ISSN NO: 2771-8840
June 2025

Bioecological, Properties And Agrotechnology Of Growing Of The Medicinal Plant Capsella Bursa-Pastoris (L.) In The Conditions Of Karakalpokistan

Abdiniyazova G.J., Xalmuratova M.D.

[1]PhD of biological sciences, associate professor of the Department Agroecology and Introduction of Medicinal Plants, Faculty of Biology, 4A-year bachelor's student of the technology of cultivation of medicinal plants[2] Karakalpak State University Named after Berdakh, Nukus, Uzbekistan.

Abstract. The article analyzes ethnobotanical data on the use of natural medicinal plants in Karakalpakstan. Currently, there are 63 families of medicinal plants, 444 species belonging to 240 genera, which grow in natural conditions in the region, which is 40% of the total flora. The use of herbs identified in the process of interviews with doctors in the form of a questionnaire on the use of these medicinal plants in folk medicine.

The flora of Uzbekistan consists about 4 500 species of vascular plants due to it's biogeographically features, which make a center of medicinal plant diversity (sharply continental climate, availability sultry deserts and high mountains, abundance of endemic flora). About 600 species of medicinal plants has been used in traditional medicine, but according to last research we can confirm that in Uzbekistan are growing 1154 species, which are supposed to be medicinal.

Keywords: Global climate changes, natural ecosystem components,

Introduction

and anthropogenic impacts are evident in the reduction and transformation of natural ecosystem components, including natural flora. In this regard, research aimed at determining the composition of local flora and assessing the current status of populations of rare and endemic species is considered important. Accordingly, taking into account the influence of negative factors, it is of scientific-practical importance to identify economically important species of flora, to develop the scientific basis of their rational use, and to create digital databases.

Research Results

After statistical analysis of obtained data we can surely confirm that medicinal flora of Karakalpakstan is represented by 444 species from 241 genera, which belong to 69 families [1].

Capsella bursa-pastoris (L.) Medik.) - It is an annual herb, 25-80 cm tall, with an unbranched stem, simple, covered with small hairs. The leaves are oblong-lanceolate, enveloping the stem at the base. The flowers are yellow. The stamens are located in a panicle. In medicine, the plant is used as a blood-stopping drug. It blooms from April to autumn, and the fruit ripens from June.

Planting and care. The plant loves sunny or semi-shaded areas with soil rich in nitrogen and humus. If it has not yet spread in the garden, it can be planted without problems. From March to April, sow the seeds of Capsella bursa-pastoris (L.) Medik.) in a large area outdoors, lightly press them into the soil, and they will sprout within a week. This is an easy-care, wild flower that does not require additional watering or pruning. If the soil is at least moderately fertile, additional fertilizer is not necessary. Otherwise, you can improve the soil with a plant food that provides nitrogen for vibrant, lush foliage and healthy plant growth.

In order to plant this plant, we took the seeds of this plant from the Tashkent Botanical Garden named after Academician N. Rusanov.

On 15.03.24, in laboratory conditions, in a petri dish and a 12 cm glass, and on 16.03.24, the seeds were sown in the experimental area around the house, and research work was carried out (Table 1-2).

Table 1

Laboratory germination of seeds of Capsella bursa-pastoris (L.) Medik. (2024)

№	Options		Time	Germination %

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		number of seeds	is sown	bruise	%
1	Seed alone (control)	40	15.03.2024.	25	62,5 %
2	Boiled in water	40	15.03.2024.	31	77,5 %

The seeds were sown at a distance of 60-70 cm between the rows and 20 cm and 30 cm between the plants. The sowing depth was 1-1.5 cm. The germination of the seeds was studied under different growing conditions. In this case, budding occurred on 22.06.2024, flowering on 03.07, and fruiting on 23.07.2024, and the total vegetation period was 90-95 days.

Table 2 Germination of seeds of Capsella bursa-pastoris (L.) Medik. (2024)

	Seed sowing time	When it was bruised	Budding	Flowering	Fruiting	Vegetation period
He bought a house and a piece of land.	15.03	21.03	18.07	26.06	30.07	90-95

The purpose of plowing the land planted with Capsella bursa-pastoris (L.) Medik. is to remove weeds, combat them, improve the physical and chemical properties of the soil, level the land and keep it moist. Only by carrying out these measures will the growth and development of the jag-jag plant and its productivity be high. In the fall, the fields planted with jag-jag are plowed to a depth of 30 cm (by applying 20-30 tons of manure and 40 kg of phosphorus fertilizer). In early spring, the land is leveled with the help of harrow and trowel mechanisms, cleared of weeds, and when the 8-10 cm layer of soil warms up to 15-17 ° C, a ditch is dug at an interval of 60-70 cm, and the seeds are sown in seedbeds for cereals and vegetables to a depth of 2-3 cm. It is recommended to use 8-10 kg of seeds per hectare. Before sowing, the seeds should be stratified at 0-4°C for faster germination. The sown seeds germinate in 10-15 days. The distance between the plants is made 10-15 cm. 2-3 healthy plants are left on each bush. Cultivation is carried out in the budding and flowering phase. After the jag-jag plant sprouts, the first fertilization should be carried out and it is fed with 30 kg of nitrogen and phosphorus fertilizers per hectare. The plant requires more nutrients during the flowering phase. Taking this into account, it is fed with 40 kg of nitrogen and potassium fertilizers during the flowering phase.

To prevent the plant from shedding flowers and to strengthen the stem, it is fed with potassium fertilizer. Feeding is carried out before watering. Watering is carried out 5-6 times during the growing season. Since its vegetation period is short, it is recommended to finish feeding in the flowering phase. If the area planted with jag-jag is fed with an average of 70 kg of nitrogen, 50 kg of phosphorus and 40 kg of potassium fertilizer per hectare, it will be possible to grow a good harvest.

The plant contains hissogyn rhamnoglucoside, tannins, fumaric, malic and tartaric acids, choline and acetylcholine, tyramine, inositol, ascorbic acid and saponins. The seeds contain fatty oils (up to 28%) and a small amount of allyl mustard oil.

A decoction of the plant is used in gynecological practice in the form of a tincture and extract as a blood-purifying agent after childbirth, as well as to enhance uterine muscle contractions during childbirth. The effective use of a decoction of the plant in the treatment of pulmonary tuberculosis in case of bleeding has been established.

ISSN NO: 2771-8840
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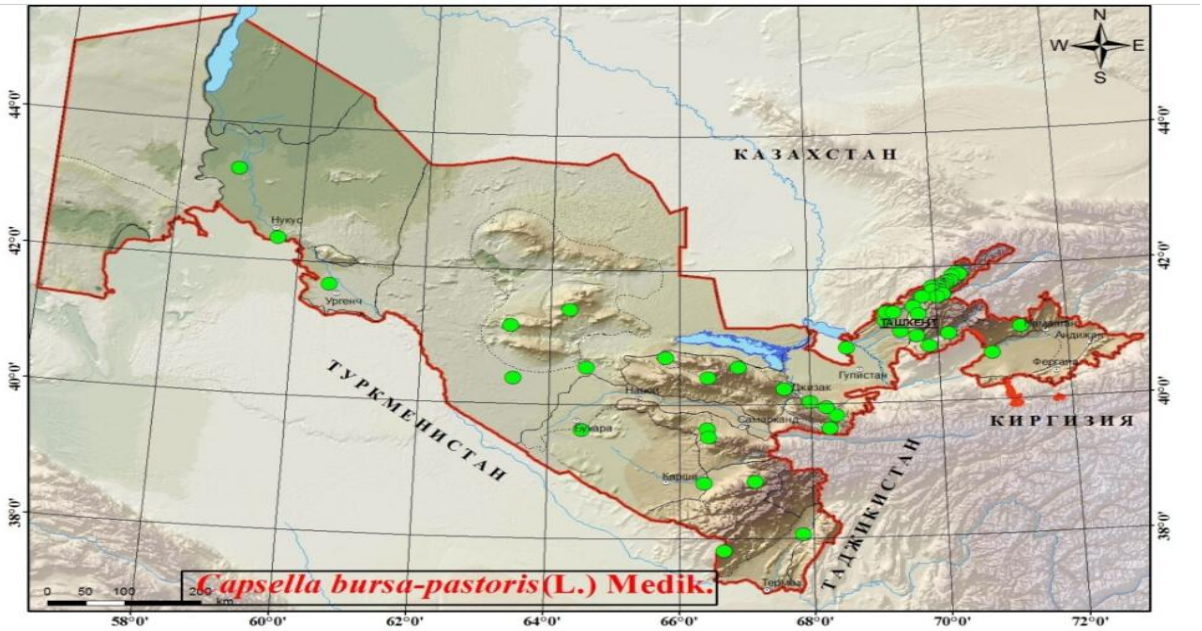
Soil selection. Common yam grows well on typical loamy, meadow-swampy soils. Sometimes it grows and continues to grow on weakly saline soils. However, it cannot grow on strongly saline soils.
Preparing seeds for sowing. Before sowing, the seeds are treated. Treated (scarified) seeds are soaked in cold water for a certain period of time.

The map below shows the plant's distribution across Uzbekistan[5].



Land preparation for sowing. In the fall, 20-30 tons of manure or 80 kg of superphosphate are applied to each hectare of land allocated for ordinary sowing, plowed to a depth of 20-25 cm. In the spring, it is chiseled out to a depth of 14-16 cm and troweled.
Sowing scheme. It is advisable to plow the land for ordinary sowing in the fall. In late autumn, before plowing the land (to a depth of 25-30 cm), 50 tons of manure and 10 kg of phosphorus are sown per hectare. 8-10 kg of seeds are used per hectare and the seeds are sown to a depth of 1-2 cm. For even sowing, the seeds are mixed with sawdust, sand or humus and sown in planting equipment with a row spacing of 70 cm. Seed germination in the soil is 40-50%. It is advisable to plant the plant in rows with a distance of 90 cm.
Feeding during the growing season. After the seedlings take root, they are fed with local fertilizers during the period of rapid growth and during the flowering of the first and second inflorescences of the plant. This is because the greatest concentration of biologically active substances in the plant occurs during the flowering period[3].
The plant contains hyssogen rhamno-glucoside, tannins, fumad, malic and tartaric acids, choline and acetylcholine, tyramine, inositol, ascorbic acid and saponins. The seeds contain fatty oils (up to 28%) and a small amount of allylxanthal oil.
A decoction of the plant is used in gynecological practice in the form of tincture and extract as a postpartum hemostatic agent, as well as to strengthen the contraction of the uterine muscles during childbirth. The effective benefit of the decoction of the plant in the treatment of pulmonary tuberculosis with bleeding has been determined.[2,4]

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Figure 1. Growing Capsella bursa-pastoris (L.) Medic. from seed

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Gray soils. Common yam is propagated by seeds. In the republic, common yam can be grown on irrigated soils with clean, weed-free, and average mechanical composition.
Irrigation of common yam. Irrigation of common yam is carried out depending on weather and soil conditions, taking into account the state of the plant. The height of the plant reaches 1-1.5 m during the growing season, if agrotechnical measures are carried out in accordance with the norms. When the plant is watered 5-6 times during the growing season, 3000-3500 m3 of water is required per hectare. Harvesting. The upper part of the plant (above-ground part) is harvested in the morning, before the dew has risen, using a special tool or sickle that collects the upper part, and without pressing, it is placed in rows on a tarpaulin and stored on special racks and in shade sheds. Drying, packaging and storage. During drying, the plant is placed in 2 rows with the crown facing inward, and it is monitored that the beds do not overheat. The harvested plant is taken to a shed with good wind circulation to quickly dry the above-ground parts. Here, it is spread on shelves (special racks) at the rate of 1-1.5 kg per square meter.
REFERENCES:
1. Abdiniyazova G.J. Medicinal plants of republic Karakalpakstan (2017) Tashkent, Bayoz, -168 pp
2. Khozimatov K.Kh., Aprasidi G.S., Khodzhimatov O.K. Wild-growing medicinal plants of Central Asia. Tashkent: Abu Ali Ibn Sino, 1995, 122p.
3. O.K. Khojimatov, Abdiniyazova G.J., Valeriy V. Pak Some wild growing plants in traditional foods of Uzbekistan // Journal of Ethnic Foods, 2015. – № 2. –Pp. 25-28.
4. Khojimatov K.Kh., Khojimatov O.K., Sobirov U.A., Collection of rules for the use of medicinal, food and technical plants. Tashkent "Yangi asr avlodi", 2009. 171 p.
5. planta-medica.uz