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Silk Kurt To The Process Of Seed Revival Effect Of Electrotechnological Method

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Annotatsya: In this article Data on the study of the effect of artificial air ionization on the process of reviving mulberry silkworm eggs in the spring of 2025. The results of scientific and practical research on determining the optimal air ion concentration are also presented.

Keywords: Aeroion, Iraqi worm seed, ecology, resource efficiency, technology, silk, cocoon, hybrid, embryo, relative humidity in the atmosphere.

In our republic, comprehensive measures are being implemented in connection with the cultivation of high-quality cocoons, the introduction of ecologically clean and resource-saving technologies and devices in the network, and certain results are being achieved. It is known that the technological properties of the cocoons grown in our country and the properties of the raw silk produced do not meet the requirements of world standards. The reason for this is that, firstly, the technological indicators of the cocoons obtained from the breeds and hybrids of silkworms grown in our country are behind those of the breeds and hybrids created in foreign countries -. is enough. That is why the quality indicators of cocoons produced in our republic do not fully meet the requirements of cocoon-making enterprises, because in our republic, 1 кгor more live cocoons are used to obtain raw silk 10-12 кг [1].

To this day, scientific research is being conducted on this issue. For example, in experiments conducted by H. Khomidi (2004), it was found that increasing the temperature of the room where the seeds are incubated to 29-32 ^{0}C, disrupting the normal development of the embryo in the egg, and reducing the water content of the egg, significantly reduces the percentage of larvae hatching, makes the larvae weak and susceptible to disease, and affects the yield and quality of the cocoons [2].

U.N. Nasirillaev, S.R. Umarov (2009) emphasize that when reviving silkworm eggs, the room temperature should be 24-25 ^{0}C and the relative humidity should be 75-80%, and that frequent changes in the temperature of the incubator room have a negative effect on embryo development. The authors in their research work found that the temperature was 26 When it rises to ^{0}C, the survival of worms is 86 %, 28 82% at ^{0}C, 30 They found that it decreases by 79% at ^{0}C and 76% at 32 ^{0}C [3].

Based on the above data, it can be seen that the study of the mechanization of the silk industry led to various conclusions. Based on this, we directed our research work to a detailed study of the use of an aeroionizer device in the process of revitalizing mulberry silkworm seeds. Based on the above data, the authors conducted experiments on testing the electrotechnological method of revitalizing the silkworm seeds of the Hamdak silkworm in order to practically implement the calendar plan of the project "Academic Mobility" program announced by the Youth Academy at the Research Institute of Natural Fibers of Uzbekistan. During the study, the microclimate parameters of the optimal environment during the revitalization of silkworm seeds were studied.

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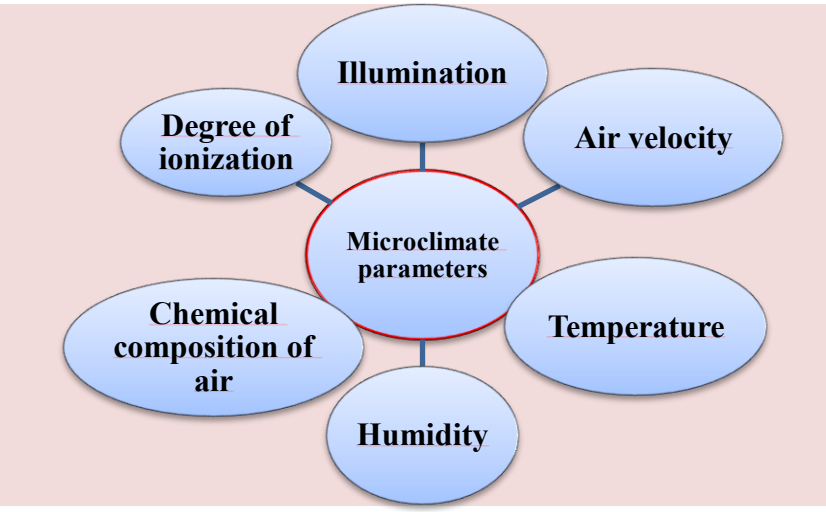
Figure 1



According to the conclusions of medical experts, the concentration of negative oxygen ions in the air inside the building should be 600 ai/cm^3 . This figure is around 8000-12000 ai/cm^3 in mountainous areas . Sea air is especially rich in ai ions - 4000 ai/cm^3 . Therefore, traveling at sea at any time of the year is a real feeding of the body with ions. As mentioned above, after a thunderstorm, the concentration of ai ions in the air increases to 2000-4000 ai/cm^3 . However, studies have shown that in city apartments and offices this figure is 100-200 ai/cm^3 . The air entering the rooms from the outside through ventilation devices loses ai ions, especially light ai ions with a negative charge. Recycled air in air conditioners also deteriorates the electrical condition. It has been found that the air passed through various filters completely loses its aeroions.

Table 1

In the air aeroions quantity	
The most little quantity	600 ions / cm^3
Optimal quantity	3000-5000 ions /cm^3
City in their apartments weather	50-100 ions / cm^3
City on the streets weather	100-500 ions / cm^3
Forest and sea weather	1000-5000 ions /cm^3
Mountain weather	5000-10000 ions / cm^3
Waterfall weather	10000-50000 ions / cm^3
From the thunder next weather	50000-100000 ions / cm^3

The weather natural weather ionization reinforcement for the room cold recommendation In the summer such cold for 5 minutes, in winter - 10 minutes enough . The room in the cold room from the air dust and bacteria is released , room weather oxygen aeroions with is satisfied. Especially hot in climates the houses under construction room the weather to cool down separately attention to give need will be.

In the atmosphere, under natural conditions, there are positive and negative air ions. Usually air ions are called air ions. Negative air ions are formed as a result of the capture of a free electron by neutral gas molecules in the air. From a scientific point of view, the formation of negative oxygen air ions is the easiest. This is because the oxygen atom has 6 electrons in its outer electron shell, and 2 electrons are not enough to fill this shell with electrons. Therefore, the oxygen atom tries to become stable by adding electrons to itself, turning from a neutral molecule into a negative oxygen air ion. Russian scientist A. L. Chizhevsky proved that negative air ions in the air are formed mainly from oxygen molecules, and positive ions are formed as a result of the loss of valence electrons by carbon dioxide molecules [4,5,6].

It is known that the ionic composition of the air in closed buildings where silkworms are kept differs significantly from the ionic composition of the air in the external environment. Part of the light ions coming with the air settles on the elements of the ventilation system, while the light ions remaining inside the building are converted into heavy ions and disappear. As a result, silkworms often become sick and their nutrition

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decreases. Theoretical and experimental studies were conducted by T. Butayev and D. I. Abdunabiyev (2020-2025) to study the effect of artificial electrical ionization on the air quality of silkworm seed germination rooms. Also, scientific research is being conducted on the application of the method of artificial ionization of the environment in the processes of silkworm breeding. In this case, it was determined that in ionized air, the susceptibility of silkworms to diseases decreases by 10 %, their nutrition by 8 %, and the productivity of silkworms increases by 8-12% [7,8].

Natural air ionization occurs under the influence of radioactive substances in the soil and air, as well as cosmic rays. 700...1000 in 1 cm^3 of outdoor air, in 1 cm^3 of air in closed rooms There will be less than 100 aeroions [6,9].

Material and methods The authors used an artificial air ionization device in the spring of 2023 at the Uzbek Research Institute of Natural Fibers in the process of reviving mulberry silkworm eggs . Also, scientific and practical research was conducted to determine the optimal air ion concentration .

in rooms where living organisms are grown is explained by the shielding effect of barriers and various equipment, high humidity and dustiness of the air, which leads to the formation of heavy ions by combining gas ions with very small liquid or solid particles. In addition, the ventilation system, which removes some of the lighter ions from the air, elements, while the light ions remaining inside the building are converted into heavy ions and disappear, as well as light ions are lost as a result of radioactive decay of building materials and smoke from coal burned for heating the room. For artificial aeroionization of the air in agricultural buildings, wire, needle and other types of aeroionizers installed in the building itself or in the air ducts of ventilation systems are used [10,11].

Analysis of research results The studies were conducted on various breeds, hybrids and periods. The experiments were carried out in the 1st hatchery concentration of air ions 500-700 ai/cm^3 where the ionization time was 40 minutes every 2 hours. The ionization time in incubator 2 with an air ion concentration of 800-1000 ai/cm^3 was 30 minutes every 1 hour, and in incubator 3 with an air ion concentration of 200- 400 ai/cm 3 was 20 minutes every 2 hours . The duration of the seed opening process and the percentage of seed germination were determined during the germination of silkworm seeds. The results of the study are presented in Table 2.

Table 2
Effect of electrotechnological device on mulberry silkworm seed viability

Options	Purebred and hybrid-names	Return	Put to the test seeds number, pieces	The number of non-viable seeds, pcs	Recovery rate, %	Duration of the incubation period, days
In hatchery 1, the concentration of aeroions is 500-700 ai/cm 3, the ionization time is 40 minutes every 2 hours.	Line 27 x K-108	1	621	12	98, 1	6
		2	631	14	97, 9	6
		3	637	9	98.6	6
		average	629	16	98, 4	6
	Silkwor m 2	1	70 5	13	98, 4	7
		2	69 7	2 6	9 8, 1	7
		3	6 91	2 2	96, 8	7
		average	697	26	97, 9	7
Aeroions in incubator 2 concentration is 800-1000 ai / cm 3 ionization time every 1 hour 30 minutes	Line 27 x K-108	1	60 3	4 2	9 2 , 4	5
		2	710	2 8	96, 1	5
		3	68 1	31	95, 5	5
		average	663	36	94, 6	5
	Silkwor m 2	1	71 1	3 1	95, 7	6
		2	73 0	3 1	95. 7	6
		3	68 0	2 5	96, 3	6
		average	706	30	95, 6	6

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In hatchery 3, the concentration of air ions is 200-400 ai /cm ^{3,} the ionization time is 20 minutes every 2 hours.	Line 27 x K -108	1	645	50	92.3	8
		2	625	62	90.1	8
		3	662	80	87.5	8
		average	645	64	90.1	8
	Silkworm 2	1	679	71	89.5	9
		2	623	45	92.9	9
		3	670	60	91.0	9
		average	657	59	91.2	9

The experimental data clearly show that the new technology used did not have a negative effect on the embryo inside the silkworm seed, but rather had a positive effect on the process of resuscitation [13,14,15,16].
This is the foundation of the silkworm seed reviving electrotechnology It can be seen from the above that the experiments were conducted in three different variants (concentrations). It should be noted that this newly created electrotechnological method was found to have not only air-purifying properties, but also stimulating properties for silkworm eggs. Based on the experiments, the authors determined that the most optimal ion concentration for effective resuscitation of silkworm eggs was the experimental variant conducted in the 1st incubator (aeroion concentration 500-700 ai/cm^3, ionization time 40 minutes every 2 hours) [17,18,19].
This electrotechnological method , along with reviving mulberry silkworm eggs and purifying the air in the room from various microorganisms and bacteria, increased the amount of beneficial negative air ions in the air, so no spread of diseases was observed during the reviving of mulberry silkworm eggs and had a positive effect on the development of mulberry silkworms.

Conclusions

1. As a result of the research, it was found that due to the fact that the silkworm is revived in a completely closed building, the ionic composition of the room differs from the ionic composition of the outside air. Part of the light ions coming with the air settles on the elements of the ventilation system, while the light ions remaining inside the building are converted into heavy ions and disappear. As a result, the percentage of silkworm revival increased and the revival period was shortened.

2. Theoretical and scientific-practical experimental studies were conducted to study the effect of artificial electric ionization on the environment of the room where silkworms are kept. It was also determined that the optimal concentration of aeroions is 500-700 ai/cm^3.

It is appropriate if this device is used in production conditions, i.e. in seed production enterprises, breeding stations, special worm houses and worm breeding houses of our Republic.

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