of adverse events often reported in the placebo and experimental groups. However, milk thistle may produce an allergic response in individuals who are allergic to plants in the same family, such as ragweed, marigold, daisy, chrysanthemum.<sup>1</sup> Furthermore, few studies have tested the effects of milk thistle on otherwise healthy individuals, and thus caution should be taken.

**Drug-Herb Interaction** - Although drug interactions have not been reported, milk thistle might reduce the effectiveness of oral contraceptives and it might inhibit cytochrome P450 2C9, increasing the levels of certain drugs metabolized by it such as amitriptyline, diazepam, verapamil, and warfarin.<sup>3</sup>

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1. <http://nccam.nih.gov/health/milkthistle/ataglance.htm>
2. Ladas EJ. A randomized, controlled, double-blind, pilot study of milk thistle for the treatment of hepatotoxicity in childhood acute lymphoblastic leukemia (ALL). *Cancer* 2010 Jan 15;116(2):506-13.
3. Loguercio C. Silybin and the liver: From basic research to clinical practice. *World J Gastroenterol* 2011 May 14; 17(18): 2288-2301.
4. Rambaldi A, Jacobs BP, Gluud C. Milk thistle for alcoholic and/or hepatitis B or C virus liver diseases. *Cochrane Database of Systematic Reviews* 2007, Issue 4.
5. ConsumerLab.com. Product Review: Milk Thistle Supplements. Last Updated 04/19/10.