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BIOMORPHOLOGICAL AND ECOLOGICAL CHARACTERISTICS OF THE PLANT LYCIUM BARBARUM

Saitova Azima Kalzhanovna[1], Idrisov Kamalatdin Abatbaevich[2], Ametova Dame Kutlymuratovna[3]

[1]Candidate of Biological Sciences, Associate Professor, Department of Agroecology and Introduction of Medicinal Plants, Karakalpak State University named after. Berdakha
[2]Deputy Director of the International Innovation Center of the Aral Sea region under the Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan
[3]4th Year Student, Department of Agroecology and introduction of medicinal plants Karakalpak State University named after. Berdakha The Republic of Uzbekistan

ANNOTATION

The article discusses the biomorphological and ecological characteristics of the plant Lycium barbarum. Lycium barbarum is used in the food industry and in the production of natural dyes. Its fruits are known throughout the world as Goji. The main feature of goji fruits is that their composition is rich in anti-cancer elements. The fruits of the plant contain a large amount of ascorbic acid, vitamins and biologically active substances consisting of 18 amino acids, 8 of which are important.

KEY WORDS: *fruit, dye, medicinal plant, biomorphology, berry, China.*

INTRODUCTION

Goji (lat. Lycium) is a family of plants belonging to the nightshade family, or wolfberry (Lycium barbarum) [4]. It is a deciduous tall shrub native to China, Asia and Southeast Europe. Reaches a height of 1-3 meters and has thin arched branches. Leaves are lanceolate, pointed. The flowers are purple, arranged in groups of 1-3 in the leaf axils. The fruits are bright orange-red ellipsoidal berries up to 4 cm long and 1-2 cm in diameter; another name for goji is “wolf berry” [5].

The original homeland of wolfberry (Lycium barbarum) is China. There are more than 90 species of wolfberry in the world. There are 3 wild species in Uzbekistan. The fruits, roots and leaves of the plant are used in medicine

It is also used in the food industry and in the production of natural dyes. Its fruits are known throughout the world as Goji. The main feature of goji fruits is that their composition is rich in anti-cancer elements. Unfortunately, it is very rare in nature.

Widely used in Italy, Germany, USA, Canada, China, Korea and Middle East countries. It is included in the pharmacopoeias of 7 Eastern countries.

Goji berries have been grown in China for over 600 years on the Yellow River Plain. The plant has been actively used in traditional Chinese, Korean, Vietnamese and Japanese medicine since at least the 3rd century AD. Since about 2000, goji berries and products made from them have become very popular in developed countries as a health food or even a “superfood” and alternative medicine [5,6].

The fruits have also been a component of traditional Chinese, Korean and Japanese medicine since at least the 3rd century. In pharmacopoeias, the fruits of the plant are called in Latin lycii fructus, and the leaves are called Herba lycii [3].

Today, the main supplier of goji berry products in the world is China. More than 95,000 tons are collected here every year. Recently, goji has begun to be grown as a garden plant all over the world, and seedlings can be purchased in nurseries in many countries. In technical botanical nomenclature, *L. barbarum* is called the wedding vine [1,2].
The fruit has very high antioxidant activity. For this reason, goji berries are widely used to improve metabolism, restore mental and physical fatigue, slow down the aging process, increase the production of endocrine glands in the body, restore immunity, treat anemia, diabetes, diseases of the circulatory system and skin.

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Chemical composition: The fruits of the plant contain a large amount of ascorbic acid, vitamins and biologically active substances. The ripe fruits of the plant are very rich in carotene, vitamins B_1, B_2, PP, C. It contains a large amount of amino acids and proteins, polysaccharides, taurine, tetraterpenes, physalein, betaine and many macro- and microelements.

The chemical composition of goji berries consists of 18 amino acids, 8 of which are important. The plant contains lycine, which is a betaine similar to lycine. Goji berries contain polysaccharides (5-8% in dry product and up to 40% in extracts), zeaxanthin, carotenoids (β-carotene, neoxanthin, β-cryptoxanthin), hydrocyanic acid, terpenes, alkaloids, cerebrosides, cyclic peptides, betainetaine, physalin, taurine. The fruits of the plant contain a unique complex of natural phenolic derivatives, bioflavonoids, 45% of which are quercetin, miracetin, kaempferol and rutin.

Goji berries contain carbohydrates (46%), proteins (13%), fats (2.2%) and dietary fiber (16%), 21 minerals (calcium - up to 60 mg; iron - 5.4 mg, potassium - 434 mg , zinc). And also 1.48 mg of magnesium, copper, manganese, phosphorus, iodine, selenium, germanium, etc.) and vitamins B_1 (0.23%), B_2 (0.33%), B_6, E, PP, choline. In addition, it has been shown that 100 g of berries contain 48 mg of vitamin C [2,4].

It is noteworthy that this plant also grows in saline soils. The purpose of our research is to develop a technology for growing 1 species and 1 form (Chinese form) of the introduced medicinal plant Lycium for our republic and the creation of their primary seed plantations.

As part of the project, mutual agreements were concluded with the Syrdarya forestry and the Obad Yurt Bogalari farm in the Khovos region, the Zomin forestry in the Jizzakh region and the Kutchi farm for the creation of medicinal queen cells “Lycium barbarum” within the framework of the project. The seeds of the goji plants were planted on the land allocated to them.

METHOD OF PLANTING FROM SEEDS

The year is long, even the simplest harvest has to wait up to three years. However, goji seeds have excellent germination rates and are an excellent option when seedlings are unavailable (or expensive).

Sow indoors 6-8 weeks before the last frost, sometimes in early to mid-February. Plant a few seeds in a 15cm pot, press them lightly into the soil and keep them moist in a bottle until sprouting. Make sure the soil gets plenty of light. After germination, reduce watering, but keep the plant in bright, direct sunlight. There is no need to add fertilizers to the soil. After the third true leaf appears, each seedling is transplanted into a separate container.

REPRODUCTION

Vegetatively - propagated by semi-lignified cuttings about 10 cm long, but you need to make sure that there is old wood on the shoots. To do this, dip the cut part with the roots and plant it in a greenhouse or under film in July-August. When propagated by cleaned cuttings, it takes root faster. From autumn to the end of winter it should be stored in a cool or insulated cool place.

The reaction of the soil for planting goji can be slightly acidic-strongly alkaline, but in principle it can grow in any soil composition. Preference should be given to sunny places for planting.

We prepare a hole 50-60 cm wide and about 40 cm deep for a goji seedling; the holes are placed for several plants at a distance of 1.5-2 meters from each other. To fill the soil, you need to add 150-200 g of superphosphate, 8-10 kg of compost (humus, peat), 30-40 g of potassium sulfate or wood ash and mix well. Seedlings should be buried a little after planting, watered well and mulched with peat or humus.

CARE

Watering and pruning should be the focus. Since watering was discussed above, let us dwell on the rules of pruning in order to get the maximum yield of berries. You can't prune the first year. You need to let the plant take root and get stronger. In winter, for example, at the end of February, remove weak, weakened branches with dead or diseased wood.

Most goji berries develop on new growth branches. In the second or third year, when many new shoots are growing at the base, choose a strong, straight branch as the main part of the bush to encourage lateral growth, and during the upward growth period, prune all dominant stems. which go straight up because you only want to encourage lateral growth. Remove excess roots and most of the old branches, leaving only two or three old branches.

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CONCLUSIONS

Currently, in order to meet the needs of the population for food, medicine and other products, the republic is widely developing the cultivation and processing of medicinal plants that are of great importance for the national economy, and research work is being carried out. According to a project of close cooperation with the United States Agency for International Development (USAID) and the International Center for Innovation of the Aral Sea region, the Muynak experiment was carried out to create plantations of the medicinal plant "Lycium barbarum". On an area from 7.6 hectares to 0.19 hectares, 238 goji plants from seedlings and cuttings were planted; the planting area was 4x2 m.

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