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Biomorphological Features of Echinacae Purpurea (L.) Moench in The Conditions of The Mirzachul Oasis

Ergasheva N.A.
Senior Lecturer, Department of Medicinal Plants and Botany
Gulistan State University, Uzbekistan, Gulistan

Abstract:
The article presents data on the biology and morphology of Echinacea purpurea in the conditions of the Mirzachul oasis. The results of the research show the optimal growth and development of the species, which confirms the full-fledged procurement of raw materials in the territories of the Syrdarya region.

Keywords: medicinal plants, Echinacea purpurea, growth and development, leaves, flowers, harvest.

To date, about 500 thousand plants are known in the world, 5% of them are medicinal plants with pharmacological activity. To date, 80% of existing pharmacological preparations are obtained from medicinal plants, but the raw materials of most plant species are not enough. Based on this, the identification of resources of promising medicinal species to provide the pharmaceutical industry with plant raw materials and the development of methods for their cultivation are of great scientific and practical importance.

Currently, herbal medicines are widely used in world practice. Biologically active substances and extracts of plant origin are most popular in such developed countries as Japan, France, Germany, Italy. In many developing Asian countries (India, Sri Lanka, Mali), herbal medicines are of paramount importance.

In connection with the growing need for obtaining medicinal products from plants, there is an urgent need for the cultivation of many species, especially considering that the collection of raw materials from wild plants is often not profitable for economic reasons. There is a need for industrial production of medicinal plant materials [1]. The problem of increasing the immunity of the human body to various diseases is one of the most acute today. Work is underway to identify plants with immunomodulatory and antiviral properties. One of these plants is *Echinacea purpurea* known to many flower growers [2].

Echinacea purpurea from the Aster family, until recently little known in Uzbekistan, is becoming increasingly popular due to its versatility. Echinacea purpurea, one of the many beautiful plants that came to us from the North American continent about 300 years ago, occupies a special place in the gardens of Europe. Americans call echinacea purple coneflower, which translates as "purple flower - cone" [3].

For the first time, the medical experience of using grass by the Indians of the Great Plains was summarized by the American H.K. Mayer back in 1870. Aboriginal people used the plant literally against all misfortunes - from the common cold to snake bites.

Since the end of the 18th century, echinacea has already been included in the US Pharmacopoeia, and in the late 19th and early 20th centuries. became the most popular

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medicinal plant in this country. *E. purpurea* is native to North America. The Indians gave this plant the name "Gift of the Prairie" because of its healing properties. This perennial herbaceous, beautifully flowering plant is bred in gardens in the southern and central strips of the European part of Russia. Its main crops are located at the VILAR zonal stations: North Caucasus, Samara and Belgorod regions.

It is especially important that the positive effect of treatment with *Echinacea* preparations is noted in case of metabolic disorders and exposure to toxic chemical compounds on the body, ionizing radiation, ultraviolet rays, strong chemotherapy drugs, and prolonged use of antibiotics. In extreme situations, echinacea clearly shows the properties of an adaptogen. Echinacea is an excellent honey plant with high sugar production. According to this indicator, it is equated to sowing buckwheat [4, 5].

The most complete realization of the bioclimatic potential of a culture is achieved only if such technological methods of cultivation are used that best meet its biological characteristics. The main criteria for assessing the biological characteristics of medicinal herbs is the study of the characteristics of the germination of plant seeds during introduction. But so far there is no developed scientifically based technology for the cultivation of this valuable medicinal plant in the conditions of the Republic of Uzbekistan. Therefore, the purpose of the research was to study the biomorphological features of *Echinacea purpurea* under the conditions of the Mirzachul oasis. The research was carried out in 2017-2019. in the irrigated areas of the Syrdarya region of Uzbekistan. The results show that in the first and second years of growth and development under the conditions of Mirzachulya, the average height of the plant stem is from 90 to 160 cm. It has a taproot that develops into a short rhizome with numerous thin roots. Basal leaves on long petioles, green, large (20-28 by 10-16 cm), with five main protruding veins, hard, rough, oblong-ovate with a retracted apex, form a large rosette [6]. Stem leaves sparse, smaller than basal leaves, oblong-ovate or lanceolate, sessile or almost sessile with three main veins. On the outside - rough, glabrous or sparsely short-haired, light green with anthocyanin coloration of the lower part and hypocotyl, simple and branched. Generative shoots 3-7. All shoots and branches end in inflorescences of various sizes or their buds. Inflorescences are single baskets, large 10-15 cm. Petals are narrow, 2-5 cm long, bent down and have a pink color in the mass, varying from raspberry to dull pink. Numerous median tubular yellowish-purple flowers up to 4 mm in size are located on the receptacle, which becomes strongly convex from even. In the first year of vegetation (the year of sowing), 4% bloom, in the second year -100% of plants. The period from the beginning of vegetation to the beginning of flowering is 60-85 days and flowering is long and lasts 60-70 days from July to October. The fruits are brownish-gray, the achenes are tetrahedral inversely pyramidal in shape, narrowed at the base. The mass of 1000 seeds is 4.5-5 g. In the first year of life after sowing, seedlings appear in 10-20 days. Early shoots are facilitated by the presence of moisture and heat in the soil, the absence of soil surface crust. After another two weeks, intensive formation of a leaf rosette begins, and in this phase, most plants go into their first winter. With spring sowing, 3-5% of plants develop according to the spring type. They bloom in late August-September, but before the end of the growing season they do not have time to form full-fledged seeds. In August, overwintering buds begin to form on the rhizomes.

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Before going into winter, the height of the main tier of annual plants is 30-45 cm. In the second and subsequent years of life, spring regrowth of plants is noted on March 22-27, stalking (appearance of generative stems) - May 12-21, budding - June 5-15, the beginning flowering - July 6-15, seed harvesting maturity - September 15-30. Non-intensive flowering continues until winter frosts, which begin in late September-October. Flowers are actively visited by bees, butterflies and other insects. Seeds ripen only in the first inflorescences. The raw phase (preparation of the whole plant for medicinal raw materials) occurs at the end of mass flowering. In plants of the second year of life, during this period, the maximum yield and the best ratio of the total mass and its quality are noted.

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