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BIOLOGICAL PRODUCT - BIOINSECTICIDE

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Abstract: In this article Bacillus thuringiensis var.thuringiensis on the bacterial strain thuringiensis Uzviti M №1, data are presented on the research work on the study of the insecticidal properties being carried out at the same time on the experimental series of the biological drug bioinsecticid, which was first prepared in a laboratory setting.

Keywords: Bioinsecticide, biological method, insecticide, insect, mite, bacterium, spore, strain, bacillus thuringiensis, entomoside.

Introduction

Scientific institutions and scientists are informed about parasites and parasites common in the republic, as well as dangerous vector-borne diseases of humans and animals. The task is to study ways and means of combating arthropods (blood-sucking insects and ticks) that are safe for the environment, human and animal health, beneficial fauna and flora, which are carriers of pathogens - plague, tick-borne encephalitis, tularemia, hemorrhagic fever, Termiz and Tomdi fever, ephemeral fever, tick fever, cholera, relapsing and typhus, malaria, trypanosomiasis, leishmaniasis, anthrax and many other diseases. In the fight against them, the use of biological methods instead of chemicals is becoming increasingly important. Our study of a bioinsecticidal drug is one of the efforts in this direction.

Therefore, the research and implementation of modern and highly effective methods and means of combating harmful insects and mites is an urgent task. Their solution makes it possible to create a healthy epizootological and epidemiological situation in populated areas and livestock farms, a clean ecological environment and a balance between people and animals.

Purpose of the study. An experimental series of the drug “Bioinsecticide” in laboratory conditions to determine the insecticidal effectiveness against lice beetles of farm animals.

Research methods. In veterinary medicine, microbiological, parasitological, faunistic, ecological, phenological and other studies are accepted (V.A. Dogel, V.N. Beklemishev, V.V. Yakhonto, S.D. Pavlov, A.R. Ruzimurodov and other researchers) with using methods, aids and detectors.

Experiment results. Bioinsecticide is a biological preparation based on the thuringiensis variant of Bacillus thuringiensis with crystal-forming spores. Bacillus thuringiensis var.Thuringiensis M No. 1 Bacterial strain of the Veterinary Scientific Research Institute of Uzbekistan, Musca Domestica vicina Mcq. (house fly) was isolated from the larvae of the local population and included in the collection of microorganisms of the Veterinary Scientific Research Institute under registration number No. 1 (2000). It has been established that this strain forms good and specific colonies on nutrient media with the addition of bacteria MPA, MPB, “Blood” and “Blood Serum”. In these test tubes, flasks and mats, purely isolated strains of Bacillus thuringiensis var.thuringiensis were propagated on nutrient media, the initial experimental series of the Bioinsecticide preparation was prepared, and its insecticidal properties were studied in the laboratory. At the same time, various concentrations of the drug “Bioinsecticide” were prepared, namely 0.225, 0.45, 0.9, 1.35, 1.8, 2.25, 3.6, 4.05, 4.5, 9.0 , 13.5, 18.0, 22.5 billion/ml of bacterial spores using special titer detectors, and in laboratory conditions they were sprayed from an experimental preparation onto filter paper placed in a Petri dish using a dispenser sprayer, and on the surface 30 specimens of larvae and adults of newly caught lice beetles were placed on this medicinal filter paper, and as a result of test experiments in order to determine the minimum effective (100 percent) concentration of these drugs, the following tests were carried out:

experiment 1: The filter paper was placed in 3 Petri dishes, and the surface of each filter paper was treated with 3.8 ml of “Bioinsecticide” with 0.225 billion/ml bacterial spores. 30 freshly collected larvae were released onto the surface of this medicinal filter paper, and after 10 minutes the insects were packaged in Petri dishes with clean filter paper and kept in optimal conditions, that is, in a thermostat at a temperature of +28+35 0C, every 1, 3, 6, 24 observation work was carried out for an hour and 5 days;

experiment 2: The experiments were carried out as indicated above, a total of 0.45 billion/ml of bacterial spores of the "Bioinsecticide" preparation were tested;

experiment 3: The experiments were carried out as indicated above, a total of 0.9 billion/ml of bacterial spores of the "Bioinsecticide" preparation were tested;

experiment 4: The experiments were carried out as indicated above, a total of 1.35 billion/ml of bacterial spores of the "Bioinsecticide" preparation were tested;

experiment 5: The experiments were carried out as indicated above, a total of 1.8 billion/ml of bacterial spores of the "Bioinsecticide" preparation were tested;

experiment 6: The experiments were carried out as indicated above, a total of 2.25 billion/ml of bacterial spores of the "Bioinsecticide" preparation were tested;

experiment 7: The experiments were carried out as indicated above, a total of 3.6 billion/ml of bacterial spores of the "Bioinsecticide" preparation were tested;

experiment 8: The experiments were carried out as indicated above, a total of 4.05 billion/ml of bacterial spores of the "Bioinsecticide" preparation were tested;

experiment 9: The experiments were carried out as indicated above, a total of 4.5 billion/ml of bacterial spores of the "Bioinsecticide" preparation were tested;

experiment 10: The experiments were carried out in the same way as above, only using pure water.

The results of the experiment were determined after 2-5 days and the number of dead and surviving lice eaters was calculated. Depending on the number of spores contained in the preparation, the minimum or maximum concentrations NLK0 (non-lethal concentration), LK50 (50% lethal concentration) and LK100 (100% lethal concentration) were determined.

Each concentration was repeated 3 times. The effectiveness of the drug was also determined depending on the rate and amount of death of lice beetles. Here,

0 percent of insects in experimental group 1;

20 percent of insects in experimental group 2;

30 percent of insects in experimental group 3;

50 percent of insects in experimental group 4;

70 percent of insects in experimental group 5;

80 percent of insects in experimental group 6;

90 percent of insects in experimental group 7;

100 percent of insects in experimental group 8;

100 percent of insects in experimental group 9 died;

100 percent of the insects in control group 10 were alive (Table 1).

Experience in studying the insecticidal effect of various concentrations of the drug “Bioinsecticide” in laboratory conditions

S.n.	Drug concentration (billion/ml bacterial spores)	Number of lice eaters who took medications (copy)	Number of lice eaters that died after 2-5 days (copy)	Efficiency (percentage)
1	0,225	30	0	0
2	0,45	30	6	20
3	0,9	30	9	30
4	1,35	30	15	50
5	1,8	30	21	70
6	2,25	30	24	80
7	3,6	30	27	90

8	4,05	30	30	100
9	4,5	30	30	100
10	Control (treated with clean water)	30	0	0

As a result, the minimum and 100% effective concentration of the drug “Bioinsecticide” with 4.05 bacterial spores on the 2nd day against lice beetle larvae and the concentration of bacterial spores at a concentration of 4.5 billion/ml turned out to be 100% insecticidal in laboratory conditions by the 3rd days compared to imago forms

Conclusion

For the first time, an experimental series of the drug “Bioinsecticide” was created in laboratory conditions and it was found that a concentration of 4.05 billion/ml of bacterial spores is 100% effective against the larvae of lice beetles of farm animals, and a concentration of bacterial spores in a concentration of 4.5 billion/ml is effective against imagoes. forms 100%.

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