Milk Thistle

(Time-Release)

Stock #4071-9 (60 tablets)

Milk thistle (*Silybum marianum*) is used throughout the world and is one of the most commonly prescribed medicinal herbs. Milk thistle's reputation for protecting the liver has been studied and confirmed by laboratory and clinical research for the last 30 years, resulting in over 200 clinical studies.[1,2]

The liver is the largest organ of the body, with numerous essential functions to perform. The liver filters blood from the intestines, transforms toxic compounds into non-toxic substances, produces bile, inactivates pathogenic (disease-causing) microorganisms, synthesizes essential nutrients and compounds, regulates glucose levels, activates/deactivates hormones, stores fat-soluble vitamins, and provides a significant amount of the body's heat and energy. Unfortunately, damage to the liver can adversely affect many of these important functions, causing a profound deterioration of one's health—poor liver health directly affects metabolic diseases such as arthritis, diabetes, obesity and thyroid dysfunction. Incidentally, the most common cause of liver damage is fat accumulation in the liver, known as fatty liver. Left untreated, fatty liver can progress to liver inflammation, fibrosis, hepatitis and cirrhosis. The American Liver Foundation estimates that over 50% of the population age 50+ has a "fatty liver."[2-4]

Milk thistle demonstrates significant hepatoprotective (liver-protective) activity by stabilizing cellular membrane permeability and directly preventing toxic damage to hepatic cells; by providing antioxidant activity, including increasing intracellular concentration of glutathione; by facilitating cellular regeneration of damaged hepatocytes; and by inhibiting the synthesis of key chemical mediators of inflammation (i.e. leukotrienes and prostaglandins). Milk thistle has also been shown to facilitate production of hydrochloric acid, pancreatic enzymes and bile; improve the flow of bile through the biliary tract; stimulate peristalsis; and improve immune function. Furthermore, recent animal research on milk thistle has identified anti-inflammatory, anticarcinogenic and hypocholesterolemic (cholesterol-lowering) effects.[3-14]

Most of the pharmacological research conducted on milk thistle has focused on a complex of flavonolignans collectively known as silymarin, which has been identified as the active constituent. Silymarin is one of the most potent hepatoprotective (liver-protecting) substances known. Its anti-hepatotoxic activity has been proven against a variety of liver toxins, including the severe poisoning of *Amanita phalloides* (the deathcap or toadstool mushroom), the quickest-acting and most virulent of liver toxins.[3-6,10]

Silymarin not only protects the liver against toxic damage, but it also regenerates hepatocytes (parenchymal cells of the liver) by increasing the rate of RNA synthesis, which stimulates protein synthesis and accelerates cell-regeneration and hepatocyte formation. In other words, silymarin actually increases the production of new liver cells to replace damaged cells. Fortunately, silymarin has not been shown to have stimulatory effect on malignant liver tissue.[1-3,5-10]

Recognized as a powerful antioxidant, silymarin increases intracellular antioxidant activity, protecting liver cells from free-radical damage. Silymarin's antioxidant activity is many times more potent than vitamin E. Silymarin has been shown to significantly enhance activity of the antioxidant enzyme SOD (superoxide dismutase) and prevent the depletion of glutathione—a major intrinsic antioxidant used to detoxify drugs such as acetominophen, hormones and chemicals. Tissue depletion of glutathione is an important factor in cell damage and is typically induced by moderate-to-heavy alcohol consumption. By facilitating glutathione synthesis, silymarin increases glutathione levels in digestive tract and hepatic tissues, thereby preventing oxidant-induced cell damage and providing the liver with a greater capacity for detoxification. Furthermore, silymarin has even been shown to increase glutathione levels in healthy subject by more than 35%.[1-3,5,10,13,15-17]

The German Commission E also approves milk thistle extract (standardized to 70-80% silymarin) for toxic liver damage and as a supportive treatment in chronic inflammatory liver disease and hepatic cirrhosis.[5,8,9]

Additional clinical indications for milk thistle use, supported by trials using a standardized milk thistle extract (containing 70-80% silymarin), include abnormal liver function, acute and chronic viral hepatitis, alcoholic and non-alcoholic cirrhosis, cholangitis (inflammation of bile ducts) and pericholangitis (inflammation surrounding bile ducts), cholelithiasis (gallstones), cholestasis (impaired bile flow) and subclinical cholestasis of pregnancy, diabetes secondary to cirrhosis, fatty deposits in the liver, liver damage caused by toxic chemical exposure (anaesthesia, drugs, glues, halogenated hydrocarbons, paints, solvents), and deathcap mushroom poisoning. Milk thistle may also help psoriasis by reducing levels of circulating endotoxins and inhibiting leukotriene formation. Furthermore, milk

thistle is especially well-indicated in patients with cancer, who are also undergoing chemotherapy, and in HIV-infected individuals on multi-drug protocol.[2,3,6,10,13,15,18]

A 4-week, double-blind, controlled study was conducted to determine the effects of milk thistle extract on 97 patients with elevated liver enzyme levels, representing slight acute and subacute liver disease, mostly induced by alcohol abuse. Patients receiving 420mg of milk thistle extract daily demonstrated a statistically significant greater decrease in liver enzymes than did the control group. In addition, normalization of hepatocellular changes occurred significantly more often in patients receiving milk thistle extract.[3,9,10,19]

A recent 12-month study found milk thistle extract to be effective for diabetes complicated by cirrhosis. Diabetic patients with cirrhosis often require insulin treatment due to insulin resistance—a cirrhotic liver takes up less glucose, causing high insulin levels in the blood, which can lead to insulin resistance. After 4 months of treatment (200mg of silymarin, 3 times daily, two hours after each meal), patients receiving silymarin demonstrated a significant decrease in fasting blood glucose levels, mean daily glucosuria levels (urine sugar levels), fasting insulin levels, and mean exogenous insulin requirements (patients' daily need for insulin decreased). In addition, total cholesterol levels were reduced significantly in the silymarin group. There were no such changes in the untreated group.[20,21]

Furthermore, a double-blind, randomized, controlled clinical trial found that silymarin significantly decreased patient mortality from liver cirrhosis, especially for patients with alcohol-induced cirrhosis. Silymarin is believed to reduce the metabolic or toxic effects of alcohol on the liver, as well as reduce hepatocellular necrosis (cell/tissue death) which, in turn, may postpone or prevent hepatic failure. Results of the 41-month trial involving 170 patients found that the survival rate among the silymarin-treated group was 49% higher than the placebo group—the reduction in mortality was most pronounced in the alcoholic cirrhosis subgroup. This study also confirmed long-term treatment with milk thistle to be beneficial, particularly in cases of alcohol-induced liver damage.[3,9,10,22]

An important consideration for milk thistle use is its ability to protect individuals from medication-induced liver damage. In one study, milk thistle was shown to provide significant liver protection (as measured by serum liver enzyme levels) in psychiatic patients who were also taking phenothiazines or butyrophenones. Milk thistle demonstrated no interference with the efficacy of the antidepressants. Another study found that milk thistle reduced the gastrointestinal disorders and side effects experienced by Alzheimer's patients taking the drug tacrine. Thus, concomitant use of milk thistle may improve drug tolerance and efficacy and serve to prevent liver damage during long-term drug therapy.[3,9,10,13,17,23]

Milk thistle extract has demonstrated no signs of toxicity and thus, may be used until clinical improvement is noted. There is no restriction on long-term use and no known contraindications or interactions. Milk thistle has also been determined safe for use during pregnancy and lactation. In fact, research suggests that milk thistle use may prevent and correct liver damage during pregnancy. However, due to the herb's choleretic activity and depending on dosage, milk thistle may produce a mild laxative effect as a result of increased bile flow and secretion.[2,3,6,8,10,14,24]

NSP's Time-Release Milk Thistle provides 350mg of milk thistle seed extract per tablet, standardized to 80% silymarin (providing 280mg silymarin). Since research indicates that silymarin absorption is enhanced by lecithin, simultaneous use of lecithin is recommended.[6]

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