



EXPERIMENTAL RESULTS OF MICROBIOLOGICAL PREPARATIONS AGAINST MELONS BEETLE (EPILACHNA CHRYSOMELINA FABR)

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Abstract: The article presents the results of an experiment to determine the biological effectiveness of HELITEC SC, Prestige, Bioslip BV and Bioslip BT biopreparations against the mature breeds and larvae of the melons beetle. Biological effectiveness of biopreparations against beetles is 71.4, respectively; 64.0; 47.0; 74.0%, and 77.0 against larvae; 85.0; 67.0; It was determined that 90.0% of the results were shown.

Keywords: Melons, pest, melons beetle, imago, larva, biopreparation, laboratory experience, biological efficiency.

Introduction

Today, the demand for organic agricultural products is increasing not only in our country but also in the world community. That is, consumption of safe, ecologically clean products for human health is becoming a demand of the times. Therefore, the field of plant protection has a special role in this regard, and it will be necessary to make sharp turns, innovations, and scientific research in the field. It should be noted that the increase in demand for such products is evident today, but scientific research in the field of plant protection for this purpose began at the end of the last century. More precisely, in 1975-1980 of the last century, scientific and practical work on the introduction of a combined protection system instead of a general protection system was started.

Although the Harmonized System of Protection introduced changes in the procedure of plant protection, one of the main goals here was to preserve the purity of the environment. For this purpose, the procedure for applying protection methods is defined, i.e., first, use methods that are safe or less dangerous for the environment, people, and useful entomofauna, and if sufficient efficiency is achieved, then abandon the methods that pose a risk to the environment or use them as little as possible. proposed to use. Based on the above, it is very important to determine the role and effectiveness of biological protection of directly consumed melons products from pests. On the other hand, if we take into account the sanitary-hygienic requirements, it is prohibited to use pesticides against the melons beetle during the flowering of the melons plant. But at the same time, it is the period when the melons beetle lays eggs, and it is necessary to develop some kind of control measures against it.

For this reason, we have devoted our research to conducting research on the use of microbiological preparations against the melons beetle.

To date, there is no information on the use of microbiological preparations against the melons beetle in our republic [2]. Therefore, we first studied and analyzed the microbiological preparations offered by manufacturers or recommended for other pests. As a result of the analysis, we conducted an experiment to determine whether they have an effect on the same pest before studying the consumption rate, duration and effectiveness of the biopreparations intended for testing against the melons beetle. For this purpose, beetles and larvae were collected from Yangiariq, Gulbahor regions of Termiz district, where the melons beetle is widespread, and were reared in laboratory conditions for 2-3 days. A laboratory experiment was carried out using these beetles and larvae, as well as a melons beetle previously reared in the laboratory.

Materials and Methods

The experiments were conducted in laboratory conditions in the Surkhandarya regional branch of the Plant Quarantine and Protection Research Institute in 2022. In this, 4 biopreparations were tested against the control in 3 replications. For this, first, special sadoks were prepared, and labels with the classification of each option were attached to it. Melon stems were placed in a special water container for each sadok. After that, the imago and larva of the melons beetle were placed in the planned amount of food in the experiment. Spraying of biopreparations was carried out in a special hand sprayer. Timed before processing, it was found that the sprayer spends 850 liters of working solution per hectare. Based on this, we measured the biopreparations in the sprayer at the recommended consumption rate. Helitec, sc Prestige, Bioslip BV and Bioslip BT microbiological preparations were tested against polyps beetle imago and larvae, and their biological effectiveness was studied. The methodological manual published by the State Chemical Commission under the editorship of Sh.T.Khojaev (2004) was used for conducting the experiments. Biological efficiency was calculated based on Abbot's formula (1925).

Results and Discussion

In our initial laboratory experiment, the Helitec, sc microbiological preparation was tested against a control. In this case, the effectiveness was studied in separate options against different forms of the pest. The experiment was performed in 3 replications, and 10 adults and larvae were obtained in each option (Table 1). If we look at the result, the death of larvae in Helitec, sc biopreparation was also observed on the first counting day. That is, 20.0% of the larvae died after 5 days of treatment. Mospilan, 20% n.kuk, was tested as a model. 100 percent of pests were killed by chemical means this time on the first day of calculation. The increasing efficiency of the biopreparation against both forms was observed from 10-15 days and reached 71.4-77.0% by the 20-25th day.

Continuing the laboratory experiments, we studied the potential of Prestige, Bioslip BV and Bioslip BT biopreparation against the melons beetle. The requirements and rules specified in the experiment were followed. In this case, Prestige biopreparation was tested at the consumption rate of 3.0 l/ha against the beetle (Table 2). From the results of the experiment, it became clear that when Prestige biopreparation was treated at 3.0 l/, the efficiency was relatively higher, 30.0 against beetles on the 3rd, 5th, 7th, 14th days of the calculation, respectively; 44.0; 57.0; and was 64.0%, when we used it against larvae, it was observed that the efficiency was higher than against beetles, 44.0 against larvae on the 3rd, 5th, 7th, 14th days of the calculation, respectively; 74.0; and made 85.0%.

The results of the experiment showed that when we applied the biopreparation Bioslip BV at a consumption rate of 3.0 l/ha, the efficiency was slightly lower than that of the prestige biopreparation in the above option, 17.0 against beetles on the 3rd, 5th, 7th, 14th days of the calculation, respectively; 30.0; 37.0; and 47.0%, when we used it against larvae, it was observed that the effectiveness was higher against beetles, 24.0 against larvae on the 3rd, 5th, 7th, 14th days of the calculation, respectively; 64.0; and made 67.0%.

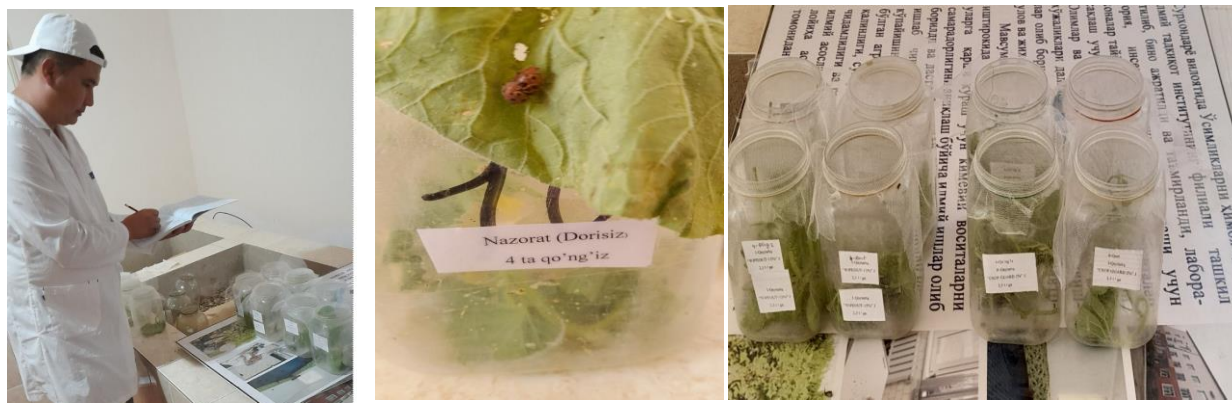


Fig 1. Testing of biopreparations against the mature breed and larvae of the melons beetle in the laboratory of the Surkhandarya regional branch of the Plant Quarantine and Protection Research Institute (year 2022)



Table 1

Biological efficacy of Helitec, SC biopreparation against various forms of the melons beetle

Laboratory experience, Surkhandarya regional branch of the Plant Quarantine and Protection Research Institute, small hand sprayer - 850 l/ha, 24.08.2022.

Options	Active substance	Drug consumption, g, l/ha	The average number of beetles in 1 special container, pcs						Biological efficiency, %				
			Until processing	After processing, by days					5	10	15	20	25
				5	10	15	20	25					
<i>Against the larva.</i>													
HELITEC, SC	<i>Helicoverpa armigera</i> NPV 8 %	0,33	10,0	8,0	5,6	3,3	2,3	*	20,0	44,0	67,0	77,0	-
Mospilan 20% (template)	<i>Acetamiprid</i>	0,05	10,0	0,0	-				100,0	-			
Control (no drug)	-	-	10,0	10,0	10,0	10,0	10,0	10,0	-	-	-	-	-
<i>Against mature.</i>													
HELITEC, SC		0,33	10,0	10,0	7,0	4,0	3,0	2,0	0,0	30,0	60,0	62,5	71,4
Mospilan 20% (template)	<i>Acetamiprid</i>	0,05	10,0	0,0	-				100,0	-			
Control (no drug)	-	-	10,0	10,0	10,0	10,0	8,0	7,0	-	-	-	-	-

*- by this day the larvae have turned into cocoons.

Table 2

Biological efficacy of biopreparation against various forms of the melons beetle*Laboratory experience, Surkhandarya regional branch of the Plant Quarantine and**Protection Research Institute, small hand sprayer - 850 l/ha, 26.08.2022.*

Options	Active substance	Drug consumption, g, l/ha	The average number of beetles in 1 special container, pcs					Biological efficiency, %					
			Until processing	After processing, by days				1	3	7	14	21	
				1	3	7	14						21
<i>Against mature.</i>													
Prestige	<i>(Bacillus thuringiensis)</i>	3,0	10,0	0,0	7,0	5,6	4,3	3,6	0,0	30,0	44,0	57,0	64,0
Bioslip BV	<i>(Beauveria bassiana)</i>	3,0	10,0	0,0	8,3	7,0	6,3	5,3	0,0	17,0	30,0	37,0	47,0
Bioslip BT	<i>(Bacillus thuringiensis)</i>	1,5	10,0	0,0	7,3	6,0	4,0	2,6	0,0	27,0	40,0	60,0	74,0
Mospilan 20% n.kuk. (template)	<i>Acetamiprid</i>	0,05	10,0	4,3	0,0				57,0	100,0	-		
Control (no drug)	-	-	10,0	10,0	10,0	10,0	10,0	10,0	-	-	-	-	-
<i>Against the larva.</i>													
Prestige	<i>(Bacillus thuringiensis)</i>	3,0	10,0	10,0	5,6	2,6	1,5	*	0,0	44,0	74,0	85,0	-
Bioslip BV	<i>(Beauveria bassiana)</i>	3,0	10,0	10,0	7,6	3,6	3,3	*	0,0	24,0	64,0	67,0	-
Bioslip BT	<i>(Bacillus thuringiensis)</i>	1,5	10,0	10,0	4,3	1,3	1,0	*	0,0	57,0	87,0	90,0	-
Mospilan 20% n.kuk. (template)	<i>(Acetamiprid)</i>	0,05	10,0	2,6	0,0	-			74,0	100,0	-		
Control (no drug)	-	-	10,0	10,0	10,0	10,0	10,0	10,0	-	-	-	-	-

* - by this day the larvae have turned into cocoons.



From the results of the experiment, it was found that when Bioslip BT biopreparation was treated at 1.5 kg/day, the efficiency was slightly higher than the above options, 27.0 against beetles on the 3rd, 5th, 7th, 14th days of the calculation, respectively; 40.0; 60.0; and was 74.0%, when we used it against the larvae, it was observed that the efficiency was higher than the beetles, 57.0 against the larvae on the 3rd, 5th, 7th, 14th days of the calculation, respectively; 87.0; and made 90.0%.

Mospilan, 20% n.kuk, was tested as a control. 100 percent of pests were killed by chemical means this time on the third day of reckoning. The increasing efficiency of biopreparations against both forms was observed from 3-7 days and reached 74.0-90.0% by 14-21 days.

According to the research results, the use of biopreparations is harmless to organic products and the environment. It was almost harmless to the beneficial entomofauna present in the melons agrobiocenosis, and finally had a satisfactory result against the melons beetle (*Epilachna chrysomelina* Fabr.), the main pest of melons crops.

Conclusion

Biopreparations being tested in laboratory conditions HELITEC SC 0.33 l/ha, Prestige 3 l/ha, Bioslip BV 3 l/ha and Bioslip BT 1.5 l/ha were sprayed against the polysis beetle after 21 days, 74-77% for mature breeds, 77%-100% for larvae biological efficacy was found, requiring the testing of biopreparations against the melons beetle in large field experiments.

References

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