

DEVELOPMENT OF A COSMETIC CREAM BASED ON THE EXTRACT OF LOCAL RAW MATERIALS OF TRIBULA

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Abstract: The article discusses the development and methods of obtaining extracts of *Tribulus terrestris* with ethyl alcohol.

Keywords: solvent, methanol, *Tribulus terrestris* seeds, extraction.

Introduction: *Tribulus*) is a genus of perennial herbaceous plants of the Zygophyllaceae family. The plant is widely known for its medicinal and biologically active properties, which are actively used in folk medicine in many countries of the world. This article will discuss the main aspects of the study of this unique plant, including its distribution, morphology, chemical composition, pharmacological action and areas of application. Distribution area and description of the plant *Tribulus*) is a representative of the genus, numbering about 20 species, which are distributed mainly in the tropical, subtropical and temperate regions of the Old World - Southern Europe, Africa, Asia and Australia. The most famous species of the genus *Tribulus* are *T. terrestris*, *T. cistoides*, *T. alatus* and *T. lanuginosus*.

The stems are covered with pubescence of simple hairs, and the leaves of *Tribulus* are paripinnate with 4-8 pairs of leaflets. The leaflets themselves are lanceolate or oval, 1-3 cm long and 0.5-1 cm wide. The edges of the leaflets are smooth or slightly serrated. The upper side of the leaves is usually green, and the lower side is pale green or grayish, with noticeable pubescence. *Tribulus* flowers are single, five-membered, regular in shape, bright yellow, 1-2 cm in diameter. *Tribulus* fruits are dehiscent capsules that disintegrate into 5 nut-shaped parts. Each part of the fruit has 2 curved thorn-like processes, thanks to which it easily clings to animal fur and human clothing. The seeds in the fruits are smooth, triangular in shape, gray or brown in color. The root system of *Tribulus* is taproot, well developed. The main root penetrates to a depth of 1 m, from which lateral roots extend. Thus, *Tribulus* is characterized by a creeping habit, paripinnate leaves, bright yellow flowers and prickly capsule fruits, which ensures their wide distribution due to clinging seeds.

The morphological features of the plant are closely related to its biology and ecological niche.

Other species of Tribulus, such as Tribulus cistoides, Tribulus alatus and Tribulus lanuginosus, grow in Africa, Australia, North and South America. In Russia, Tribulus terrestris is common in the steppe, semi-desert and desert regions of the European part, the Caucasus, Siberia and the Far East. They can be found on dry sandy, rocky and clay soils, roadsides, wastelands, fallow lands, dry meadows. Thus, the area of Tribulus growth covers vast territories with a hot dry climate - subtropical and tropical regions of the Old World, as well as some areas of the temperate zone. Their wide distribution is due to the ability of plants to adapt to dry conditions and effectively spread fruits-seeds with the help of hook-shaped thorns. Also, in our country you can often find this plant, since the climate of Uzbekistan is a favorable place for Tribulus.

Chemical composition and pharmacological properties. The chemical composition of Tribulus is quite complex and diverse. Various parts of the plant (roots, leaves, stems, fruits) contain the following main groups of biologically active substances:

- steroid saponins - tribulins, protodioscin, dioscin, etc. These compounds have a wide range of pharmacological activity.
- flavonoids - quercetin, rutin, vitexin, etc. They exhibit antioxidant, anti-inflammatory, antispasmodic and phytochemical properties.
- alkaloids - harmal, harmine, tribolin. They have a stimulating effect on the central nervous system.
- organic acids - malic, citric, ascorbic.
- trace elements - zinc, manganese, iron, copper.
- adaptogenic and tonic effect. Increased physical and mental performance, resistance to stress.
- androgenic and anabolic effect.
- anti-inflammatory, antioxidant and immunomodulatory effect.
- antispasmodic, hypoglycemic and hypolipidemic effect.

In folk medicine, it is used as a tonic, restorative, adaptogenic agent. In sports medicine - to stimulate testosterone synthesis and build muscle mass. In cosmetology - as a component of anti-aging and rejuvenating products. Thus, the rich biochemical composition of Tribulus determines its wide therapeutic possibilities and determines its versatile application in practice.

Approximately 0.5 g of crushed raw material (accurately weighed) was placed in a 100 ml conical flask and 25 ml of methanol (reagent grade) was added, the contents of the flask were extracted in an ultrasonic bath for 25-30 minutes at a temperature of 30°C 1 ml of the resulting extract was transferred to a centrifuge tube and centrifuged for 5 minutes at 6,000 rpm.

In general, Tribulus is considered safe when used in moderation, but can cause side effects when taken in high doses. Recommended dosages are usually between 250 and 1000 mg per day. However, there are contraindications and precautions when using Tribulus.

Despite traditional use and some promising research, the effectiveness of tribulus in treating skin diseases

- antioxidant properties tribulus is rich in antioxidants such as flavonoids, which can protect cells from oxidative stress;

- due to its anti-inflammatory and antioxidant properties, tribulus can help prevent or slow down skin aging.

Conclusions. Tribulus terrestris extracts were obtained using both a pure mixture with ethyl alcohol as a co-solvent. It was found that the use of ethyl alcohol as a co-solvent allows increasing the mass yield of the obtained Tribulus terrestris extract. In the future, analytical methods for determining the composition of the obtained extracts will be developed. During the study, a method for obtaining Tribulus terrestris extracts and using the obtained extract in the developed formulation of a cosmetic cream were developed.

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