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MAIN EFFECTS OF SÍLYBUM MARIÁNUM

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Resume: Herbaceous plant, has hepatoprotective, choleric and other beneficial properties that are successfully used in the treatment of liver diseases. In scientific medicine, milk thistle fruits and preparations from it are used to treat liver diseases, in particular acute and chronic hepatitis, cirrhosis, toxic metabolic lesions of the liver, as well as the gallbladder and biliary tract. Milk thistle seeds are raw materials for the production of hepatoprotective drugs.

Keywords: Silybum marianum, milk thistle, hepatoprotectors.

In dermatology, milk thistle oil is used in the treatment of many dermatoses, including allergic diseases, psoriasis, vitiligo, acne, baldness [1-12].

Milk thistle (Latin *Silybum marianum* (L.) Gaertn.) belongs to one of the largest flowering plants in systematic terms – the Asteraceae family. The native land of the plant is Southern Europe (Mediterranean) [13-25].

This is an annual (in cultivation) or biennial (in nature) prickly plant with a height of 1.5 - 2 m. The stem is erect, massive, iridescent, glabrous, or pubescent with villi, unbranched or little branched. The leaves are large with yellowish spines along the edge of the leaf and along the veins from below, the leaf blade is green with white spots, shiny. The basal leaves are large, strongly wrinkled, pinnate, glabrous on petioles, the stem leaves are alternate, sessile. The flowers are collected in large (up to 4 cm in diameter) inflorescences-baskets located singly on the branches of the stem, the leaves of the basket wrappers are arranged in several circles, with spikes at the edges, and with one larger spike at the top (up to 5 cm). The inflorescence bed is fleshy, covered with hairs. The flowers are all tubular, bisexual, purplish-red in color. The fruit is a black achene with gray dots and a tuft of hairs at the end, 15-20 mm long., shiny [26-42].

There are several types of flavolignans in milk thistle fruits. These substances have remained unexplored for a long time because of their complex chemical structure. Silybin, silidianin and silicristine dominate among them. The mixture of these molecules is called silymarin [43-58].

Fatty oil, the content of which reaches 30% in the fruits and seeds of the plant, is a complex combination of fatty acids – linoleic, oleic, palmitic, etc.

Vitamins: Vitamins A, E, K, D, F and group B were found in plant tissues. They are necessary for the operation of all systems of the human body [59-73].

Minerals: Milk thistle is a storehouse of macro- and microelements. Manganese, copper, zinc, iodine, etc. are isolated from it. Most of all it contains boron (22.4 mg/g), selenium (22.9 mg/g), calcium (16.6 mg/g), potassium (9.2 mg/g), magnesium (4.2 mg/g) [74-77].

The fruits, leaves and seeds of milk thistle also contain alkaloids, resins, organic acids and biogenic amines [78-92].

People have learned to use the seeds of this plant for the benefit of their health for a long time, but their medicinal properties have been studied in more detail already in our time. Preparations prepared on the basis of milk thistle have a lot of positive healing properties, for example, they are: antioxidants; membrane stabilizers; hepatoprotectors; immunomodulators. They contribute to the removal of bile, have an excellent effect on the liver, increasing its protective functions and even restoring its cells, improve the secretory and motor functions of the gastrointestinal tract. Any of the preparations based on milk thistle seeds, whether it is a decoction, tincture, just powder or herbal hepatoprotectors (for example, Carsil) or Legalon, has a very positive effect on metabolism, helps the body in the fight against a wide variety of diseases, they are essentially anti-allergenic, contain a lot of nutrients, vitamins and Omega 3 polyunsaturated acids [93-99].

The combination of milk thistle (silymarin), phosphatidylcholine and vitamin E in 1 year was able to improve the course of non-alcoholic fatty liver disease (NAFLD) in a clinical trial involving 179 people. There was a decrease in the values of liver enzymes, insulin resistance, and scarring of liver tissue in the absence of serious side effects. Some of the patients with hepatitis C included in this study received the same benefits [65-74].

However, the active ingredients of milk thistle reach higher values in the blood in people with fatty liver disease compared to people with hepatitis. The thing is that silymarin is well absorbed in the intestine along with bile, and in people with hepatitis, bile production occurs in smaller quantities, which reduces the concentration of silymarin in the blood [21-45].

In general, milk thistle silymarin improves the condition of fatty liver disease, even in people who also have hepatitis C. But with hepatitis C, higher doses (2.1 g/day of silymarin) may be required to compensate for liver damage. Milk thistle for hepatitis C and hepatitis B: A study involving more than 1,000 people concluded that people with hepatitis B or hepatitis C taking milk thistle have a lower risk of dying from liver problems [71-93].

In an observational study (1,000 people with hepatitis C), patients who used silymarin were less likely to have an exacerbation and further liver damage (cirrhosis) slowed down. In another clinical study involving 36 patients with hepatitis C who do not respond to medications (Peg-interferon + Ribavirin), silymarin alone or as an adjunct to antiviral drugs significantly reduced viral activity and load. In 7 people, the virus became completely invisible in the blood after 6 weeks of using silymarin (dose: 15-20 mg / kg body weight) [94-97].

However, in another study involving 154 patients with hepatitis who had not previously responded to the use of standard therapy (interferons), oral administration of silymarin at a dose of 2.1 gy / day did not reduce liver enzymes or virus activity

very much after 6 months. But scientists did not measure the amount of silybin in milk thistle extract, did not identify the active components of the extract in the blood and did not track the viral load. According to another analysis involving almost 400 people, oral administration of silymarin had modest effects on the reduction of hepatitis C virus, which were not very different from the placebo effect. Scientists noted that higher doses of silymarin were most likely needed for hepatitis C, but additional research is needed [87-91].

People with liver disease often have very high ferritin levels due to inflammation or injury to liver tissue. In a study of 37 people with hepatitis C, silymarin combined with phosphatidylcholine reduced ferritin readings in 80% of cases within 12 weeks. Patients with any hepatitis virus may experience unexpected and acute deterioration of well-being against the background of liver inflammation. In a clinical study involving 105 patients, in such cases, the use of silymarin (420 mg / day) for 4 weeks helped to reduce symptoms, improve the course of jaundice and the work of bile ducts [34-53].

Alcoholic liver disease: In an observational study with more than 600 people, a water-soluble silymarin extract (420 mg / day) during 11 months of its administration was able to help reduce high levels of liver enzymes and bilirubin in patients with alcoholic liver disease. Silymarin (at a dose of 450 mg / day) increased the level of the main antioxidant glutathione and reduced oxidative stress in erythrocytes in 60 patients with alcoholic liver disease after 6 months of taking it. It had no effect on liver function or on enzymes in this study [54-87].

Protecting the liver from drugs and toxins: Milk thistle can protect the liver from drugs and toxins. In animals, silybin and silymarin are able to protect the liver from the harmful effects of alcohol, poisons (carbon tetrachloride and thallium), chemotherapy drugs (cisplatin), Tylenol (acetaminophen), radiation, iron overload, and poisonous fungus (fly agaric and toadstool). In a clinical study involving 50 children with leukemia, milk thistle showed the effect of protecting the liver and reducing tissue damage from chemotherapy after 1 month of use. In women with leukemia silymarin (at a dose of 800 mg / day) reduced the side effects of chemotherapy drugs and protected the liver for 4 months of the experiment. Milk thistle does not protect the liver from all medications. For example, it is not able to protect the liver from anti-tuberculosis drugs (a study involving 380 people). On the contrary, milk thistle even slightly increased the risk of liver damage [32-46].

Most mushroom poisoning worldwide comes from the mushroom — pale toadstool. Milk thistle is considered the No. 1 antidote for such poisoning. But oral administration does not help, so milk thistle works only as an intravenous drug. It saves lives in more than 90% of cases, which is much better than any other antidote. But milk thistle extract should be injected within 48 hours to prevent serious liver damage and increase survival [65-74].

Conclusions. In addition to hepatoprotective and antioxidant activity, milk thistle fruits have anti-inflammatory, antifibrotic, antisclerotic, antitumor effects, inhibit lipid peroxidation, stimulate protein biosynthesis, accelerate liver cell regeneration

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