



Silybum marianum looking after your liver?

Silybum marianum is a member of the thistle family – itself a member of the daisy family (Asteracea). It is used principally for its effect on the gastrointestinal system and especially for its protective effects on the liver.¹

Parts used and preparations

It is the seed of the milk thistle that is used medicinally. The seeds can be consumed raw (usually freshly milled), made into a tea and used as a hydro-alcoholic extract. Extracts of the seed are also presented in tablet form.^{2,3,4}

Constituents

Milk thistle seeds contain 15-30% of a fatty oil (comprising linoleic, oleic and palmitic acids, and tocopherols and sterols) and 20-30% proteins. The major active constituent of milk thistle is a flavolignan called 'silymarin' which is a mixture of a number of constituents including silybin, silybinin, silydianin and silychristin.^{3,4}

Dosage

12-15 grams dried herb²

200-400mg of silymarin (standardised dried extracts in tablet form)²

Liquid extract: [1:1] 4-9ml daily³

Mechanism of action

Silymarin has anti-toxic effects which are due to the stabilisation of the liver membranes and to radical scavenging ability. The ability of silymarin to encourage protein synthesis is presumed to be the basis of silymarin's anti-toxin ability.^{2,3}

In vitro experiments suggest that silymarin protects against the effects of liver poisons such as carbon tetrachloride, galactosamine, and the toxins of the *Amanita phalloides* mushroom.⁵ Animal studies suggest that it has the capacity to reduce fibrosis associated with chronic liver diseases.^{4,5}

Clinical evidence

Liver disease

There are a number of systematic reviews of the use of *Silybum marianum* in liver disease. They are variable in results. An earlier review by Jacobs et al. suggested that there were few differences between the patients treated with milk thistle and those on placebo. Markers for liver disease, changes in histology and mortality were not significantly different to patients receiving placebo.⁵ Individual random control trials have suggested an improvement in mortality in patients⁶ who have alcohol related liver disease. Another meta-analysis showed significant effects of milk thistle on some outcomes like liver-related mortality, but data were not conclusive.⁷ A later systematic review (a Cochrane review) shows a significant reduction in liver-related mortality in all trials. However they conclude that high quality trials do

not indicate that milk thistle alters the course of liver disease in patients with alcoholic and/or hepatitis B or C liver diseases.⁸ Better quality trials are needed. The Cochrane review concludes: 'No evidence supporting or refuting milk thistle for alcoholic and/or hepatitis B or C virus liver diseases'.

Adverse reactions

A review of the adverse events reported by clinical trials supports the view that adverse events are rare and mild.⁶ Loose bowels seems to be the most consistently mentioned adverse event.³ Headaches and dermatological symptoms were also noted: their frequency was similar to the frequency of adverse events in the placebo group.⁴

Interactions

Recent trials on the pharmacokinetics of milk thistle suggest that supplementation with milk thistle does not affect digoxin pharmacokinetics and is not a potent modulator of P-glycoprotein *in vivo* as has been hypothesised.⁹ A further trial testing whether milk thistle affects the pharmacokinetics of indinavir concluded that there was no observable interaction between the two drugs.¹⁰

Safety in pregnancy and lactation

Safety has not been studied in humans. Traditionally considered safe in lactation, no clinical studies have been performed.¹¹

Safety in children

Safety has not been studied.¹¹

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