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DEPENDENCE OF THE ACTIVITY OF THE SILKWORM ON THE EXTERNAL ENVIRONMENT

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Abstract
The characteristics and properties of agricultural plants and animals are manifested under the interaction of hereditary factors and environmental conditions. Each animal or plant requires certain conditions for normal growth, development and the realization of its potential. Environmental factors include food, temperature, humidity, light, air exchange, etc. These factors, individually or in combination, ensure the growth and development of the organism and determine the level of productivity of animals. The sensitivity of the animal organism can be manifested both in normal and adverse environmental conditions.

Keywords: Sericulture, natural silk, cocoon, feed, temperature, humidity, light, air exchange, silkworm, fine fiber, mulberry tree, mulberry leaf, environmental factors.

Introduction

One of the most important achievements of modern biology was the theoretical and practical demonstration that animals with high productivity require the creation of certain nutritional and temperature conditions in order to fully realize their productivity potential.

If certain environmental conditions are not created for a particular animal species, the hereditary potential embodied in the genotypes will not be manifested.

Correctly solving problems related to the interaction of environmental factors on genotypes depends on a precise study of the influence of the regions where certain animal species are distributed, the season, meteorological factors (temperature, precipitation, solar insolation). The most influential factor is the amount of food and its quality.

The mulberry silkworm, which belongs to the class of insects, is distinguished from warm-blooded animal species by a number of biological features.

The first of the unique features of the silkworm is its inclusion in the type of poikilothermic, that is, cold-blooded organisms. Therefore, the silkworm needs certain environmental conditions to grow and develop. Since it does not have its own body temperature, silkworms are affected by even the slightest change in external conditions, and this change can increase or decrease its productivity.

The study of the influence of environmental factors on the realization of the genetic potential of warm-blooded or cold-blooded animals is of great scientific and practical importance in biology, especially in agriculture.

Environmental factors such as temperature, relative humidity, light, and air exchange participate

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in the formation of quantitative characteristics of the mulberry silkworm. In addition to the factors listed for silkworms, the level of feeding, providing them with fresh air, and protecting the worms from microorganisms that cause various diseases are also of particular importance for their normal development.

A comprehensive study of the role of environmental factors in the normal growth and development of mulberry silkworms, as well as the full manifestation of productivity signs, is of great importance for the science and practice of cocooning.

The development of silkworms is closely linked to the external environment. The silkworm receives from the external environment: leaves, oxygen and radiant energy. At the same time, the worm releases its waste products: waste, water, carbon dioxide and heat into the external environment. The physiological processes in the worm's body and its condition depend on the state of the external environment. Without studying the external environment, it is impossible to develop rational methods of worm breeding in the future.

In recent years, our advanced silkworm breeders have achieved great practical results in further accelerating the speed of worm rearing. They managed to reduce the worm rearing period from 28-30 days to 21-23 days.

Every organism changes under the influence of the external environment, and at the same time, this organism also changes the environment around it. Research in biology, as a result of a clear understanding of these mutual relationships, has opened up ways to change the nature of organisms, and has created methods for consciously and planned breeding of new varieties. The better we understand the interaction between the organism and the external environment, the better we can manage the organism, taking advantage of the opportunity to regulate and create external environmental conditions. That is why the interaction between the organism and the environment is of particular importance for agriculture, and good breeds of animals are created only as a result of the use of good agricultural techniques.

Living beings, in accordance with their nature, select various conditions from the external environment around them, assimilate them, and build their bodies in accordance with the laws of their individual development, that is, heredity. By external conditions we mean what is assimilated, and by internal conditions we mean what is assimilated. The life of an organism is very complex, undergoing countless regular processes and changes. As a result, food entering the organism from the external environment is assimilated by the living organism after various changes, transforming from external conditions into internal conditions. These internal conditions become living matter and, exchanging with the substances of other cells and living particles, nourish these cells and living particles, and become external conditions for them. All the environmental conditions in the environment, regardless of the significance of each of them for this organism, are called environmental conditions.

According to the teachings of agrobiology, each organism, firstly, reacts to environmental conditions in its own way, depending on its heredity and metabolic rate; secondly, this relationship changes with the individual development of the organism; thirdly, none of the environmental factors (conditions) affects the organism in isolation, without interaction with other factors. Environmental factors affect the insect organism in different ways, some factors are considered favorable conditions for the organism to live, while others are unfavorable. Therefore, when

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analyzing environmental factors, it is necessary to take into account their necessity, variability, and impact on the organism and adaptive reactions. Species have different requirements for the environment: heat-loving - thermophiles, cold-sensitive - cryophiles, moisture-sensitive - hygrophiles and drought-sensitive - xerophiles, living in vegetation - phytophiles, living in soil - geophiles, etc. This ability of species is hereditary and has arisen as a result of evolution. This is called the demand for environmental factors of species.

Each species and individual has its own ecology. The organism of the silkworm has adapted to live in certain conditions in the process of natural selection for a long time. In the life of the silkworm, its specific demands on the environmental conditions surrounding it are manifested.

Among the environmental factors, we distinguish factors of an aerological nature. These factors include: air temperature and humidity, air exchange, and the influence of various forms of radiant energy. One of the most important factors is food, that is, the quantity and quality of leaves provided to the worm. This factor also depends on the thickness of the worms' nest. Interactions with living organisms are also environmental factors. The most important of these factors are microorganisms. However, it would be incorrect to include the influence of humans on the silkworm among these factors, since humans consciously change nature and in their work obey higher social laws.

Although silk production has spread to many countries and as a result of its increase in production, the price of silk has somewhat decreased, it has remained an expensive textile material that is inaccessible to ordinary workers in most countries. In our country, silk has become not only an ornament, but a means of satisfying the population's demand for good, beautiful and durable fabrics. The well-being of workers and the demand for silk products are growing day by day. Therefore, the national economic development plan provides for a slight increase in cocoon production. The increase in silk production should not be achieved only by producing more cocoons, but also by obtaining more silk from each cocoon.

References.

1.Bekkamov CH.I., Daniyarov U.T., Abdikayumova N.K., Rajabov N.O. Ipakchilik va tutchilik. Darslik, 2017 y.

2.Soliyeva, M. B., Sh, T. J., & Asronov, E. K. (2021). To Learn Of Biological And Productive Indicators Of Imported Mulberry Silkworm Breeds. The American Journal of Applied sciences, 3(04), 131-137.

3. Asronov, E. K., & Soliyeva, M. B. (2020). The importance of feeding silkworms under polyethylene. ACADEMICIA: An International Multidisciplinary Research Journal, 10(10), 1169-1174.

4. Асронов, Э. К., & Солиева, М. Б. (2020). ВЛИЯНИЕ ИЗМЕНЕНИЯ ТЕМПЕРАТУРЫ НА ПРОДУКТИВНОСТЬ И КАЧЕСТВО КОКОНОВ ВО ВРЕМЯ КОРМЛЕНИЯ ТУТОВОГО ШЕЛКОПРЯДА. Экономика и социум, (12-1), 388-391.

5. Soliyeva, M. B., Yuldasheva, K. T., Xatamova, X. K., Kimsanova, X. A., & Isroilova, S. S. (2021). The effect of shelf life of live cocoons on their temperature and quality. Asian Journal of Multidimensional Research (AJMR), 10(3), 254-260

6. Туйчиев, Ж. Ш., Убайдуллаев, С. Ш., Турдиева, Ф. Т., & Солиева, М. Б. (2015).

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7. Yuldasheva, K. T., Soliyeva, M. B., Daminov, X. E., Botirov, S. T., & Mamadjanova, G. S. (2021). The process of growth of vegetative organs of olive seedlings in protected areas during the development phase. ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH, 10(4), 287-293.

8. Sokhibova, N. S., Nazirova, M. I. K., & Botirovna, S. M. (2020). INFLUENCE OF REARING SILK WORMS WITH HIGH PRODUCTIVE MULBERRY LEAVES ON THE BIOLOGICAL INDICATORS OF SILK GLAND AND RAW SILK EFFECTIVENESS. Life Sciences and Agriculture, (2).

9. Yuldasheva, K. T., Soliyeva, M. B., Kimsanova, X. A., Arabboev, A. A., & Kayumova, S. A. (2021). Evaluation of winter frost resistance of cultivated varieties of olives. ACADEMICIA: AN INTERNATIONAL MULTIDISCIPLINARY RESEARCH JOURNAL, 11(2), 627-632.

10. Xatamova, X. K., Yuldasheva, K. T., Soliyeva, M. B., Kimsanova, X. A., & Juraboyeva, S. M. (2021). Methods of preserving subtropical fruits. Asian Journal of Multidimensional Research (AJMR), 10(1), 109-115.

11. Yuldasheva, K. T., Soliyeva, M. B., Xatamova, X. K., & Kimsanova, X. A. (2020). Effect of arbuscular mycorrhiza on micro propagated olive. ACADEMICIA: AN INTERNATIONAL MULTIDISCIPLINARY RESEARCH JOURNAL, 10(12), 1491-1498.

12. ВАХОБОВ, А., СОЛИЕВА, М., & ХАТАМОВА, Х. СОРТА КРАСНОКОЧАННОЙ КАПУСТЫ ДЛЯ ПОВТОРНОЙ КУЛЬТУРЫ. ИРРИГАЦИЯ-МЕЛИОРАЦИЯ, 57.

13. Асронов, Э. К., Салиева, М. Б., Салиев, С. А., & Давлатов, Х. Р. (2018). ХРАНЕНИЕ ПЛОДООВОЩНОЙ ПРОДУКЦИИ. In Северный морской путь, водные и сухопутные транспортные коридоры как основа развития Сибири и Арктики в XXI веке (pp. 264-266).

14.Xatamova, X. K., Soliyeva, M. B., Kimsanova, X. A., Yunusov, O. B., & Yuldashev, R. T. (2021). Methods Of Drying Subtropical Fruits And Their Importance For Human Health. The American Journal of Applied sciences, 3(05), 148-154.

15. Асранав, Э. К., Салиева, М., & Алижанов, Ж. (2019). ЛЕЧЕБНЫЕ СВОЙСТВА ТУТОВНИКА. Академическая публицистика, (5), 24-28.

16. Alisher, V., Komiljonovna, K. H., Botirovna, S. M., & Yulbarsovna, D. S. (2020). БАМИЯ-ШИФОБАХШ ЎСИМЛИК ВА УНИ ЕТИШТИРИШ ТЕХНОЛОГИЯСИ. PalArch's Journal of Archaeology of Egypt/Egyptology, 17(6), 3479-3482.

17.Soliyeva, M. B., & Abdumutalipova, G. A. (2022). Influence of cocoon wrapping agrotechnics on the quality of cocoons. ACADEMICIA: An International Multidisciplinary Research Journal, 12(2), 380-386.

18. Soliyeva, M. B., & Nabiyeva, Z. A. (2022). Influence of Silk Gland Activity on the Quality and Technological Performance of Cocoons. European Multidisciplinary Journal of Modern Science, 6, 333-339.

19.Soliyeva, M. B., & No'monov, N. N. (2022). Processes for Obtaining Quality Silk Raw Materials From Industrial Silkworm Cocoons. CENTRAL ASIAN JOURNAL OF THEORETICAL & APPLIED SCIENCES, 3(6), 88-92.

Web of Agriculture: Journal of Agriculture and Biological Sciences
webofjournals.com/index.php/8

Volume 3, Issue 3, March - 2025
ISSN (E): 2938-3781

20.Soliyeva, M. B., No'monov, N. N., & Isroilova, S. S. (2022). INFLUENCE OF SILKWORM FEEDING ON QUALITY MULBERRY LEAVES ON LARVAL VIABILITY AND BIOLOGICAL PARAMETERS. Web of Scientist: International Scientific Research Journal, 3(6), 378-386.

21.Ларькина, Е. А., Акилов, У. Х., Туйчиев, Ж. Ш., Асронов, Э. К., Солиева, М. Б., & Абдикаюмова, Н. К. (2022). Использование способов управления размножением тутового шелкопряда (Bombyx mori L.) в практическом шелководстве. Аграрная наука, 1(7-8), 114-120.

22. Soliyeva, M. B., Isroilova, S. S., & Abdullayev, A. A. (2022). The Influence of the External Environment on Hatching and Mating of Butterflies. International Journal of Formal Education, 1(10), 141-147.

23.Soliyeva, M. B., Israilova, S. S., & Abdullayev, A. A. (2022, October). The Effect of Moisture on the Silk Worm. In International Conference on Multidimensional Research and Innovative Technological Analyses (pp. 122-126).

24. Soliyeva, M. B., Isroilova, S. S., & Abdullayev, A. A. (2022, October). Haroratning Ipak Qurti Tanasidagi Fiziologik Jarayonlarga Ta'siri. In International Conference on Multidimensional Research and Innovative Technological Analyses (pp. 118-121).

25. Soliyeva, M. B., & No'monov, N. N. (2023). Establishment of Nutritious Mulberries in Our Republic. Web of Synergy: International Interdisciplinary Research Journal, 2(2), 145-150.

26. Soliyeva, M. B., & Mirzaxmedova, G. L. (2023). INCREASING THE LEAF YIELD OF THE MULBERRY TREE. Horizon: Journal of Humanity and Artificial Intelligence, 2(5), 179-183.

27. Soliyeva, M. B., & Yusufjonov, J. I. (2023). Features of the Construction of Bushes. Web of Semantic: Universal Journal on Innovative Education, 2(5), 288-292.

28. Soliyeva, M. B., & No‘monov, N. N. (2023). DASTA TURLARI VA ULARNI TAYYORLASH. Science and innovation, 2(Special Issue 6), 205-207.

29. Soliyeva, M. B., & Sirojiddinova, M. A. (2023). Chemical Composition of Coir Fiber. Information Horizons: American Journal of Library and Information Science Innovation (2993-2777), 1(9), 102-106.

30. Soliyeva, M. B., & Mirzaxmedova, G. L. (2024). Basics of the Silk Worm Organism Functions and Growth of the Worm Body. Web of Semantics: Journal of Interdisciplinary Science, 2(2), 31-36.

31. Soliyeva, M. B., & Sirojiddinova, M. A. (2024). Types of silk worm. Miasto Przyszłości, 47, 93-97.

32. Soliyeva, M. B., Qo‘ldashboyeva, S. A., & Uzoqbayeva, D. B. (2024). Effect of Air Temperature on Mulberry Silkworm Activity. Excellencia: International Multi-disciplinary Journal of Education (2994-9521), 2(4), 250-255.

33. Soliyeva, M. B., & Nurmamatova, D. M. (2024). The State of Special Worm Shelters in Our Republic and Measures for their Improvement. Miasto Przyszłości, 54, 169-174.

34. Туйчиев, Ж. Ш., Мирзаев, Р. О., Солиева, М., & Гафурова, Ю. К. (2016). ЗАВИСИМОСТЬ КАЧЕСТВА КОКОНОВ ПЕРВИЧНОГО ПОКОЛЕНИЯ ОТ КОЛИЧЕСТВА ФОРМ ИЗМЕНЕННЫХ ИЗ ПАРТИИ ПЛЕМЕННЫХ. Современные тенденции развития науки и технологий, 124.

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