

UDK: 638.24 (575.3)

**CAUSES OF COCOON NON-SPINNING DISEASE IN MULBERRY SILKWORMS (BOMBYX MORI) AND THE IMPACT OF A COMPLEX PREPARATION ON COCOON PRODUCTIVITY****A.T.Rakhmonov,**

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**Annotatsion.** This article studies the causes of cocoon non-spinning disease in mulberry silkworms, the influence of ecological and chemical factors on cocoon productivity, and the effectiveness of a complex preparation in preventing this problem. During the research, the viability of silkworms, cocoon weight, cocoon shell weight, and silkiness indicators were analyzed. The experimental results showed that silkworms fed with mulberry leaves treated with a complex preparation demonstrated higher cocoon productivity compared to the control group. In particular, cocoon productivity increased by 2–3%, while silkiness improved by 1–2%. The obtained results indicate that the complex preparation has a positive effect on silkworm development and cocoon quality. These findings are important for improving cocoon production and preventing diseases in sericulture.

**Keywords:** mulberry silkworm, cocoon non-spinning disease, pesticides, ecological factors, complex preparation, cocoon productivity.

**Аннотация.** В данной статье изучены причины возникновения заболевания «необразование кокона» у тутового шелкопряда, влияние экологических и химических факторов на продуктивность коконов, а также эффективность применения комплексного препарата. В ходе исследований были проанализированы жизнеспособность гусениц, масса кокона, масса оболочки кокона и показатели шелконосности. Результаты эксперимента показали, что при кормлении шелкопряда листьями тутовника, обработанными комплексным препаратом, наблюдается повышение продуктивности коконов по сравнению с контрольным вариантом. В частности, масса кокона и показатели шелконосности увеличились на 2–3 %. Полученные результаты свидетельствуют о том, что применение комплексного препарата оказывает положительное влияние на развитие шелкопряда и качество коконов. Результаты исследования имеют важное научно-практическое значение для повышения продуктивности коконов и профилактики заболеваний в шелководстве.

**Ключевые слова:** тутовый шелкопряд, заболевание необразования кокона, пестициды, экологические факторы, комплексный препарат, продуктивность коконов.

**Introduction.** Sericulture is one of the important branches of agriculture, and cocoon production serves as the main raw material for the light industry. The Republic of Uzbekistan is one of the leading countries in the world in cocoon production, with annual cocoon yields reaching tens of thousands of tons. In recent years, an increasing number of cases of cocoon non-spinning have been observed in silkworms. This disease is characterized by the death of larvae at the fifth instar stage without forming cocoons. Studies have shown that this condition mainly occurs as a result of pesticide poisoning. When silkworms feed on mulberry leaves contaminated with pesticides, their growth process is disrupted, cocoon non-spinning cases appear, and the quality of cocoons decreases.

**Literature Review.** The biology, productivity, and diseases of silkworms have been studied by many researchers. These studies show that the development of silkworms is directly related to feed quality, environmental conditions, and the influence of chemical substances.

In the research conducted by Raxmonov A.T. (2022), the technological indicators of cocoons obtained from silkworms fed with mulberry leaves treated with a complex preparation were studied. According to the results of the study, the length of the cocoon filament in the treated variants was higher than in the control variant. In particular, the total filament length reached 1179 m, while in the control variant this indicator was 996 m. These results indicate that the complex preparation has a positive effect on cocoon quality in silkworms [1].

In the study by Raxmonov A.T. and Aqilov U.X. (2023), the origin, diagnosis, and epizootology of cocoon non-spinning disease in mulberry silkworms were analyzed. The results showed that this disease mainly occurs as a result of pesticide poisoning. It was also determined that when the complex preparation was applied, the viability of the silkworms reached 93–94% [2].

Raxmonov A.T. (2025) investigated the viability, disease incidence, and cocoon spinning activity of mulberry silkworms reared in different regions of Uzbekistan. The results of the study showed that local breeds and hybrids have higher viability and lower disease incidence compared to foreign hybrids [3].

In another study conducted by Raxmonov A.T. and Tursunova Sh.M. (2025), the disruption of the cocoon formation process and the main causes of cocoon non-spinning in silkworms were investigated. The results revealed that cocoon non-spinning pathology was observed in silkworms fed with mulberry leaves contaminated with pesticides [4].

**Materials and Methods.** The research was conducted during the silkworm rearing seasons of 2021–2023. Hybrid breeds of the mulberry silkworm (*Bombyx mori* L.) were used in the experiment.

The experiment was carried out under the following treatments:

1. **VARIANT 1** – complex preparation at 0.5% concentration
2. **VARIANT 2** – complex preparation at 1.0% concentration
3. **VARIANT 3** – complex preparation at 1.5% concentration
4. **CONTROL VARIANT** – untreated mulberry leaves

The complex preparation consisted of the following components:

- silver nitrate ( $\text{AgNO}_3$ )
- potassium iodide (KI)
- ascorbic acid
- selenium

The prepared solution was sprayed onto mulberry leaves and then fed to the silkworm larvae.

**Results.** The experimental results showed that cocoon productivity in the treatments where the complex preparation was applied was higher than in the control variant.

**Table 1**

**Cocoon indicators of silkworms fed with the complex preparation**

Variant	Cocoon weight (g)	Cocoon shell weight (g)	Silk ratio (%)
0.5 %	2.31 ±0.09	0.438	23.5
1.0 %	2.24 ±0.06	0.452	22.8
1.5 %	2.18 ±0.05	0.475	21.4

Control	2.16 ±0.03	0.502	22.0
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According to the results, the best performance was observed in the **0.5% treatment**. In this variant, the cocoon weight reached **2.31 g**, which was higher than that of the control variant. Biological indicators also showed improved larval viability. For example, the viability of silkworms in the **0.5% treatment reached 93.1%**.

**Discussion** The results of the study indicate that mulberry leaves contaminated with pesticides negatively affect the silkworm organism. As a result, larval growth slows down and cases of cocoon non-spinning occur. However, silkworms fed with mulberry leaves treated with the complex preparation showed improved cocoon productivity and biological indicators. These findings are consistent with the results obtained by other researchers.

**Conclusion** Based on the results of the study, the following conclusions were drawn:

Cocoon non-spinning disease in silkworms mainly occurs due to pesticide poisoning;

Chemical contamination disrupts the development of silkworm larvae and reduces cocoon productivity;

The complex preparation based on silver nitrate, potassium iodide, ascorbic acid, and selenium increases the viability of silkworms;

Silkworms treated with the complex preparation showed higher cocoon weight and silk ratio indicators;

The use of the complex preparation is effective in improving cocoon productivity and preventing diseases in sericulture.

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