American Journal of Biology and Natural Sciences
https://biojournals.us/index.php/AJBNS
ISSN: 2997-7185

Seed Veritability and Growth Rate of Achillea Millefolium L under Different Soil Climate Conditions

Zahriddinov Ilyosjon Ilhomjon oglu
Teacher of Biotechnology Department of Namangan State University

G'ulomova Gavharoy Mamasiddiq qizi
3rd year student of the Faculty of Biotechnology, Namangan State University

Received: 2024, 15, Dec
Accepted: 2024, 21, Dec
Published: 2025, 04, Jan

Annotation: In this article, the rate of germination of the medicinal plant Achillea Millefolium L, which is widely used in folk medicine, modern pharmaceuticals and food industry, was observed in the laboratory under different soil and climate conditions. As a result of the conducted research, the main goal was to develop a recommendation for the cultivation of Achillea Millefolium L in different environments of our republic.

Keywords: Achillea Millefolium L, Seed germination, elite, soil, mechanical composition, carminative, anethole, essential oil, thyroid, Laboratory analysis.

ENTRANCE

The main purpose of the article is to study the medicinal properties and chemical composition of the medicinal plant Achillea Millefolium L, and to study its growth and development in soils with different mechanical composition. Achillea Millefolium L belongs to the Asteraceae family (Compositae). It is a perennial herb reaching a height of 20-50 (sometimes 80) cm. The rhizome is branched, forming an underground stem. Iridescent leaves and stems grow from such a stem. The stem is several, erect, branched in the upper part, which end with thyroid-shaped flower clusters. The leaves are simple, twice pinnately dissected, arranged in a row on the stem. The flowers are collected in baskets. The baskets, in turn, form a thyroid-shaped inflorescence. The fruit is a flat, ovoid, gray pistachio. It blooms from June to late summer, and the fruit ripens from August. The plant is widespread and grows in forest, forest-steppe and steppe areas, as well as in mountainous

regions (on foothill plains, mountain slopes), in open glades and dry meadows, hills, roadsides, forest edges, and other places.

LITERATURE ANALYSIS

1. "On the organization of cultural cultivation and processing of medicinal plants, support for the establishment of plantations of medicinal plants, as well as the widespread use of medicinal plants in the prevention and treatment of diseases," Resolution No. PQ-251 of the President of the Republic of Uzbekistan Sh. Mirziyoyev was adopted on May 20, 2022. In recent years, the republic has been implementing consistent reforms in the field of protection of medicinal plants, rational use of natural resources, organization of plantations of medicinal plants and their processing.
2. M. Mamazhanova "Biotechnology of medicinal plants" (educational and methodological complex) Namangan-2023 100 pages. This complex provides information on both theoretical and practical work on the biotechnology of medicinal plants. That is, instructions are given on the cultivation and processing of medicinal plants from certain parts in laboratory conditions.
3. E.T. Berdiyev, E.T. Ahmedov "Natural medicinal plants" (textbook) Tashkent-2018. 187 pages. This textbook describes the bioactive substances contained in medicinal plants, as well as the types of plants in which these bioactive substances are collected.
4. R.H. Ayupov "Medicinal plants and their use" (3-part book). This book provides extensive information about medicinal plants. It also describes the methods of using them for diseases, that is, their use.
5. G. Mirsharipova "Herbology" (methodological manual) Gulistan-2018. 42 pages. This manual provides information on plant growing technology and care.

RESEARCH METHODOLOGY.

The germination of Achillea Millefolium L seeds was monitored in soils with 3 different mechanical compositions and 3 different pH environments. In laboratory conditions, a pH meter and the Kachinsky method are simple and easy to use. That is, the Kachinsky classification divides soils such as sand, loam, and loam based on the data obtained as a result of mechanical analysis, and the “physical clay” and “physical sand” methods proposed by Sibirtsev were used. In the field, the mechanical composition can be determined in various ways. These are the dry method, determination using clay rings and sieves. In the “dry method”, a small amount of soil is taken, crushed thoroughly in the palm of the hand, then lightly blown and the mechanical composition of the soil is judged by the amount of dust particles remaining in the palm.

If the mechanical composition of the soil of the tested area is heavier, the more particles will remain in the palm. “Clay rings” are used for this, 3-5 grams of soil is taken in the palm and a doughy clay is prepared by adding a little water. Rings are made from it and, depending on its external condition, the mechanical composition is separated. Checking the purity of the seeds taken for the sample and foreign impurities in the seeds. Foreign impurities in the seeds are called waste. Waste is divided into 2 types: 1. Dead waste 2. Live waste: Dead waste can be (straw, grass, stones and small pieces). Living debris can also be (weeds, viable seeds of other crops, even insect larvae). The purpose of checking seed purity is to protect the field from various weeds, prevent loss of crop quality and quantity, and maintain good quality seeds.

ANALYSES AND RESULTS.

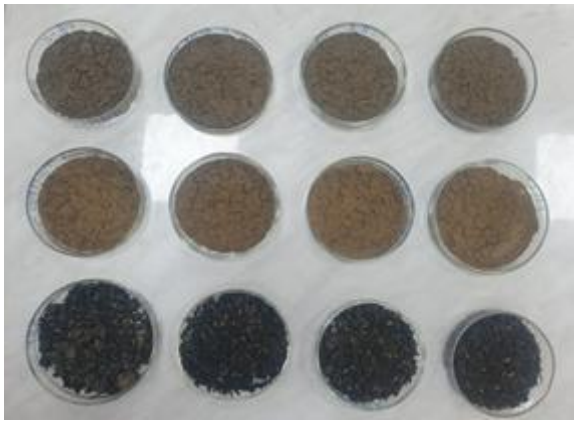
According to the results of the analysis, soil samples were taken according to the condition of the clay rings: The obtained soil samples were divided into 4 Petri dishes with special marks. According to the procedure, the weight of 1000 seeds of the sorghum to be harvested was measured. The weight of 1000 seeds was 5.8 g.

Then the purity level of these 1000 seeds was determined. When the seeds were examined, it was determined that they had 97% purity. The next step was to check the germination of the seeds, and we

Soil pH results in the sample

(Table 1)

T/r	Soil sample	Soil pH environment
1	Light loam	Ph-7,6
2	Heavy sand	Ph-6.4
3	Soz soil	Ph-6



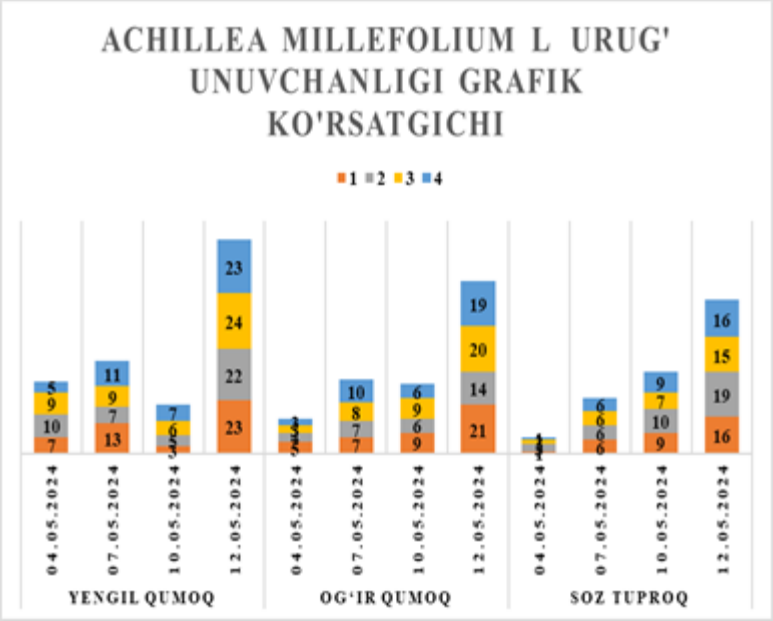
We did the seed germination using the local method, i.e., soaking the seeds in water. In this method, seeds with low germination or that have failed to germinate rise to the surface of the water. Seeds with high germination sink to the bottom. As a result of our investigation, we found that 125 out of 1,000 seeds, or 12.5%, did not germinate.

Determining the germination of seeds has a significant impact on the subsequent seedling density of the crop, the uniform development of plants and other characteristics. Seed germination is closely related to temperature, sufficient moisture and planting conditions. Taking into account the above, we prepared the seeds for sowing. From the 1000 seeds we selected, we selected 300 (1.7 g) of seeds that we needed. We sowed 25 seeds in each of 12 petri dishes with soil samples and moistened them with plain water (without any nutrient medium). According to the procedure, seed germination was tested in laboratory conditions, that is, based on phenological observation. Seed germination occurred 4 days after sowing.

Seed growth rate in different soil conditions

(Table 2)

№	Light loam				Heavy sand				Soz soil			
Very much	04.05.24	07.05.24	10.05.24	12.05.24	04.05.24	07.05.24	10.05.24	12.05.24	04.05.24	07.05.24	10.05.24	12.05.24
1	**7**	**13**	**3**	**23**	**5**	**7**	**9**	**21**	**1**	**6**	**9**	**16**
2	**10**	**7**	**5**	**22**	**4**	**7**	**6**	**14**	**3**	**6**	**10**	**19**
3	**9**	**9**	**6**	**24**	**3**	**8**	**9**	**20**	**2**	**6**	**7**	**15**
4	**5**	**11**	**7**	**23**	**3**	**10**	**6**	**19**	**1**	**6**	**9**	**16**



The results obtained in the table above showed that in light loam, 23 Achillea Millefolium L seeds germinated in control 1, 22 in control 2, 24 in control 3, and 23 in control 4, with an average germination rate of 92%. In heavy loam, 21 seeds germinated in control 1, 14 in control 2, 20 in control 3, and 19 in control 4, with an average germination rate of 74%. In sandy loam, 16 seeds germinated in control 1, 19 in control 2, 15 in control 3, and 16 in control 4, with an average germination rate of 66%. Our variant, which was in a soil with a light mechanical composition, a pH of about 7.3, and was rich in humus, gave a high germination rate.

Conclusion

In our experiment, after observation, it can be said that the seeds planted in a light loamy soil sample with humus developed well. In conclusion, the mechanical composition of field soils is also of great importance for planted plants. That is, the mechanical composition of a single soil is inextricably linked to its heat, water permeability, density, capillarity, water retention, structural state and pH environment in it, and other processes. Work aimed at improving its mechanical composition alone creates a very positive situation in the soil. Achillea Millefolium L was most effective in increasing the yield and improving its medicinal properties in soils with a light mechanical composition. It is often observed that cultivated crops planted in soils with an unsatisfactory mechanical composition, that is, with a strong tendency to crack and water retention, die. Because when the roots are just forming, cracking occurs and breaks the roots into pieces. The main damage to a plant comes from its roots. It is very difficult for a plant to sprout from a damaged root.

FOYDALANILGAN ADABIYOTLAR:

1	O‘zb.Res.Prezidentining 2018- yil 17-iyuldagi O‘zb.Res.Fanlar akademiyasi Botanika instituti faoliyatini yanada takomillashtirish chora-tadbirlari to‘g‘risida N-PQ-3861 sonli qarori.
2	Pankratova E.M."Tuproqlarning azot balansida ko‘k-yashil suv o‘tlarining ishtiroki//SSS qishloq xo‘jaligi mineral va biologik azot "1985- yil 221-228-betlar.
3	Turg‘unov M., Zahiriddinov I. "Tuproqshunoslik va agrokimyo" Namangan-2023 21-23-betlar.
4	Ermakov I.P. "O‘simliklar fiziologiyasi" Universitet talabalari uchun darslik "Akademiya" nashriyoti 2005- yil 640- bet.
5	Zahriddinov, I. I. o‘g‘li, & Tursunova, N. S. qizi. (2024). Teri kasalliklarida foydali bo‘lgan xalq tabobati dorivor o‘simliklari bo‘yicha tavsiyalar. Educational Research in Universal Sciences, 3 (1), 213–218. Retrieved from

6	Usmonov Tokhirjon, & Zahiriddinov Ilyosjon. (2023). Medicinal Plants of the Lamiaceae Family in Namangan Region. *International Journal of Scientific Trends*, *2*(4), 24–31. Retrieved from
7	QO‘SH EKINLAR PARVARISHLASHNING TUPROQ HAJM OG‘IRLIGIGA TA’SIRI. Tursunov A.A, Ergasheva N.X, Zahriddinov I.I 606/ 29-bet
8	Dorivor zubturum o‘simligining zamonaviy tabobatda qo‘llashning samarali usullari ***Zahriddinov I.I., G‘ulomova G. M., Abdubannayeva X.G‘ 1409/243-bet***
9	“Yovvoyi holda o‘suvchi dorivor o‘simliklarni muhofaza qilish, madaniy holda etishtirish, qayta ishlash va mavjud resurslardan oqilona foydalanish chora-tadbirlari to‘g‘risidagi” PQ-4670-sonli qaror qabul qilindi. [Toshkent 2020 y]
10	E.T Berdiyev, E.T Ahmedov "Tabiiy dorivor o‘simliklar" (o‘quv qo‘llanma) Toshkent, O‘zRFA Minitipografiyasi, 2018.113-114 bet.
11	Musayev K.Y. "Sug‘oriladigan tuproqlarning suvo‘tlari va ularning tuproq unumdorligini oshirishidagi ahamiyati" Toshkent "Fan" nashriyoti 1960- yil 182- bet.
12	Educational Research in Universal Sciences Zahriddinov Ilyosjon Ilhomjon o‘g‘li, Abdulatifova Oydina Nozimjon qizi **DOI: https://doi.org/10.5281/zenodo.11177686**
13	ugli Usmonov, T. Z., ugli Zahiriddinov, I. I., kizi Kodirova, H. M., ugli Shomansurov, S. S., & ugli Solijonov, S. Z. (2024). CULTIVATION OF MELISSA OFFICINALIS L. PLANT SEEDLINGS UNDER DIFFERENT CONDITIONS. *Educational Research in Universal Sciences*, *3*(5), 123-130.
14	Abdulatifova, O. N. (2024). TUPROQ HOLATI VA UNDA BORADIGAN JARAYONLARNI YAXSHILASHDA MIKROSUVO ‘TLARINING O ‘RNI, BIOGEOTSENOZDAGI AHAMIYATI. *Educational Research in Universal Sciences*, *3*(5), 89-94.

INTERNET MA’LUMOTLAR

1. http://www.researchgate.net".
2. http://erus.uz/index.php/er/article/view/6184
3. https://scientifictrends.org/index.php/ijst/article/view/87
4. http://www.journal.namdu.uz/