

THE ROLE OF CORNUS MAS L. IN THE LOCAL FLORA AND THE VALUE OF FRUITS

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<https://doi.org/10.5281/zenodo.7818625>

Abstract. *Red Cornus. mas L is a deciduous shrub or small tree belonging to the Cornaceae family. The red plant is one of the promising vitamin-rich medicinal plants being introduced in our country. In recent years, in the Republic of Uzbekistan, consistent reforms have been implemented in the field of propagation and cultivation of medicinal plants, rational use of natural resources, establishment of plantations and their processing.*

Keywords: *introduction, medicinal plant, polysaccharides, iridoids, pharmaceuticals, antioxidant, flavonoids, amino acids.*

Introduction. The so-called red *Cornus mas L.* belongs to such medicinal plants. The article provides information on the medicinal properties of red, its use in folk medicine, its area, its role in the local flora, and the chemical composition of its fruits. The natural reserves of medicinal plants are limited, and their protection and cultivation under introduction conditions are of urgent importance. At present, scientific-research works aimed at the study of bioecological, biochemical, physiological properties of medicinal plants distributed in various ecological environments, adaptation of medicinal plants to the conditions of introduction are being carried out.

In the treatment of disease, despite the high development of chemistry, especially the department of chemistry that creates synthetic drugs, and the fact that many powerful drugs are obtained by synthesis, most of the drugs used in medicine are obtained from plants. Red is a source of biologically active substances, and it is worthwhile for us to study it scientifically as a valuable food and immune-boosting medicinal plant [5].

Research object and methods. Experiments were carried out on two varieties of *Cornus mas L.* ("Elegant" and "Svetlyachok") introduced by local gardeners in the conditions of the Samarkand region as a research object.

About 20 plant bushes of 10-15 years old were taken for morphological description of *Cornus mas L.* varieties. The reason is that morphological characters are fully formed at this age. When describing each bush, attention was paid to its vegetative and generative organs. In studying the anatomy of plant leaves, S.F. Zakharovich [3], N.A. We used Aneli [1] manuals. The chemical composition of fruits was carried out in the laboratory "Chemistry of proteins and peptides" of the Institute of Bioorganic Chemistry of the Federal Republic of Uzbekistan. In carrying out these studies, A.I. Ermakov [2], B.P. It was done by methods of Pleshkov [7]. In 2021, samples of fruits of *Cornus mas L.* varieties "Elegant" and "Svetlyachok" were collected and dried at room temperature.

Research results. As a result of the analysis of the literature, it was found that the genus *Cornus L.* consists of 34 species, which are distributed in the North Pole of the Earth in Eurasia, Asia and North America. Among them, the type known as the red corn (*Cornus mas L.*) is widely

distributed in the regions of Russia, Central Asia, Crimea and the Caucasus, Central and Eastern Europe [4].

In Uzbekistan, the species of *Cornus L.* family includes 5 species. They are not found in the wild. Bushes of this plant were brought to Uzbekistan by amateur gardeners in the middle of the 19th and 20th centuries. In addition, since it is one of the favorite fruits of the Tatar people of Crimea and Kazan, these plants were introduced to Uzbekistan from the Mediterranean Sea.

The ecological range of *Cornus L.* species is not very wide. They are mesophyte and mesoxerophyte, prefer well-aerated, gray and sandy soils with a pH of 5.5-6. It is heat-resistant, but extremely cold-resistant ($-32 -35$ °C) tree [9].

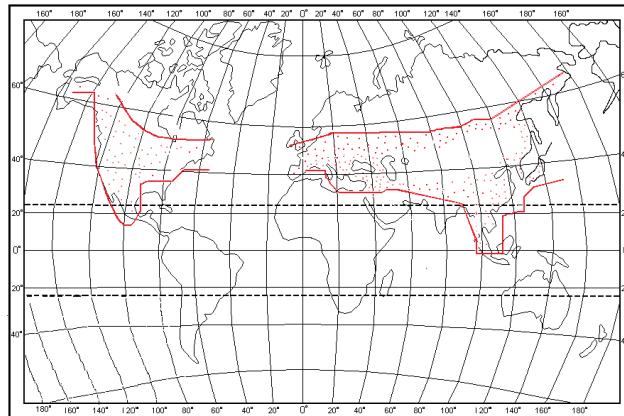


Figure 1. Distribution area of species of *Cornus L.* family

The height of redwood is from 3-4 meters to 10 meters. The diameter of old trees is usually 25-45 cm. Side branches are directed vertically upwards. It was determined that the leaves of the red varieties in the experiment are circular, ovoid, ellipse or wide lancet, and their length is 3-12 cm. Leaves on vegetative branches are larger than leaves on generative branches. They are located in a row on a branch. When viewed under a microscope, the upper and lower part of the leaf blade was found to be covered with epidermis. The leaf blade is dorsoventral type. Epidermis consists of adaxial cells, its upper layer is covered with single-cell elongated, spear-shaped hairs (trichomes). Trichomes are asymmetrical, located horizontally on the epidermis.

The flowers are located in an umbrella-shaped inflorescence (cymose inflorescence). Flower buds are surrounded by 4 petals. Each inflorescence has 10-25 pale yellow flowers. They are bisexual and consist of 1 cm long and 2-2.5 mm long bracts.



Figure 2. *Cornus mas L.* Fruits

Pollination of flowers is self-pollination (autogamy). Some scientists have also observed geitonogamy or dichogamy in these trees. Pollination by insects was also observed in our experiment (allogamy). We will discuss them in detail in our next articles.

Red contains biologically active substances: antioxidants, organic acids, di- and polysaccharides and iridoids. In traditional medicine, red berries are used to treat fever, diarrhea, and kidney diseases. Clinical studies show that red berries contain anti-inflammatory, antimicrobial active substances [6]. Undoubtedly, non-traditional medicinal plants introduced in Uzbekistan are of great importance in pharmaceuticals.



Figure 3. Overview of "Svetlyachok" and "Elegant" fruits

Some types of red fruits contain 10% protein and 90% carbohydrates. Studies have shown that *Cornus mas L.*, a source of various bioactive hydrolyzable tannins, has high antioxidant activity [10]. Red is rich in various amino acids. Amino acids are very important in restoring the body's activity and its normal functioning.

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Flavonoids are a widespread group of phenolic compounds. Flavonoids include several subgroups of compounds: flavones, flavonones, flavonols, chalcone, catechins, anthocyanins, and others. Most of them are present in plants in the form of glycosides or in a free state.

Flavonoids are present in almost all plants in various combinations and amounts. The therapeutic effect comes from their sum. They have a wide spectrum of pharmacological effects. This confirms that the identification of flavonoids in medicinal plants is important.

Apigenin is found in many fruits and vegetables and has anti-inflammatory and anti-carcinogenic properties. The results of several studies show that a diet rich in apigenin reduces the risk of: gastrointestinal tract, skin diseases, prostate, hematological diseases and breast cancer. In addition, it prevents the development of airway inflammation in patients with asthma [11].

The concentration of luteinin is higher than the amount of other flavonoids isolated in "Elegant" fruits and is 1.8 mg/g. In the "Svetlyachok" variety, it was found that the concentration was 7.5 times lower than the above variety.

In conclusion, the determination of flavonoids in medicinal plants and their quantitative indicators is of great practical importance. The flavonoid content of *Cornus mas* L. fruits was analyzed for the first time in our conditions. As a result of our research, the amount of 20 amino acids in the fruits of two varieties of *Cornus mas* L. was determined for the first time. The sum of amino acids contained in these varieties was the highest in "Svetlyachok" fruits, 2.643235mg/g, and the percentage of non-exchangeable amino acids was 59.47%, respectively. The amount of amino acids was found to be high in "Svetlyachok" variety at 2.643235 mg/g.

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