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PAPER

USEFUL PROPERTIES OF GOLUBIKA AND ITS ACCLIMATIZATION IN THE CONDITIONS OF THE BUKHARA OASIS

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Abstract

This article provides information on the vitamins and beneficial elements contained in the blueberry fruit, its medicinal properties, market importance, and the possibilities of its introduction in the conditions of the Bukhara oasis.

Key words: Common blueberry, shrub, vitamin, medicinal, economic benefit.

Introduction

Today, maintaining the health of the population and preventing various diseases is one of the most important issues. In particular, finding a natural solution to the increasingly common deficiency of vitamins in the human body, that is, avitaminosis, is becoming a necessity of the time. Taking into account that the main source of vitamins is plants, establishing the cultivation of plants rich in vitamins, widely promoting their reproduction and use among the population, as well as introducing scientific achievements and modern approaches to the field using existing resources and opportunities, is one of the main tasks today.

One of such plants is the blueberry plant, which is rich in many vitamins and beneficial elements. Common blueberry (Vaccinium uliginosum L.) is a branched shrub of the Ericaceae family, genus Vaccinium, up to one and a half meters high, usually up to 30-50 cm, sometimes with a creeping stem. The fruits are blue, up to 1.2 cm long, smooth and almost round in shape. Because of the blue color of the fruit, it is also called blueberry. The absorption of nutrients from the soil occurs with the help of mycorrhiza. The leaves are up to 3 cm long, oblong, dense, thin. In autumn, the leaves turn red and fall off, but the berries may not fall and remain on bare branches until frost. The flowers are small, five-toothed, drooping, the calyx is pitcher-shaped, white or pink. This species is very cold-resistant.

Blueberries are one of the most popular fruit crops

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in the world consumer market. In North America, cultivated varieties of blueberries are widely grown as valuable food and medicinal plants (2). The range of blueberries extends from Iceland and Great Britain to the Far East and Japan. Blueberries grow in rocky tundra, forest-tundra, taiga, swampy mountains, up to the mountain-tundra belt, in the south in the high mountain belt, in the mountains rising to an altitude of 3000 meters above sea level. Today, Poland is the largest producer of blueberries, so most varieties grown on an industrial scale originate from Poland

As for its market value and economic prospects, blueberries are currently an imported fruit in the Uzbek market. They are mainly imported from countries such as Russia, Poland, and Ukraine. According to 2024 data, the price of 1 kg of fresh blueberries reaches 180–250 thousand soums. The dried form is even more expensive - around 300–350 thousand soums/kg. Locally grown blueberries replace imports in the domestic market, open up new directions for agricultural cooperation, expand the raw material base for the pharmaceutical industry, and have export potential - especially in European countries, where the demand for organic and medicinal products is growing. Blueberries can also be supplied as ready-made products for export in the form of juice, jam, and dried forms. Therefore, increasing the volume of its cultivation brings not only medicinal properties, but also economic benefits.

Its composition is rich in vitamins C, E, K and B vitamins, minerals such as potassium, phosphorus, sodium, magnesium, calcium, zinc, manganese, iron, anthocyanins, antioxidants, protein, flavonoids, pectin substances (up to 0.6%), organic acids (up to 2.7%), fiber (1.5-2%), sugar (8-10%). Blueberries are especially characterized by a high content of vitamins C, K, E (about 30%, 16% and 14% of the daily intake). Up to 3500 mg of anthocyanins and leucoanthocyanins, up to 200 mg of flavonols, about 270 mg of catechins, 300-340 mg of triterpenic acids and 150-300 mg of chlorogenic acids were found in 100 grams of blueberries (1).

Sugars and acids, together with pectin and sweeteners, give blueberries their unique taste. In addition, they are an appetite stimulant, increase the production of gastric and pancreatic juices, and stimulate intestinal peristalsis. The pectin substances contained in blueberries make it possible to take them in the treatment of gastrointestinal diseases, as well as as a preventive measure in harmful industrial processes with the possibility of radioactive and heavy metals entering the human body. If we consider this blueberry as a set of valuable biologically active substances, we can assume various pharmacological effects associated with their consumption: the phytoestrogens (plant hormones) contained in it protect against heart and vascular diseases (reduce ”bad”cholesterol, delay the development of atherosclerosis). Caffeic and chlorogenic acids have a capillary-strengthening, diuretic and choleretic effect. Folic and ellagic acids prevent the formation of edema. Bioflavonoids help regulate the function of the thyroid gland and some other endocrine glands. Betaine, which is extracted from blueberries, has been shown to have anti-ulcer properties. Betaine is also known to stimulate appetite and be an anti-atherosclerotic and lipotropic agent that removes fats and toxic waste from the liver (1).

The climate of the Bukhara oasis is continental, very hot and dry in summer, and dry and cold in winter. Golubika grows well mainly in areas with moist and acidic soils. Therefore, the following agrotechnical measures are required for its successful acclimatization in the conditions of Bukhara:1) Choosing semi-shaded areas - direct sunlight dries the leaves of the plant. 2) Acidifying the soil environment - the pH range of 4.5–5.5 is considered the most ideal. If peat and coniferous leaves are mixed with the soil, an acidic environment is created. 3) Drip irrigation system - the most optimal method for ensuring constant moisture in the hot season. 4) Modern agrotechnics - it is necessary to remove weeds and use biological fertilizers. Golubika is a very difficult plant to root,

so before planting, it is useful to use special rooting agents (stimulators) to treat the lower part of the cuttings to increase their ability to form roots. Golubika seedlings are propagated vegetatively by cuttings, layering, and separation from the mother root. With these methods of growing golubika seedlings, the root and rhizome branches of the plant, as well as one-year-old young shoots are used. When growing golubika seedlings through green cuttings, the length of the branches should be cut to 10 cm. It is recommended to plant golubika cuttings in a specially prepared place in the greenhouse in a 5×5, 5×7, 10×5 or 10×10 cm pattern (2). Golubika is an easy-to-care plant, but when planting and growing this plant, special attention should be paid to the level of soil alkalinity. It should not be overlooked that this plant evolved to grow in forest soils. When establishing a golubika garden, it is necessary to study the composition of the soil before planting seedlings. To do this, the soil of the area allocated for the blueberry plantation is studied for its agrochemical composition (mineral and organic particles), soil type (sandy, clay, peaty, swampy) and soil alkalinity - pH level (acidic, neutral, alkaline). It has been established that the blueberry plant grows best in an acidic environment (3). In addition to peat, agroperlite, river sand, and fine gravel, mineral and organic fertilizers are added to the soil. The required fertilizer rate for blueberry feeding is potassium - 35 g, phosphorus - 15 g, nitrogen - 20 g, peat, humus or rotted manure - 7 kg per 1 m2 of land. The planting hole is dug to a depth of 50 cm, and a 5-10 cm layer of fine gravel is placed at the bottom to create good drainage, and then filled with a mixture of topsoil, peat, humus or rotted manure, agroperlite, river sand, as well as mineral and organic fertilizers (5).

Conclusion

Golubika is a unique plant that has not only medicinal value, but also economic prospects. It can be realized in Bukhara conditions through acclimatization, agrotechnical capabilities, modern irrigation systems and adaptation of soil composition. This direction can also serve as a new agro-business model for local farmers and scientific centers.

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