ECHINACEA (ECHINACEA PURPUREA L. MOENCH) SEED GERMINATION

Qahhorov Ismoiljon Barotali o‘g‘li

Teacher of the Faculty of Natural Sciences of Termiz State University

Annotation: This article presents the results of research conducted on the study of seed germination of Echinacea (Echinacea purpurea L. Moench) in laboratory conditions. The seeds of this plant are covered with a hard shell. For this reason, the seed germination rate of Echinacea (Echinacea purpurea L. Moench) was very low, i.e. 31.2%.

Key words: Laboratory conditions, Astraceae family, petri dish, seed germination, thermostat, medicinal plants.

Kirish. Medicinal plants have been harmless mainstays of medicine unlike chemical preparations since ancient times. Biologically active substances and microelements contained in medicinal plants have a comprehensive positive effect on humans and animals, help organisms recover from diseases. Therefore, medicinal plants are widely used in the treatment of infectious and non-infectious diseases of animals and people. [1]

It has been determined that there are 10-12 thousand species of medicinal plants on earth. The chemical and pharmacological properties of more than 1000 plant species have been investigated. There are more than 700 species of medicinal plants in Uzbekistan. Of these, about 120 species of plants grown in natural conditions and cultivated are used in scientific and folk medicine. Currently, about 40-47% [2] of the drugs used in medicine are obtained from plant raw materials.

The demand for raw materials of medicinal plants is increasing day by day all over the world, and especially in our country, Uzbekistan, and this requires the implementation of a number of reforms. In this regard, PQ-4670 of the President of the Republic of Uzbekistan dated April 10, 2020 "On measures for the protection of medicinal plants growing in the wild, cultivated cultivation, processing and

rational use of available resources" -in accordance with the decision no., measures to grow useful and healing plants on a larger scale in our Republic are planned [3].

In the climatic and soil conditions of our republic, there are opportunities to grow the Red Echinacea plant and use it effectively. Red Echinacea has been used in folk medicine for the treatment of various diseases since ancient times. Red Echinacea is widely used especially in American and European folk medicine. In addition, this plant is widely used on an industrial scale in the CIS countries of Russia and Ukraine. Red Echinacea drugs are used to improve the body's immune system, to treat metabolic disorders, especially diabetes and liver diseases, and to prevent and treat diseases caused by air, water, food, and toxic chemicals[4].

Taking into account the above, in order to study the growth and development characteristics of the medicinal plant Echinacea in the conditions of Termiz district, which is the southern region of Surkhondarya, we first started by studying the seed germination of this plant in laboratory conditions.

Purpose of work: Study of the seed germination of Red Echinacea (Echinacea purpurea L. Moench), which is the object of study, in laboratory conditions and comparative analysis of the obtained results.

Research object: Echinacea is a valuable perennial medicinal plant belonging to the Echinacea family, Asteraceae or Compositae family. The Echinacea family includes 5 species, and these plant species are considered to be erect, perennial rhizomes. Their height reaches 1-1.5 m. The flowers are large purple in color [5].

Echinacea - Echinacea purpurea is a perennial plant of the Asteraceae family, reaching a height of 80 to 180 cm. It is partially distinguished from other species by the fact that it has a straight, erect stem and relatively few branches. The leaves are large, the lower leaves are broad lanceolate, located in a long leaf band; the tip of the upper leaves is relatively narrow, with a sharp tip. The flowers are large, the flower heads are 1.5-3 cm long and 5-10 mm wide. Red Echinacea is propagated by seeds and vegetatively[6].

Research methods: Seed germination is one of the biologically and economically important indicators of a plant. Fertility indicators are mainly studied in laboratory and field experiments. Fertilization index of seeds was carried out based on the method of B. Y. Tokhtayev and T. Kh. Makhkamov. According to this method, a 2-layer filter paper moistened with distilled water is placed in a petri dish, and 100 seeds of the studied plant are placed and studied in laboratory conditions based on 4 repetitions. The experiment was carried out in the practical laboratory of the Faculty of Natural Sciences of Termiz State University.

Results: Fertilization of Echinacea seeds is generally considered low. Because its hard shell resists it. For this reason, when the experiment was carried out under normal conditions, the total seed germination rate was 31.2%.

(Table 1)

Planting time	**Number of seeds**	**Number of repetitions**	**Number of germinated seeds**											**Total**
							6 day		**8 day**	**9 day**	**10 day**	**11 day**	**12 day**	
15.02.2024	100	1	0	0	0	0	1	3	5	9	6	3	2	29
15.02.2024	100	2	0	0	0	0	1	2	7	11	3	2	2	28
15.02.2024	100	3	0	0	0	0	2	4	8	12	5	3	1	35
15.02.2024	100	4	0	0	0	0	1	3	8	11	4	4	2	33
Average														**31.2%**

Fertilization of plant seeds was studied in laboratory conditions at a temperature not exceeding 25℃ in a special thermostat.

Conclusion:

1. Echinacea seeds, which are considered medicinal plants, are covered with a hard shell, so cultivation under normal conditions is considered low efficiency.

2. It is advisable to use special solutions before planting to increase the fertility of echinacea seeds.

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