

Silybum marianum

Milk Thistle

Silybum has been used medicinally throughout Europe as a remedy for depression and liver problems for hundreds, and perhaps thousands of years. The ancient Greeks described its medicinal properties in their herbals and Roman legionnaires carried the plants and seeds with them to Europe as food and medicine. Recent studies have validated these time-honoured herbal knowledge, proving *Silybum*'s ability to protect the liver from alcoholic and other forms of toxic damage. Today, it is enjoying a return to favour and is used widely in the treatment of a host of liver disease.

Botanical Name: *Silybum marianum* (formerly known as *Carduus marianus*)

Family: Asteraceae

Common Name: Milk Thistle

Silybum derives its common name from its white-veined leaves. According to legend, the Madonna was feeding the infant Jesus when some of her milk spilt onto the thistle at her feet, causing the characteristic white markings. In line with the ancient "doctrine of signatures," which states that nature provides clues to the therapeutic use of a plant, *Silybum* seeds were consumed by European wet nurses and nursing mothers to improve the quality of their breast milk. (Chopra et al 2000, Fletcher 1991, Mars 1997)



Synonyms: Our Lady's Thistle, Marian Thistle, Wild Artichoke, Holy Thistle, St. Mary's Thistle, Blessed Thistle (Chevallier 2001, Fletcher 1991, Mars 1997, Nice 2000)

Parts Used: Seeds

In the past, the whole of the plant was used, including the roots, leaves, flowers and hull. However, recent findings has shown that although *Silybum*'s most important constituent, silymarin, can be found in all parts of the plant, it is most potent and available in the seeds, thus explaining its predominant use. (Grieve 1931, Nice 2000)

Description:

An annual or biennial, *Silybum* is a stout, erect herb that is also wide and bristly. In its first season, it develops a large rosette of stiff basal leaves which lies close to the ground. It grows to a height of 2.5 metres and a width of 0.9 metres. Depending on the growing conditions, each plant develops up to four stems, which are circular, hollow, and contain a milky white sap. (Fletcher 1991, Keville 1991, Nice 2000)

Leaves: It has large scalloped leaves that are glossy green and thick. They are marbled with white vein-like markings and they have prickly margins. The younger leaves are shallowly lobed with spiny edges, while the older leaves have deeper lobes with a wavier margin. (Fletcher 1991, Keville 1991, Nice 2000)

Shelf Life of Leaves: Fresh leaves last 3 days in the refrigerator; dried leaves last 1-2 years if stored in dark, airtight containers. (Nice 2000)

Flowers: *Silybum* flowers are violet to purple in colour, solitary, and thistle-like. They consist of many tubular florets that are about 6 cm in diameter, and are surrounded by ridged bracts that terminate in

sharp spines. After flowering, thick, white, fluffy thistledown develops and scatters the seeds. (Fletcher 1991, Nice 2000)

Shelf Life of Flowers: Fresh flowers last 4 days in water; dried flowers last 6-12 months. (Nice 2000)

Seeds: The seeds are obliquely obovoid and are 6-7 millimetres long and 3 millimetres wide. They are brown in colour, and has a yellowish projecting swollen ring at its tip and a canalculated hilum at the other end. (Czygan et al 1994, Keville 1991)

Shelf Life of Seeds: Fresh seeds last 3 days; dried seeds last 1-2 years in dry conditions. (Nice 2000)

Distribution:

A native of southern Europe, especially the Mediterranean regions, *Silybum* is now naturalized throughout Europe, in North and South America, and Australia. The plant thrives in dry, stony or rocky areas, wastelands, fields and roadsides. Being an aggressive settler, *Silybum* was once seen as a sign of poor husbandry and a threat to farm lands. A bill was hence passed in the early twentieth century to destroy thistles and other weeds. More recently, it is regaining its popularity as an ornamental plant and is also grown commercially in countries like Argentina, Australia, Russia, China, Germany, Romania and Hungary. (Chevallier 2001, Czygan et al 1994, Keville 1991, Nice 2000)

Harvesting:

The flowerheads are collected in full bloom in early summer and the seeds are gathered in late summer. The timing for harvesting the seeds is crucial. The seedheads are due for collection when they form a perfusion of thick, white, fluffy thistledown, containing the ripest seeds. If harvesting is delayed, the wind may carry away as much as half of the crops. (Chevallier 2001, Nice 2000)

Historical Uses:

Silybum was once known as the Venus Thistle and was associated with Freya, the Norse goddess of love and beauty. As mentioned earlier, in medieval times, there arose a belief that the milk-white markings on the leaves originated from the milk falling from the Virgin Mary's breast as she suckled the infant Jesus leading to common names like Holy Thistle, Our Lady's Thistle and Mary's Thistle. (Grieve 1931, Nice 2000)

In the first century CE, the ancient botanist Pliny the Elder recommended the use of *Silybum* in the removal of bile, while Pedanius Dioscorides prescribed a decoction of its seeds for melancholy and snake bites. The 16th century herbalist Gerard agreed with Dioscorides on this point, and stated that "the root if borne about one doth expel melancholy and remove all diseases associated therewith... my opinion is that this is the best remedy that grows against all melancholy diseases". It is thought that *Silybum* was introduced into Britain through the Roman armies who traveled across Europe with its seeds, leaves, stalks and roots as a source of food and medicine. There it gained a name as a gentle, healing herb. (Grieve 1931, Nice 2000)

During the seventeenth century, the renowned British herbalist Nicholas Culpeper considered *Silybum* to be effective in preventing and curing agues and the plague. He claimed that it "provoketh urine and breaketh and expelleth the stone and is good for dropsy." He also thought that it was effective in alleviating "a pain in the side" or liver discomfort. He recommended its use for the removal of hepatic and splenic obstructions. He suggests a decoction of the fresh roots and seeds, not only for treating jaundice, but also to be applied externally as a compress to the liver. Culpeper also recommended boiling and eating the young plant in spring as an alterative and to improve blood circulation. (Grieve 1931, Nice 2000)

Later herbals state that every part of *Silybum* could be taken to promote appetite and improve digestion by relieving dyspepsia. Menstrual problems, difficulty and pain in urination, leg ulcers and varicose veins were all treated with powdered seed. The sap from the plant was also used to whiten skin to achieve a fair complexion. Native Americans used *Silybum* as a cure for boils, skin diseases and some

forms of poisoning. When the Eclectic Medical College of Pennsylvania was set up in the late 1800s, *Silybum* became a significant plant in the practice of naturopathic medicine. (Nice 2000)

Active Constituents:

☞ **Flavonolignan** (silymarin, which consists of: silybin, silydianin, silychristin)

Silymarin is the component responsible for *Silybum*'s hepatoprotective, hepatoregenerative and antihepatotoxic actions. It prevents liver damage through its strong antioxidant activity, by scavenging for free radicals and neutralizing toxic invaders. It also promotes the release of superoxide dismutase, a powerful antioxidant especially potent in destroying free radicals caused by alcohol in the liver. In addition, silymarin effectively inhibits the action of leukotrienes, which can also damage the liver. (Chevallier 2001, Nice 2000, Weiss et al 2000)

Furthermore, silymarin stabilizes the lipid structures in the hepatocellular membrane, enhancing the outer membranes' ability to prevent toxins from entering liver cells. Studies have found that silybin promotes the synthesis of ribosomal ribonucleic acids by stimulating nucleolar polymerase I. This reinforces protein synthesis in the liver cells, enhancing regeneration processes. Hence in addition to its preventative action, there is also a curative effect. Studies have shown that severe liver damage, resulting from the ingestion of carbon tetrachloride or death cap mushrooms (*Amanita phalloides*) can be prevented if silymarin is taken immediately. (Czygan et al 1994, Keville 1991, Mills 1991, Weiss et al 2000)

☞ **Fatty acids**

Silybum contains 20-25% fatty acids; of this amount, 50-60% is linoleic acid and 25-30% is oleic acid. Linoleic acid is an essential fatty acid required for the production of prostaglandins, which help to reduce inflammation. Essential fatty acids also aid in normalizing hormonal balance in both women and men, and replacing saturated fatty acids in our diet with essential ones may even reduce the risks of developing cardiovascular disease. (Czygan et al 1994, Nice 2000)

☞ **Mucilage**

Mucilage is primarily used for its topical emollient and demulcent properties. It produces a coating of slime, which provides cover and protection for any inflamed mucosal linings. It soothes pain, irritation and itching, and in the act of drying, draws and heals wounds and infected skin lesions. (Mills et al 2000, Weiss et al 2000)

☞ **Bitter principles**

These are effective in stimulating bitter taste receptors on taste buds, which fuel the release of the gastrointestinal hormone gastrin, that in turn stimulates appetite. Bitters also increase digestive secretions, protect gut tissues, promote bile flow and enhance pancreatic functions. (Mills 1991, Weiss et al 2000)

☞ **Polyacetylenes**

Polyacetylenes generally possess antibacterial and antifungal activity. (Mills 1991)

Actions:

- ☞ Hepatoprotective, hepatoregenerative, antihepatotoxic
- ☞ Cholagogue
- ☞ Galactagogue
- ☞ Demulcent
- ☞ Digestive tonic
- ☞ Bitter tonic
- ☞ Antioxidant
- ☞ Antidepressant (Chevallier 2001, Hoffman 1988, Mars 1997)



Effects:

- ☞ Improves liver function in incidences of toxic poisoning.
- ☞ Helps repair liver damage.
- ☞ Reverses alcohol damage to the liver.
- ☞ Aids recovery in viral and alcohol-induced hepatitis.
- ☞ Slows development of cirrhosis and increases life expectancy.
- ☞ Defends against the side effects of some pharmaceutical drugs.
- ☞ Enhances blood circulation.
- ☞ Stimulates the liver and gallbladder, and promotes bile flow.
- ☞ Aids bowel movement and removes toxicity.
- ☞ Clears the kidneys, promoting better urination.
- ☞ Enhances the functioning of the circulatory system and the liver, thus improving skin clarity.
- ☞ Helps soften kidney stones and gallstones.
- ☞ Relieves the pain and discomfort of menstruation, and is an all-encompassing premenstrual herb.

Indications:

Although *Silybum* has several potential therapeutic uses; its predominant role lies in the treatment of liver disease such as jaundice and hepatitis. It is also used in conditions where the liver is placed under stress from factors like chronic overconsumption of alcohol, the use of hepatotoxic medication, and exposure to industrial and environmental toxins. Conditions that may arise as a result of a “sluggish” liver includes depression, dyspepsia and listlessness. Recently, it has also been used as an adjunct to cancer treatment; it can help to reduce liver damage from chemotherapy and to accelerate recovery from other side-effects once the treatment is complete. (Chevallier 2001, Keville 1991, Nice 2000, Weiss et al 2000)

As indicated by its common name, Milk Thistle, *Silybum* is also an effective galactogogue, promoting milk secretion, and is safe to use by breastfeeding mothers. In addition to milk flow, it is also an excellent cholagogue, promoting the secretion and flow of bile from the liver and gallbladder. As a result, it may also be useful in diseases associated with the gallbladder. (Hoffman 1988)



- ☞ Toxic liver damage
- ☞ Toxic (alcoholic) hepatitis
- ☞ Chronic hepatitis
- ☞ Viral hepatitis
- ☞ Liver cirrhosis
- ☞ Fatty liver
- ☞ Post hepatitis syndrome
- ☞ Amanita poisoning
- ☞ Chemical exposure
- ☞ Chemotherapy nausea
- ☞ Drug abuse
- ☞ Environmental illness
- ☞ Psoriasis
- ☞ Jaundice
- ☞ Skin/joint disorders
- ☞ Dyspepsia
- ☞ Gouts
- ☞ Migraines
- ☞ Depression

Depressed milk flow (Chopra et al 2000, Czygan et al 1994, Mars 1997, Weiss et al 2000)

Pharmacological Studies:

During the 1970s, two German research groups set out to prove through clinical studies that when administered between 210-420mg of silymarin every day over periods of six weeks to two years, 70% of patients with chronic liver disease experienced a greatly improved recovery rate. Silymarin was shown to reverse liver damage and to reduce transaminase levels in the blood (raised levels of this liver enzyme is often an indicator of hepatitis). (Kiesewetter et al 1977, Schopen et al 1970)

Research has also shown that patients suffering from acute hepatitis recovered in half the time when administered silymarin. (Cavaliere 1974, Magliulo 1978) More recently it has been shown that when treated with silymarin over a period of five years, the survival rate of patients suffering from alcoholic hepatic cirrhosis increased almost three times. (Ferenci 1989) In cases where excessive alcohol consumption has resulted in the fatty degeneration of the liver, studies have shown that treatment with silymarin can lead up to an 80% improvement in liver regeneration. (Berenguer et al 1977, Feher et al 1989)

Silymarin has also been shown to reverse the effects of very toxic alkaloids like phalloidine and [alpha]-amanitine that can be found in the Death Cap mushroom (*Amanita phalloides*). *Amanita* toxins inhibit the activity of RNA polymerase in hepatocytes, causing cell death after 12–24 hours. In 1981, 24–36 hours after ingestion of *Amanita phalloides*, 60 patients were treated intravenously with silybin daily for 1–2 days. Where the expected death rate would have been 30-40%, every single patient survived. (Vogel 1977) In other studies involving *Amanita* poisoning, intravenous infusion of silybin daily for 1–2 days, in combination with standard management techniques, was shown to dramatically reduce mortality without producing side-effects. (Floersheim et al 1982, Hruby 1984)

Since 1969, widespread ongoing scientific research have shown conclusively that silymarin is a potent hepatoprotective substance that can reverse the effects of toxic damage as well as heal liver cells. The German Commission E has approved it for the treatment of dyspepsia and in the supportive therapy of inflammatory liver conditions and cirrhosis. (Blumenthal 1998)



Contraindications/Precautions:

No known contraindications have been reported, and *Silybum* is even presumed safe during lactation. However, it should be avoided in cases of known allergy to plants of the Asteraceae family. Also as *Silybum* is a detoxifying herb, preliminary side effects like slight nausea, headache, skin rashes and mild diarrhoea may occur in certain individuals. These symptoms are only temporary and will soon subside. Due to its detoxification ability, it is also advisable to discuss its use with a health advisor if the patient is taking a pharmaceutical drug since it may influence medication levels. (Chopra et al 2000, Nice 2000)

Dosage forms:

Usually standardized extracts for phytomedicine; crude drug for decoction.

Store in a well-closed container, protected from light and humidity. (Czygan et al 1994)

Posology: (Unless otherwise indicated)

Daily dosage: 12–15 g crude drug; 200–400 mg silymarin, calculated as silybin, in standardized preparations. (Blumenthal 1998)

Herbal Combinations:

Digestion

Formula: 2 parts *Silybum marianum*, 1 part *Taraxacum officinale* root, 1 part *Foeniculum vulgare* seeds, 1 part *Zingiber officinale* root, 1 part *Artemisia vulgaris* or *Artemisia absinthium* leaves. Make up as a tincture.

Dosage: 5ml 2-3 times a day in 50ml water or fruit juice. (Nice 2000)

Detoxification

Formula: 2 parts *Silybum marianum*, 1 part *Taraxacum officinale* root, 1 part *Passiflora incarnata*, 1 part *Centella asiatica* leaves, 1 part *Zingiber officinale* rhizome. Make up as a tincture.

Dosage: 5ml 4-6 times a day in 50ml water or fruit juice. (Nice 2000)

Premenstrual Syndrome

Formula: 3 parts *Vitex agnus-castus* berries, 2 parts *Cimicifuga racemosa* root, 2 parts *Silybum marianum*. Make up as a tincture.

Dosage: Women and girls over 11 years: 5ml once daily, 10 days before menstruation; 5ml twice daily, 7 days before menstruation; 5ml 3 times daily, 5 days before menstruation.

Continue this last dose 1-2 days into menstruation if cramps and stress persist.

For girls aged 9-11, reduce dose by half. (Nice 2000)

Gastroenteritis

Formula: 2 parts *Curcuma longa* rhizome, 2 parts *Silybum marianum*, 1 part *Achillea millefolium*, 1^{1/2} parts *Cinnamomum zeylanicum* bark.

Dosage: 5ml hourly until acute phase subsides, then 5ml 3-4 times a day. (Nice 2000)

Psoriasis

Formula: Equal parts of *Berberis vulgaris* root bark, *Galium aparine*, *Silybum marianum*, *Arctium lappa* root. Make up as a tincture.

Dosage: 5ml 3 times a day. (Nice 2000)

Shingles

Formula: 2 parts *Echinacea* spp. Root, 2 parts *Centella asiatica* leaves, 2 parts *Silybum marianum* seeds, 2 parts *Eleutherococcus senticosus* root, 1 part *Avena sativa* straw. Make up as a tincture.

Dosage: 5ml 3 times a day. (Nice 2000)

Liver Tonic

Formula: 4 parts *Silybum marianum* seeds, 2 parts *Taraxacum officinale* root, 2 parts *Berberis vulgaris* root, 2 parts *Arctium lappa* root, 1 part *Foeniculum vulgare* seeds, 1 part *Glycyrrhiza glabra* root. Make up as a tincture.

Dosage: 1 dropperful three times daily. (Mars 1997)

Male Tonic

Formula: 2 parts *Avena sativa* seeds, 1 part *Silybum marianum*, 1 part *Glycyrrhiza glabra*, 4 parts *Serenoa serrulata*, 4 parts *Panax ginseng*. Make up as a tincture.

Dosage: 1 dropperful three times daily or as needed. (Mars 1997)

Energetic and Spiritual Properties:

In line with Dioscorides' Signature of Doctrines where the plant's appearance was supposed to be indicative of its potential effects on the body, it has been suggested that the almost glacial look of *Silybum* with its erect and balanced formation, would thus elicit a cooling and balancing effect on the mind, banishing feverish and pensive beliefs, and encouraging clarity and contentment. With its violet-purple, thistle-shaped flowers, the plant looks like a crowned deity. The flowers reflect abundance and

a bighearted spirit, boosting the emotional state of those who need a lift, whether physically, mentally or spiritually. (Nice 2000)



The liver was once viewed as the seat of love and violent passion, and the source of life. As such, the recovery of the liver was thus seen as a rebirth. The spirit energy emitted by *Silybum* is one of optimism, recovery and life. The brilliant flowerheads produce seeds that scatter far and wide to inhabit and thrive in the most unfavorable environment. It is this hardy ability to regenerate itself that is the energy of *Silybum*. Strong and adaptive, this herb is perfect for dealing with the wide range of problems that challenge people in a modern world beset with environmental and social problems. Its resilient nature is also believed to promote perseverance. It urges claiming responsibility for one's own well-being—choosing wisely and with a compassion that allows renewal. (Cruden 1997, Nice 2000)

On the spiritual level, this herb allegedly encourages greater forgiveness within a person, bringing about a powerful cleansing effect on the emotional level. This in turn helps to strengthen other organ systems in the body. Along with this enormous release, the sense of loneliness diminishes. This pertains to more than emotional loneliness. It relates to realising that self is part of the oneness of all things. *Silybum's* external prickly appearance in contrast to its internal therapeutic and forgiving effect is believed to serve a karmic purpose. It allows individuals to decide for themselves whether to see only its form and thus choose to stay away from it and remain separate, or whether to see through its façade, finding deep forgiveness and thus joining humanity. In addition to a feeling of oneness with others, *Silybum* also enhances psychic abilities like merging and greater telepathy. Individuals who have exploited their psychic power and are seeking forgiveness can also employ its forgiveness principle. (Gurudas 1988)

The holistic manner in which *Silybum* strengthens the emotional body also allows it to come into greater resonance with the etheric and mental bodies. As the subtle bodies stimulate the heart, this brings forth a beneficial cardiac effect as well. In addition, the minor chakras on the soles of the feet and the palms of the hands as well as the gallbladder, kidney and liver meridians are also directly stimulated. Some energy is also released throughout the back region, especially through the bladder meridian. (Gurudas 1988)

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