IJIMM, Volume 2, Issue 5, 2024 ISSN: 2995-5319
http://medicaljournals.eu/index.php/IJIMM/issue/view/3
INTERNATIONAL JOURNAL OF INTEGRATIVE AND MODERN MEDICINE

Effect of Fertilizers on the Growth, Development and Yield of Lavender (Lavandula Angustifolia Mill)

Arslanova Raykhona Rajabboevna
Assistant of the Department of Pharmacology of Samarkand State Medical University

Yuldasheva Asal Mirzokhid's daughter
Faculty of Medicine, Samarkand State Medical University, 2nd year student

Mamurov Elbek Abduraim's son
Samarkand State Medical University, student of the 410 th group of the Faculty of Pharmacy

Abstract: Nowadays, treatment with medicinal plants is widely used in modern medicine. As in all Eastern countries, in Europe, substances with high biological activity from the composition of plants and the creation of new medicines based on them are developing rapidly. The lavender plant with such high biological properties is one of the most common and highly promising medicinal plants.In this scientific article, we will study the effect of fertilizers on the nutrition, growth, development, yield and phytochemical composition of the lavender plant (Lavandula angustifolia Mill) It consists of studying scientific publications that consist of the development of a tracking system.

Keywords: lavender, lavender fertilization, essential oil crops.

INTRODUCTION. Medicinal plants have been used by people as medicine for thousands of years. Especially in recent years, the demand for medicinal products made from plants has increased sharply. Their protection, cultural cultivation, processing, rational and effective use of available plant resources, and providing people with medicinal plant products is one of the urgent tasks of today. When collecting raw materials, it is necessary not only to determine the distribution area of medicinal plant species, their reserves and productivity, but also to study the ability of harvesting and drying, and then restoring the natural state of plants. The lack of information about these properties and, most importantly, the poor organization of harvesting work, often after several years of work, the areas where the former medicinal plants grow are significant or completely causes it to dry out. Systematic solution of these problems is reflected in the decision. Based on the achievements of fundamental science, the rational complex study of medicinal plants and the development of processing technology is the basis of systems for increasing the economic efficiency of the sector. It should be noted separately that in recent years, consistent reforms have been implemented in the republic regarding the protection of medicinal plants, the rational use of natural resources, the establishment of plantations where medicinal plants are grown and their processing. Lavender (Lavandula) is a plant with essential oil in the form of a shrub or evergreen shrub belonging to the labraceae family. Lavender is a perennial spicy-aromatic and medicinal plant. It grows in bushes 50-60 cm high. The stem is straight, the leaves are linear, entire, the edges are slightly bent, covered with gray felt. It blooms in the summer months and is usually associated with a delicate purple color. There are white, pink, purple, dark purple, blue flowers. The material used for herbal purposes includes lavender flowers (Lavandula flores) containing essential oil (3%), anthocyanins, phytosterols, sugars, minerals and tannins. The qualitative and quantitative composition of lavender essential oil is different and depends on the genotype, place of cultivation, climatic conditions, reproduction and morphological features. On the basis of solving the above-mentioned urgent tasks, to create a base of raw materials for the production of products made from medicinal plants for use in the pharmaceutical and medical fields of the republic, to fill the domestic and foreign markets of the republic with medicinal plant products for use in the pharmaceutical and medical fields. ground will be created to provide and the export potential of the republic will increase. The essential oil contains over 300 chemical compounds. Dominant components

are linalool, linalilatsetat, terpinene-4-ol, acetate lavandulol, ocimene and cineole. [1]. Lavender angustifolia essential oil is used in perfumery and cosmetics, and its activity on the central nervous system has been proven as a sedative, anxiolytic and antidepressant effect [3-4]. In addition, the biological activity of Lavandula essential oil, such as antifungal, antibacterial, antioxidant, and anticancer effects, has been widely reported [5-6].

According to a Biesiada et al (2008), the most appropriate level of N for the yield of lavender has an average N application 100 kg N/ha. The author notes the importance of an appropriate ratio of minerals (N: K, N: P) for plantnutrition. In various regions of the world with heavy fertilizer use (given the capacity to retain ions soil), overuse of N leads to groundwater pollution, i.e. nitrates, the most mobile form of N in any ecosystem. Plants grown at the highest P concentration (70 mg/L P) show the highest biomass of 19.47 g/plant, while plants grown at 40 mg/L P show the lowest biomass, 12.69 on average g/plant.Application of 50 mg/L P keeps and increases root fresh weight and dry matter content, but reduce the ratio of overhead biomass/root system. Furthermore, plant height, length of the leaves and the thickness of the stem have not been influenced by the increased concentration of P in the nutrient solution. The application of phosphorus significantly increases the content of basil essential oil, but the fresh and dry weight of the above-ground mass remains unchanged (Ramezanietal., 2009) Minerals such as nitrogen (N), phosphorus (P) and potassium (K) can affect the growth and synthesis of an essential oil inaromatic plants and are used by plants to build many organic compounds such as amino acids,proteins, enzymes and nucleic acids. These mineral elements affect the function and levelsof the enzymes involved in terpenoid biosynthesis (Hafsietal, 2014). Monovalent cations such as K, in the activation of enzymes that play a role in helping to substrate binding by lowering the energy barrier and/or transition states, and not causative of causing catalysis (Pageand Di Cera, 2006).

OBJECTIVE OF RESEARCH. It consists of studying and analyzing scientific data on the nutrition, growth, development, harvesting, phytochemical composition of the topsoil and flowers of lavender (Lavandula angustifolia Mill) and the effect of fertilizers on them.

Materials and Methods: The analysis of scientific data on the effect of fertilizers on the growth, development, productivity of lavender (Lavandula angustifolia Mill) was carried out. Lavender (Lavandula angustifolia Mill) in PubMed and eLIBRARY databases effect of fertilizers on growth, development, yield of lavender (Lavandula angustifolia Mill) information was searched using keywords. A production experiment with a plot size of 0.05 ha is carried out, with the following scheme: 1) Untreated control; 2) Fertiactyl Trium + Fertileader Vital - 1.5 + 1.5 l/ha; 3) Fertileader Vital - 3 l/ha; 4) Fertileader Alpha - 3 l/ha. The treatments were made in two successive vegetations of lavender. The first was carried out in the first growing year after transplanting, and the second in the following growing season.To test the effect of foliar fertilization of lavender were used the following commercial products:1) Fertiactyl Trium (5% N; 5% P2O5; 7% K2O; 1.5% Zn) 2) Fertileader Vital (9% N; 5% P2O5; 4% K2O; 0.02% Fe; 0.01% Mo; 0.05% Zn; 0.1% Mn; 0.05%B) 3) Fertileader Alpha (6% N; 12% P2O5; 4.2% B) In November, in both experimental years, the granular product TOP 34 (5% N; 19% P2O5; 10% K2O; 19% SO3; 0.1% Zn; 0.1% B) is imported to the entire experimental area. The dose is 200 kg/ha. Spring nitrogen feeding is done with the Sulfamo product (25% N; 27% SO3; 4% MgO). The dose for the first vegetation is 30 kg/ha and for the second one - 60 kg/ha. Leaf fertilizers in correspondingdoses are imported in phase budding of lavender. Data analysis further shows that yield is also influenced by environmental factors (moisture, temperature, wind at harvest, etc.) and fertilizer applied at bud emergence. It can be seen that in some experiments, the yield index of variants treated with Fertileader Alpha and Fertileader Vital in calm, hot, dry and sunny weather during flowering and harvest is lower than 40 (39.1 and 39.4). In unfavorable conditions for flowering and essential oil synthesis, the raw material for the production of one kilogram of lavender oil for the Fertileader Vital variant was more than 100 kilograms.

CONCLUSIONS. Based on the above data, the application of mineral fertilizers, manure, biohumus and foliar fertilizers up to 13.6% and 10.9%, respectively. Lavender nutrition, growth, development , it is noted that it leads to an increase in the phytochemical composition of the topsoil and flowers. Much

of this experience is related to the positive effects of these fertilizers, and as a result, more branches lead to the formation of more flower stems in these variants.

LIST OF REFERENCES:

1. Nikolay Minev EFFECTS OF FOLIAR FERTILIZATION ON GROWTH, DEVELOPMENTAND PRODUCTION OF FLOWERS AND ESSENTIAL OIL ON LAVENDER(*Lavandula angustifolia* Mill.) cientifc Papers. Series A. Agronomy, Vol. LXIII, No. 1, 2020 ISSN 2285-5785; ISSN CD-ROM 2285-5793; ISSN Online 2285-5807; ISSN-L 2285-5785.P 415-421
2. Almeida, H.J., Pancelli, M.A., Prado, R.M., Cavalcante, V.S., Cruz, F.J.R. (2015). Effect of potassium on nutritional status and productivity of peanuts in succession with sugarcane. *J. Soil Sci. Plant Nutr., 15*(1), 1–10
3. De Sousa, D.P.; de Almeida Soares Hocayen, P.; Andrade, L.N.; Andreatini, R. A systematic review of the anxiolytic-like effects of essential oils in animal models. *Molecules* 2015, *20*, 18620–18660.
4. *L*ópez, V.; Nielsen, B.; Solas, M.; Ramírez, M.J.; Jäger, A.K. Exploring pharmacological mechanisms of lavender (*Lavandula angustifolia*) essential oil on central nervous system targets. *Front. Pharmacol.* 2017, *8*, 280.
5. Nikoli´c, M.; Jovanovi´c, K.K.; Markovi´c, T.; Markovi´c, D.; Gligorijevi´c, N.; Radulovi´c, S.; Sokovi´c, M. Chemical composition,antimicrobial, and cytotoxic properties of five Lamiaceae essential oils. *Ind. Crop. Prod.* 2014, *61*, 225–232.
6. Abd Rashed, A.; Rathi, D.-N.G.; Ahmad Nasir, N.A.H.; Abd Rahman, A.Z. Antifungal properties of essential oils and their compounds for application in skin fungal infections: Conventional and nonconventional approaches. *Molecules* 2021, *26*, 1093.
7. Rajabboevna, A. R. (2023). Specific Properties of Apple Cider Vinegar's Antibacterial Effect. *Web of Semantic: Universal Journal on Innovative Education*, *2*(3), 230-232.
8. Anvarovich, C. A., Razhabboevnason, A. R., & Safarovich, T. O. (2024). Medicinal Plants used as Remedies for the Treatment of the Oral Mucosa. *American Journal of Pediatric Medicine and Health Sciences (2993-2149)*, *2*(2), 491-494.
9. Arslonova, R. R., & Nagmatullayev, U. A. (2023). Evaluation of the Clinical Efficacy of Phenytoin in the Treatment of Epileptic Seizures in Children. *World Journal of Agriculture and Urbanization*, *2*(6), 14-17.
10. Rajabboevna, A. R., Farmanovna, I. E., & Ergashboevna, A. Z. (2022). YOD TANQISLIGI FONIDA BOLALARDA SHAKLLANISH VA RIVOJLANISH BUZILISHLARNING O'ZIGA XOS XUSUSIYATLARI. *BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI*, 350-352.
11. Aslam, I., Jiyanboevich, Y. S., & Rajabboevna, A. R. (2023). Apixaban vs Rivaroxaban Blood Thinner Use Reduced Stroke and Clot Risk in Patients with Heart Disease and Arrhythmia. *Rivista Italiana di Filosofia Analitica Junior*, *14*(2), 883-889.
12. Jiyanboyevich, Y. S., Aslam, I., & Rajabboevna, A. R. (2021). The Comparison Between Management Versus Percutaneous Coronary Intervention (PCI) Patients With Coronary Artery Disease (CAD). *The American Journal of Medical Sciences and Pharmaceutical Research*, *3*(06), 189-194.
13. Ахмедова, Г. А., Ибрагимова, Э. Ф., & Арслонова, Р. Р. (2021). ЗНАЧИМОСТЬ МАТРИКСНЫХ МЕТАЛЛОПРОТЕИНАЗ В РАЗВИТИИ ХРОНИЧЕСКОЙ СЕРДЕЧНОЙ НЕДОСТАТОЧНОСТИ. *Scientific progress*, *2*(1), 1541-1544.
14. Rajabboevna, A. R., & Suyunovich, B. E. (2023). The Significant Significance of the Medicinal Plant in Zizyphus in Lowering Blood Pressure.

15. Мамиров, В. А., Ибрагимова, Э. Ф., Арслонова, Р. Р., & Абдурахмонова, З. Э. (2019). Эффективность комбинированной терапии при очаговой алопеции. *Вопросы науки и образования*, (31 (81)), 52-57.

16. Eshkabilova, M., Abdurakhmanov, I. E., Muradova, Z., Abdurakhmanov, E., & Abdurakhmanova, Z. (2022, December). Development of selective gas sensors using nanomaterials obtained by sol-gel process. In *Journal of Physics: Conference Series* (Vol. 2388, No. 1, p. 012155). IOP Publishing.

17. Rajabboevna, A. R., & Suyunovich, B. E. (2023). The Significant Significance of the Medicinal Plant in Zizyphus in Lowering Blood Pressure.

18. Eshkobilova, M. E., Xodieva, N., & Abdurakhmanova, Z. E. (2023). Thermocatalytic and Semiconductor Sensors for Monitoring Gas Mixtures. *World Journal of Agriculture and Urbanization*, *2*(6), 9-13.

19. Rajabboevna, A. R., & Yangiboyevna, N. S. (2023). EPILEPSIYA BILAN OG'RIGAN BEMORLARDA TOPAMAX DORI VOSITASINING KLINIK VA FARMAKOEKONOMIK ASPEKTLARINING SAMARADORLIGINI BAHOLASH. *Research Focus International Scientific Journal*, *2*(5), 198-202.

20. Aslam, I., Jiyanboyevich, Y. S., Ergashboevna, A. Z., Farmanovna, I. E., & Yangiboevna, N. S. (2022). Muscle Relaxant for Pain Management. *Open Access Repository*, *8*(1), 1-4.

21. Jalilova, D. M., & Istamova, S. N. (2023). Allergic Rhinitis and its Treatment. *Central Asian Journal of Medical and Natural Science*, *4*(6), 576-579.

22. Halimbetov, Y. M., Yuldashev, S. J., & Jalilova, D. M. (2022). ABU ALI IBN SINO VA UNING TA'LIMOTI. *BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI*, 403-405.

23. Jalilova, D. M., & Djorayeva, S. Z. (2024). The Use of Natural Remedies in the Treatment of Kidney Stone Classicism. *Best Journal of Innovation in Science, Research and Development*, *3*(3), 943-946.

24. Rajabboevna, A. R., Yangiboyevna, N. S., Farmanovna, I. E., & Baxodirovna, S. D. (2022). The importance of complex treatment in hair loss.

25. Халимбетов, Ю. М., Ибрагимова, Э. Ф., Арслонова, Р. Р., Рустамова, Х. Х., & Наимова, З. С. (2020). Формирование молодежи в Узбекистане как научно управляемый процесс. *Наука и образование сегодня*, (2 (49)), 57-59.

26. Rajabboevna, A. R., & Murodovna, J. D. (2023). Peculiarities of the Influence of a Grub on Metabolism. *Scholastic: Journal of Natural and Medical Education*, *2*(3), 31-33.