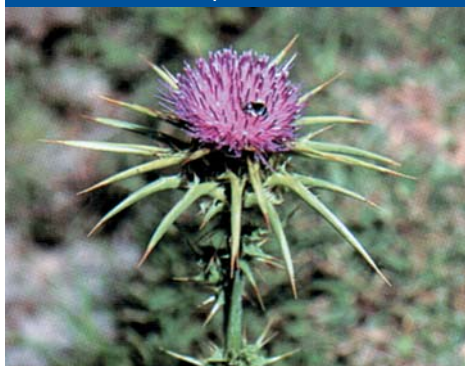


***Silybum marianum* (L.) Gaertn.**
Asteraceae (Compositae)



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■ Morphological Description

Silybum marianum is an annual to biennial herb, up to 2m high. It has a stem 20-150 cm high, rarely shorter, glabrous or slightly downy, erect and branched in the upper part. The leaves are alternate, large, white veined, glabrous with strongly spiny margins. The inflorescences are large and round capitula, solitary at the apex of the stem or its branches, surrounded by thorny bracts. The florets are hermaphrodite, tubular in shape with a red-purple corolla. The fruits are hard skinned achenes 6 to 8 mm long, generally brownish in color with a white silk like pappus at the apex. The fruits are harvested in May - June, after blooming.

■ Geographical Distribution

Local: Nile region, including the Delta, the Valley, the Faiyum, Oases, Western Mediterranean Coastal Region, and the Isthmic desert, i.e. El-Tih and the region North of Wadi Tumilat.

Regional: All North African countries.

Global: *Silybum marianum* is native to Central and Southern Europe, Southern Russia, Asia minor, North and South America and South Australia.

■ Ecology

The plant grows wild in Egypt on canal banks and in wet ground regions in the Nile Valley. The soil supporting this plant is fine-textured and moist. It

Silybum marianum (L.)

Gaertn. Fruct. Sem. Pl. 2:378 (1791).

Carduus marianum

Names

Arabic: Qortom قرطم, Harshaf barri حرشف برى

Shouk el-diman شوك الدمن,

Shouk el-nasara شوك النصرارى

Berber: Tatoura Doujnilourman.

English: *Carduus marianus* L. (botanical synonym), Milk thistle, Holy thistle.

French: Chardon marie, Chardon argente, Artichaut sauvage.

occurs in two types, the most abundant has purple flowers while the least abundant has white flowers (v. albiflora). It is indigenous to Europe.

■ Status

The plant is common in the Nile Delta. It is not seriously endangered. Trials to cultivate it in Egypt have been carried out.

■ Part(s) used

Fruits (seeds) and herb.

■ Collection

Plants are cut when flowering and seeds are collected when ripe. The fruits are dried for use in infusions and tincture or for extraction of silymarin.

■ Preparation

Infusion, decoction, tincture.

■ Use

Oral, external.

■ Constituents

The fruits: A flavonolignan complex, silymarin, was first isolated from the seeds in 1968. Silymarin (4-6% in ripe fruits) consists primarily of three flavonolignans: silybin (silibinin), silychristin (silichristin), and silidianin. Other flavonolignans include dehydrosilybin, 3-desoxysilychristin, deoxysilydianin (silymonin), siliandrin, silybinome, silyhermin, and neosi-

lyhermin. Fixed oil (20-30%), flavonoids, taxifolin, sterols.

The herb: Flavonoids: apigenin and its 7-O-glucoside, 7-O-glucuronide and 4',7-diglucoside, kaempferol and its 7-glucoside and 3-sulphate, luteolin and its 7-glucoside, Sitosterol and its glucoside, a triterpene acetate, polyacetylenes, and fumaric acid. The very young leaves of the herb contain only traces of silymarin.

■ Pharmacological Action and Toxicity

Milk Thistle effectively acts as a hepatoprotective and/or antihepatotoxic. It protects the liver from the poisonous effects of alcohol and other toxic chemicals and heavy metals. The silymarin compounds in Milk Thistle actually accelerate protein synthesis in the liver, which stimulates the production of new healthy liver cells.

The flavonoids present in Milk Thistle act as effective free radical scavengers, which also protect the liver from damage. Milk Thistle helps to block certain inflammatory reactions and is an anti-allergenic substance.

Certain chemical constituents of Milk Thistle help to increase the flow and solubility of bile which is beneficial for both the liver and the gallbladder. Increased bile flow helps to prevent the formation of gallstones.

Milk Thistle can effectively treat jaundice, cirrhosis, hepatitis, and fatty infiltration of the liver. Silymarin is considered a spleen, and gallbladder tonic.

Milk Thistle may be helpful in treating psoriasis, chronic fatigue syndrome, diabetes and oestrogen-related disorders.

German research suggests that silybin, a flavonoid component of the seed, is clinically useful in treating severe Amanita mushroom poisoning. The antihepatotoxic effect of silymarin was found to depend on the time interval in which poisoning and therapy took place as well as the degree of liver damage.

The most recent clinical investigations have demonstrated that the flavonolignan silibinin is the most effective compound, used as an adjunct to current methods, and has lowered the mortality rate below any levels previously achieved. Future breeding activities should be directed to the production of genotypes and lines that produce silibinin.

Even in large doses silymarin is safe, with practically no side effects, as well as no embryo toxic effect. Also, silymarin is used as a reference standard to evaluate the efficacy of new substances found.

■ Pharmacopoeias

Deutsches Arzneibuch 10.1991.

Rote liste, Germany, 1987.

Dictionnaire vidal, France, 1986.

Silybum marianum is covered by a positive Commission E monograph and has the following applications:

i) Crude drug: Dyspeptic disorders.

ii) Preparations: For toxic liver damage; as supportive treatment in chronic inflammatory liver conditions and liver cirrhosis.

■ Pharmaceutical Products

Legalon tablets (CID under licence from Madaus , Köln, Germany)

Silymarin granules "Instant" (SEDECO, Egypt)

Hepanox Capsules (Technopharma Egypt For: National Pharmaceuticals Co. Under licence from: Tishcon Corporation USA)

Hepaticum Capsules (Medical Union Pharmaceuticals Abu- Sultan, Ismailia, Egypt)

Hepamarin Capsules (UNI PHARMA – EL Obour City, Cairo –Egypt)

Hepadox Capsules (Arab Caps – Alamreya – Alexandria, Egypt)

Mariagon Capsules (Alpha Chem Advanced Pharmaceutical Industries Co. – Badr City, Third Industrial Zone – Cairo, Egypt)

Levatone Capsules (Under licence from Pan Pharmaceuticals Australia for Golden Queen Co.)

Levanox Capsules (Tiba Pharmaceutical Industries) Liver Albumin Plus Capsules (Sigma Pharmaceutical Industries)

Silipex Capsules (PHARO PHARM pharmaceuticals for EMA pharm)

Simepar Capsules (MINAPHARM – EGYPT Under licence from Mepha Ltd. Basel, Switzerland Mepha pharma Egypt S.A.E)

Seralon-E Capsules (TIBA Pharmaceutical Industries)

Cyncholine Plus Capsules (The Arab Company for Pharmaceuticals and Medicinal Plants, Egypt)

Mepacure Capsules (The Arab Company for Pharmaceuticals and Medicinal Plants, Egypt)

■ Traditional Medicinal and Indigenous Knowledge

History: The plant is a medicinal plant widely used in traditional European medicine. In France the roots, leaves and fruit are thought to be effective in the treatment of chronic constipation and of various hepatic diseases such as jaundice, bile stones, hepatitis and steatosis. In addition, decoctions and tinctures of the fruits, due to their cholagogic, anti-allergic and decongestant activity on the circulatory system, are used in the treatment of haemorrhoids, varicose ulcers, hay fever, asthma and nettlerash. In Italy, the fruits are used in the treatment of hepatic diseases of various origins, oliguresis and hypotension, thanks to their detoxicating action on the liver, and their diuretic, hypertensive, cardiotoxic and temperature reducing properties. In Germany, the fruits find applications as decoctions and tinctures in the treatment of bile stones, hepato- and cholangiopathies, thanks to their cholagogic, stimulant of portal circulation and liver protective actions. Similar applications, above all of the fruits, are found in traditional medicine in Hungary. In Greece, it is used in the treatment of varicose veins, cholelithiasis, duodenal ulcer and forms of amenorrhea. Homeopathic medicine also makes use of tinctures of the fruits in the treatment of disorders of the liver, icterus, and cholelithiasis, as well as in peritonitis, pleuritis, bronchial coughs and congestion of the uterus and varices.

■ Traditional Medicinal Uses

- Anorexia
- Cancer
- Demulcent in catarrh and pleurisy
- Diabetes
- Oestrogen-related diseases
- Haemorrhoids
- Hydrophaints
- Liver diseases (toxic liver diseases, chronic inflammatory hepatic disease and liver cirrhosis)
- Malaria
- Spleen disease

Other uses of the plant: For improving appetite as a food. Young leaves are eaten as a spinach substitute. Young stalks are peeled, soaked and eaten as Asparagus. Roots soaked overnight to remove bitterness are

eaten as salsify. Flowers are boiled and eaten as Artichoke. Roasted seeds are used as a coffee substitute.

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