

**INDICATORS OF ABSORPTION OF ARTIFICIAL FOOD PREPARED ON THE
BASIS OF ELECTROCHEMICALLY ACTIVATED WATER OF LARGE WAX
MOTH WORMS**

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ABSTRACT

The cotton sector, as in other sectors of agriculture, pest control is one of the most important measures in the industry, in which chemical, physico-mechanical and biological methods of pest control are widely used. These methods differ in their area of production, application, value, efficiency, and environmental impact. In this regard, it is important to conduct research on the development and implementation of technology for the reproduction of poachers in electrochemically activated water-fed wax moth, which is used in the fight against plant pests. Because the technology is focused on the production of biological agents, the biological method is both economically and environmentally efficient.

Key words: *agrochemical services, biological preparations, brakon, biofactory, experience, big candle moth, food recipes.*

Resolution of the President of the Republic of Uzbekistan dated October 24, 2016 No PP-2640 "On measures to improve the system of plant protection and agrochemical services to agriculture." This is confirmed by the fact that the resolution promotes the development and application of biological methods of pest control, implementation of measures to improve the quality of biomaterials, strengthening the material and technical base of biolaboratories, production of biological drugs [1].

We conducted our initial research on improving the technology of bracon production based on the use of electrochemically activated water in the breeding of large wax moths in 2014-2015 in a biofactory. During 2016-2018, we improved our experiments on food types, the quality of large wax moth worms, and the breeding of bracons from them.

In this case, the electrochemical activation of water used for research was carried out on the device MELESTA (TU 5156-002-32064511-07, certificate № ROSS RU.AYa36.V29156) manufactured in the Russian Federation. The device is designed to operate at a temperature of +5 to +400 C and a humidity of not more than 80%, and consists of 4 parts: the main vessel, the electric current regulator, the diaphragm cup and the lid on which the electrodes are mounted. The cathode part of the device is made of stainless steel and the anode is made of titanium coated with ruthenium oxide [3, 4, 5].

The experiments consisted of 3 variants and were performed in 4 repetitions. In this case, option 1 was the current method, and the feed was treated with ordinary tap water. In option 2, the food prepared on the basis of the recipe of Plant Protection Research Institute was treated with electrochemically activated tap water (pH = 10±0,5), and in option 3 the food prepared according to the recipe of H.R.Mirzalieva was treated with electrochemically activated tap water (pH = 10±0,5). In our experiments, we used food recipes recommended by H.R. Mirzalieva and the Plant Protection Research Institute, which are mainly used in the breeding of large waxworms in the conditions of the republic (Table 1).

Table 1

Feed species for the reproduction of large wax moths

№	Nutritional composition (recipe from the Plant Protection Research Institute)	№	Nutritional composition (X.R.Mirzalieva recipe)
01	900 g of corn flour 250 g. sugar 150 g. merva 70 g. margarine 327. ml. water 300 g. apple peel 3 g. yeast	02	100 g pasta 250 g sugar 480 g macaque 70 g margarine 300ml.suv 3 g yeast 100 g of marva

Initially, 100 worms (400 in total) were placed in 4 three-liter jars for one variant. In the experiment, 142.0 grams of food prepared on the basis of the method used in the 1st option, and in the 2nd and 3rd options for 100 worms, respectively, were weighed on the basis of recipes prepared by the Research Institute of Plant Protection and H.R. Mirzalieva. Based on these nutrients, the worms were fed in an orderly manner. The worms hatched from the eggs were initially fed with 20 mg of pure wax and then used in foods prepared according to the above-mentioned recipes until they turned into fungus, and the amount of nutrients consumed and the amount of undigested food were determined.

The results obtained in the control variant were 117,86 g of food for worm-eaten worms, 16,44 g of food for non-fungal worms, 7,7 g of unused food, and 0,967 grams of food consumed by 1 non-fungal worm. In 2 variants, the amount of food consumed for fungal worms was 130,64 g, for non-fungal worms – 7,24 g, for unused food – 4,12 g, and for 1 non-fungal worm – 0,905 g. In 3 variants, 124,96 g of food was consumed for fungal worms, 11,04 g for non-fungal worms, 6,0 g for unused food, and 0,920 grams for 1 non-fungal worm.

Analyzes show that in the second variant, 92 worms and 9 more worms and 3,58 grams less undigested food than the controls in the transition of the worms to the fungal phase. The worms obtained according to H.R.Mirzalieva's recipe were found to have an average of 88 worms turned into mushrooms or 5 more than the control, 6,00 grams of undigested food and 16,44 grams of food during the development of the remaining 12 worms. However, in the third option, the main reason for the decrease in nutrition was the inability of worms (mainly young worms) to feed as a result of drying the pasta overnight.

The results of experiments to determine the assimilation of nutrients in the reproduction of wax moth larvae on the basis of electrochemically activated water were published by the Research Institute of Plant Protection in the breeding of large wax moths in the laboratory (2010) and H.R. Mirzalieva (1981) showed that the recipes recommended can be used in practice.

Based on the research, the following conclusions were made:

- The study of large wax moth breeding in the laboratory (2010) and H.R. The recipes recommended by Mirzalieva (1981) are more effective than the control option, and both recipes can be used in practice;
- The alkalinity of the environment in electrochemically activated tap water ($\text{pH} = 10 \pm 0,5$) increases the sensitivity of the food and facilitates the assimilation of food by worms. This can be explained by the fact that

the total hardness of electrochemically activated tap water is lower than the control option and the amount of chloride and sulfate ions in it is reduced.

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