Proceedings of International Conference on Educational Discoveries and Humanities
Hosted online from Plano, Texas, USA.
Date: 1st March, 2023
ISSN: 2835-3196 **Website:** econferenceseries.com

ATTITUDE OF CALENDULA OFFICINALIS L. TO ENVIRONMENTAL FACTORS AND INTRODUCTORY EVALUATION

N.A. Xudayberganov[1],
S.I. Madrimova[2]
1. Junior researcher, Department of the Natural Sciences, Khorezm Mamun Academy, Khiva, Uzbekistan
2. Urganch State University 4th year student of majoring in the technology of cultivation and processing of medicinal plants.
e-mail: madrimovasevara5@gmail.com

Annotation
This article discusses the biological properties of medicinal C. officinalis L. grown in the conditions of Khorezm region, the results of research on growth and development during the season. Based on the results obtained, it was proved that Khorezm region has the potential to expand the crop area due to the successful completion of all stages of ontogeny under the conditions of introduction for the medicinal plant calendula (C. officinalis L.), seed reproduction.

Keywords. Medicinal plants, soil-climatic conditions of Khorezm region, medicinal calendula, biological properties, growth and development, introduction, ontogeny.

The Actuality of the Issue: At present, there are about 500,000 high-yielding plants in the world, of which only 5% is medicinal species with defined pharmacological activity. Although 60% of the available pharmacological drugs are derived from medicinal plants, the source of many species is insufficient [1].
One of the important directions in the effective use of medicinal plants growing in natural conditions is the development of a long-term scientific program for the conservation and effective use of medicinal plants. In order to implement this program in Uzbekistan and to meet the demand of pharmaceutical companies for raw materials we need to find sufficient reserves with wild medicinal plants of raw materials, to arrange in-depth, scientific study of agro-techniques for their care and cultivation, and expand the existing arsenal of medicinal plants in each region. One

[1] 1
[2] 2

of the most relevant and promising directions today is to introduce various biologically active additives, phyto-preparations and herbal teas on their basis and introduce them into production [2].

The flora of the territory of our country is rich in high profitable plant species that are important for the national economy. These plant species include the medicinal the pot **marigold (**Calendula officinalis L.)which is used in traditional and modern medicine. Although this medicinal plant has been studied in different soil-climatic conditions of the republic, the bio-ecological features of the plant in the saline soil-climatic conditions of Khorezm region, as well as from an agricultural and agronomic point of view have not been sufficiently studied until recently.

Experimental research studies on the biology of this species are relevant to include the medicinal pot **marigold** (Calendula officinalis L.) in the list of cultivated plants, to measure its prospects to culture of the most promising varieties and proper zoning of it in the area. It is important and practical to monitor the growth and development of the plant during the season, to determine the dynamics of flowering, as well as to develop effective agro-technological methods for their cultivation and reproduction to shed light on the biological properties of medicinal cloves during its ontogeny introduced in the soil and climatic conditions of the Khorezm oasis.

The Objectives and Methodsof the Research: The research was conducted at the experimental base of the Academy of Mamoon in in Khiva district, Khorezm region. The research has been conducted mainly on a small-scale experiment plots with length (1 to 10 m2). The surface of the area is 200 m2.The observations were made on the timing of the onset of the main developmental phases of plants in the study of seasonal rhythms of development by traditional methods. Processing of phenomenological observation data [3] was carried out taking into account the additions by V.N. Nilov (1980). The seed germination is also determined [4]. Fertility analysis was performed in 3–4 repetitions, each containing 25–100 seeds [5]. The variations and repetitions were placed in a series of one or two tiers. The density of the plants was determined by counting the plants twice in all variants, after germination and after harvesting. The methods offered by Borisova (1972), I.N. Beydeman (1974) methods were used in the study of plant ontogenetic cycles [6] and its seasonal development. [7,8]. Statistical processing of the obtained data was carried out according to the method of analysis of dispersion and correlation-

regression [9]. The experiments are conducted basing on generally accepted agricultural techniques.

The Research Outcome and Their Analysis. The flowering and seed formationof introduced species in new conditions is an important indicator of adaptation. The plant blooms, produces seeds, and eventually leaves offspring only when the plantadapts to the new conditions and suits to the demand for environmental factors. This has been reflected in many scientific studies. Many scientists have studied the flowering biology of acclimatized plants [10].

The success of plant introduction is assessed by the sum of its characteristics, the most important of which is the completeness of the transition of large (ontogenetic) and small (seasonal) life cycles of the plant, which is characterized by the preservation of plant habitus. The assessment of the success of the introduction takes into account the generative development, vegetative reproduction, maintenance of habitus, infestation with diseases and pests, the viability of plants in unfavorable periods of the year. To analyze the results of plant introduction or to assess the prospects, the 5-indicator scale of plant introduction assessment in saline soils proposed by B.Yo. Tukhtaev (2009) is used in experiment [12]. The evaluation of the species is performed according to100-point scale. The sum of scores indicates that the species with 20-39points was considered as unpromising, 40-59 - low-prospective, 60-79 - promising and 80-100 - advanced promising. The ability of Calendula officinalisto produce abundant leaf mass under the conditions of introduction is one of the main indicators of its farm value. Calendula officinalis is not affected by disease and pests under the conditions of introduction. An introductory evaluation specific to the conditions of Khorezm region has been developed by the researcher. Calendula officinalisis moderately resistant to salinity, low in moisture requirements, moderately resistant to high temperatures, moderately resistant to low temperatures, and naturally prone to overgrowth. Thus, the Calendula officinalisplant scored 80 points under the conditions of introduction and was considered as an advanced promising species (Table 3).

Table 1 Introductory Evaluation Scale of Calendula officinalis(points)

№	Indicators	Indicator Level						High rating
I	Resistance to salinity	Strong	30	Average	20	Low	10	20
II	Humidity requirement	low	15	Average	10	High	5	15
III	High temperature resistance	Resistant	15	Average	10	irresistant	5	10
IV	Lowtemperature resistance	Resistant	15	Average	10	irresistant	5	15
V	Reproduction naturally	Instant	25	Average	15	Non-breeding	5	25
Total								80

Thus, in the soil and climatic conditions of the Khorezm oasis, the medicinal plant pot marigold(Calendula officinalis L.) can be recommended as a 1-2-year vegetative plant for the establishment of large-scale plantations in the creation of the raw material base of the local pharmaceutical industry.

Summary

- The introductory success of the medicinal calendula (Calendula officinalis) plant was evaluated with 80 points. This medicinal plant has made it possible to consider itself as a very promising species in saline soil-climatic conditions in Khorezm region.

References:

1. Lutsenko S.V., Feldman N.B, Lutsenko E.V., Bykov V.A. Vegetable Flavolignans. Biological activity and Therapeutic potential. In Russian// - Moscow, 2006. - 235 p.
2. Al-Eiswai D, El-Oqlah A, Oran S, Laham J (1994) Plant biodiversity in Jordan. In: Plant genetic resources of Jordan, Jaradat AA, (ed.). International Plant Genetic Resources Institute (IPGRI). Proceeding of National Seminar. Amman, Jordan. 2: 13-51.
3. Nilov V.N, Methods of Statistical Processing of Materials of Phenomenological observations. Journal of Botany. (In Russian). 65, No. 2. 1980. -P. 282-284.

4. Lishchuk Method for Determining the Mass of Seeds(In Russian). // Bot. Journal. Volume 76, No. 11. 1991. - P. 1623–1624
5. M.S.Zorina, S.P. Kabanov. Determination of Seed Productivity and Quality of Seeds of Introduced Species(In Russian) // Methods of Introduction Research in Kazakhstan. Alma-Ata, 1987. - P. 75-85.
6. Rabotnov T.A. The Main Issues of Studying mero-phyto-ceno-populations(In Russian). // Bul. MOIP. Dept. biol. Vol. 97, No. 3, 1992. –P.. 109-110.
7. Borisova I.V. Seasonal Dynamics of the Plant Community. In the book. Field Geo-botany, Vol. 4. JL, Publishing House "Nauka", 1972. –P.. 5-136.
8. Beidman I.N. Methods for Studying the Phenology of Plants and Plant Communities.(In Russian). Novosibirsk, 1974, - 155 p.
9. Zaytsev G.N. Mathematics in Experimental Botany.(In Russian). - M.: Nauka, 1990. - 296 p.
10. Murdaxaev Y. M. Medicinal Plants Native to Uzbekistan (In Uzbek). Tashkent, 1990
11. Muravyova D.A. Ecology of Flowering and Pollination of Plants(In Russian).// Interuniversity collection of scientific papers. - Perm, 1989 .-- 143 p.
12. B.E. Tukhtaev, Introduction of Medicinal Plants in the Saline Lands in Uzbekistan (In Uzbek). Ph.D. diss., Toshkent, 2009 - P. 153.