

# Environmental Features of *Echinops Ritro* in the Conditions of Introduction in Karakalpakstan

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**Abstract:** The article presents the results of studies on the environmental features of *Echinops ritro* under conditions of introduction in Karakalpakstan. Growing plant species in demand in the medical industry allows preserving their natural reserves and genetic diversity.

**Keywords:** Karakalpakstan, introduction, medicinal plants, *Echinops ritro*, natural reserves.

## 1. Introduction

Medicinal plants are gaining more and more interest. This is because herbal preparations are safer compared to chemical ones. About 40% of drugs are obtained from plants or they contain the active substance of plant origin [2, 3]. Over the past 20 years, the need for medicinal plants has increased by more than 25%. Wild herbs are a very valuable raw material for many effective medicines.

Introduction to the culture of new medicinal plants is a lengthy and time-consuming process, carried out in several stages: collecting seed or planting material, studying the biological, edaphic, light-climatic characteristics of medicinal plants, conducting experimental crops and identifying the optimal area for placing new crops, selection of economically valuable populations, development of effective methods of cultivation [4, 5].

Environmental changes associated with anthropogenic impacts on nature have led to a sharp reduction in the natural resources of many valuable wild-growing medicinal plants in a large area. At the same time, rapid and deep, often irreversible changes in the vegetation cover occur, and the reserves and ranges of many medicinal plants are reduced.

This problem is very relevant for the Republic of Karakalpakstan, which is at the epicenter of the ecological disadvantage of the South Aral region.

Therefore, at present, the state of the resources of medicinal plants, including those promising for introduction on the territory of Karakalpakstan, requires further study of their floristic composition, ecological and coenotic confinement, determination of scientifically based operational reserves of raw materials in different natural zones, strict observance of collection rules, protection of natural places habitat from destruction and pollution.

## 2. Material and Methods

The role of wild-growing medicinal plants in our country is especially great, since significant areas occupied by natural vegetation have been preserved in comparison with other CIS countries. The rational use of plant and other natural resources, as well as their protection are very important for human life [3, 7].

Growing plant species in demand in the medical industry allows preserving their natural reserves and genetic diversity. However, before introducing the plant into the culture, it is necessary to study the peculiarities of its growth and development, evaluate bio-productivity in new conditions for it, and also compare the productivity of populations of different origin and the quality of raw materials obtained under the culture conditions [4, 7, 8].

*Echinops ritro* - a plant up to 120-150 centimeters high. Its leaves are deeply cut into sharp lobes, spiky at the edges and at the top, green above, white-felt below. Pale blue or white flowers are surrounded by sharp setae. Fruits of the muzzle - achenes 7-9 mm long are also decorated with a crest of bristles.

*Echinops ritro* - the name of the genus of herbaceous perennials with spiny inflorescences-balls of blue and blue. In nature, there are more than 100 species. seven species are used in culture, the most famous of them are the common-headed muzzle and the common muzzle. *Echinops ritro* are valued as ornamental plants due to its bluish pubescent leaves and spherical-headed spiny inflorescences. Herbaceous perennial plant 50-70 cm high, Compositae family. It grows in the steppe regions, in Central Asia and in Siberia. For medical purposes, harvest the fruits of the plant.

Place of research - Botanical Garden. A. Temur, located in the city of Bustan of the Ellikkalinsky district, as well as in farms of Nukus, Kegeyli, Kungradsky, Takhtakupyrsky districts of the Republic of Karakalpakstan.

## 3. Results and Discussion

Currently, as a result of irrational use of water resources, excessive anthropogenic pressures that exceed the threshold of sustainability of natural ecosystems, the process of anthropogenic desertification of the territory is developing in the South Aral region (including the Republic of Karakalpakstan), which is a complex of degradation processes associated with a decrease in the biological productivity of ecosystems depletion of plant species composition, salinization, soil deflation and other negative phenomena.

Plant introduction serves as a complement to protecting species in natural habitats (in situ), as it is impossible to preserve all the genetic wealth of natural populations when

transferring individual individuals to botanical gardens [1, 3].

At the initial stage of the formation of muzzle, seedlings have a thin root of 2.5-3.0 cm, with a short submedicular knee. The cotyledons are fleshy, rounded-oblong, 0.6-0.8 cm long, 0.5 cm wide. The supranocotyledon appears later and carries the first pair of true leaves 1.3 cm long and 0.3-0.4 cm wide. Germination and emergence of seedlings in cenopopulation occurs most often at the beginning of the growing season (June), less often at the end (August). The seedlings that appeared in June by the end of the growing season pass into the next age state.

Juvenile individuals are one vegetative rosette shoot that grows monopodially. Its height is up to 2-4 cm with 2-4 leaves. The leaf blade is lanceolate, 4-5 cm long, 0.3-0.5 cm wide; whole leaf edge (juvenile type leaf). Plants have a main root thin 1-3 mm in diameter, slightly branched, reaches a length of 4.5-5 cm.

Immature individuals 8-12 cm tall, retain the main rosette shoot with 2-4 leaves, shoots of the second order appear. The leaves are pinnately separate, 8-12 cm long and 1.5-2.5 cm wide (immature type). The main root is less than one cm in diameter, about 8 cm long.

Virginia individuals have from 2 to 4 vegetative rosette shoots. The growth of shoots occurs monopodially, the formation of new axes of the caudex continues. Leaves are double-dissected, 16-22 cm long and up to 8 cm wide. The size and degree of separation of the leaf blade do not differ from the leaves of adult plants. The main root is 16-20 cm long, about 1 cm thick.

Young generative individuals have one generative shoot 33-42 cm high and 1-2 rosette vegetative shoots (more often individuals with one shoot) 10-19 cm high. There are no residues from generative shoots of past years. Leaves of an adult type. The main root is up to 25 cm long and more than 1 cm in diameter.

Middle-aged generative individuals reach their greatest development. Plants form 2-3 generative shoots with a height of 45-60 cm and 3-5 vegetative rosette shoots with a height of 13-20 cm; adult type leaves. The main root reaches its maximum thickness: 1.5-2 cm in diameter, its length is up to 25 cm.

*Echinops ritro* was sown in the spring, when the soil temperature was above 14 ° C. Sowing was carried out in two ways: square-nested and in-line. In small areas, the second method is usually used. Seeds are applied to the soil to a depth of 2-3 cm in a pre-moistened hole. After the emergence of seedlings, it is necessary to control the density in order to sow pre-prepared seeds (pre-moistened) in empty places. Loosening the soil between the rows.

Under the muzzle, it is necessary to divert areas with high fertility. The best precursors are winter wheat, traveling in fertilized vapors, and row crops, which are also sown in fertilizers. The main processing is carried out under the muzzle as well as under other row crops. The roots of the

muzzle are penetrated very deeply, therefore, autumn plowing should be carried out to a depth of 27-30 cm. Tillage from under crops that release the field early is carried out as a semi-pair, and in early spring they cover moisture with harrowing. Presowing cultivation is carried out to a depth of 7—8 cm, followed by harrowing.

According to experts, mordovia is a drought-tolerant plant, so it practically does not need watering. Moreover, this plant dies if stagnation of water forms in the region of the root system. Without transplantation, it can grow in one place for more than 15 years [2, 6, 8]. Thus, we note that in the conditions of the Republic of Karakalpakstan full lighting and warm temperatures, a long growing season provides a rapid growth of the studied introducers.

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