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USING CHEMICALS TO CONTROL LOCUSTS IN THE FERGANA VALLEY

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ABSTRACT

The article presents materials results of experiments provided to identify efficiency of chemicals against locusts in Fergana valley. Experiments was carried out in 2018-2020 years in Fergana valley, used variety groups of chemicals against Italian and Moroccan locust young and old instar.

KEYWORDS: *Fergana Valley, Italian Locust, Moroccan Locust, Chemicals, Lambda-Cyhalothrin, Alpha Cypermethrin.*

INTRODUCTION

Although there are many common features of locust control in the country, the control of locusts in the Fergana Valley is slightly different from other regions. We can attribute this to the fact that the amount of land around the valley for agricultural crops is low. Due to the lack of favorable conditions for the development of harmful locusts around agricultural crops, locust control is not carried out in the agrocenosis**[1]**. In this case, the proximity of agricultural crops to the mountain ranges, which surround the valley and are the basis for the breeding centers of locusts, requires vigilance in the fight against locusts. **[2]**.

Locust control in the Fergana Valley is carried out seasonally during the period of mass development of Moroccan and Italian locusts [6]. In particular, every year in the valley against locusts are carried out on an average area of 13-15 thousand hectares **[5]**. In some years, as a result of the massive increase in the number of locusts in neighboring countries, they fly to the territory of our country. In such cases, the area of locust control can be doubled.In the fight against locusts used mainly drugs belonging to the group of pyrethroids and neonicotinoids **[3]**.

2020-y. In Andijan region, treatment against harmful locusts was carried out on more than 6,000 hectares. Processing area will increase several times during the years of mass cultivation of Moroccan locusts due to flights from neighboring countries **[4]**.

Methods

In our experiments to determine the biological efficacy of chemicals, we used drugs whose active ingredient was lyambdatsigalotrin, alpha-cypermethrin and cypermethrin. We conducted our experiments in Fergana, Andijan and Namangan regions in 2018-2021. Field experiments were carried out in collaboration with the staff of UzAGROKOIMYOHIMOYA JSC locust and mulberry moth control service. According to the generally accepted method in Uzbekistan, chemical treatment is carried out when the number of locust nymphs exceeds 10-15 units per 1 m2, depending on the state of vegetation and climatic conditions.

Field experiments were conducted in Andijan and Bulakbashi districts of Andijan region. Experiments were provided to determine the biological efficiency of the drugs Karat IKS 20% k.s., Aikido-super 10% k.e., ALPAC 100 EC, Lambda-Plus, 20% EC, and Alpha 10% k.c. against different ages of nymphs of Moroccan and Italian locusts. The active ingredient of both drugs is lyambdatsigalotrin, which belongs to the group of pyrethroids. The difference between these drugs is in the concentration of the active substance.

During the experiments, it has been chosen consumption rate 0.0375-0.0625 l / ha of the drug Karat IKS 20% k.s. against different ages of nymphs of Italian locusts. Calculation of the number of nymphs were carried out after counting the number of nymphs per 1 m2 before treatment with the drug and 3, 24, 48 hours after treatment.

Results

In the experiment, Karat IKS 20% k.s. was used against young and old nymphs of Italian locust in the amount of 0.0375 and 0.625 l / ha. According to the data obtained, the biological effectiveness of the drug against young nymph of locusts was 0.1375 l / ha after 3 hours, 88.1%, and after 24 and 48 hours, respectively, 95.7% and 97.6%. (fig 1 and 2)

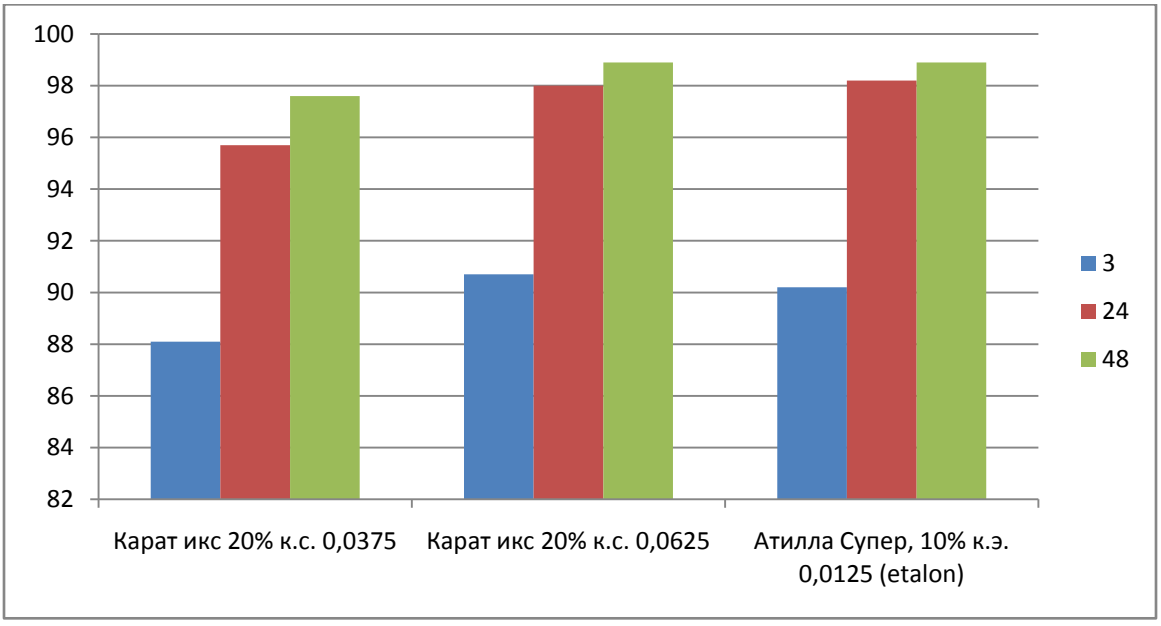

Fig. 1. Biological efficacy of the drug Karat IKS 20% k.s. against young nymphs of the Italian locust (Andijan region, Andijan district, The territory Uzbekistan 14.06.2020)

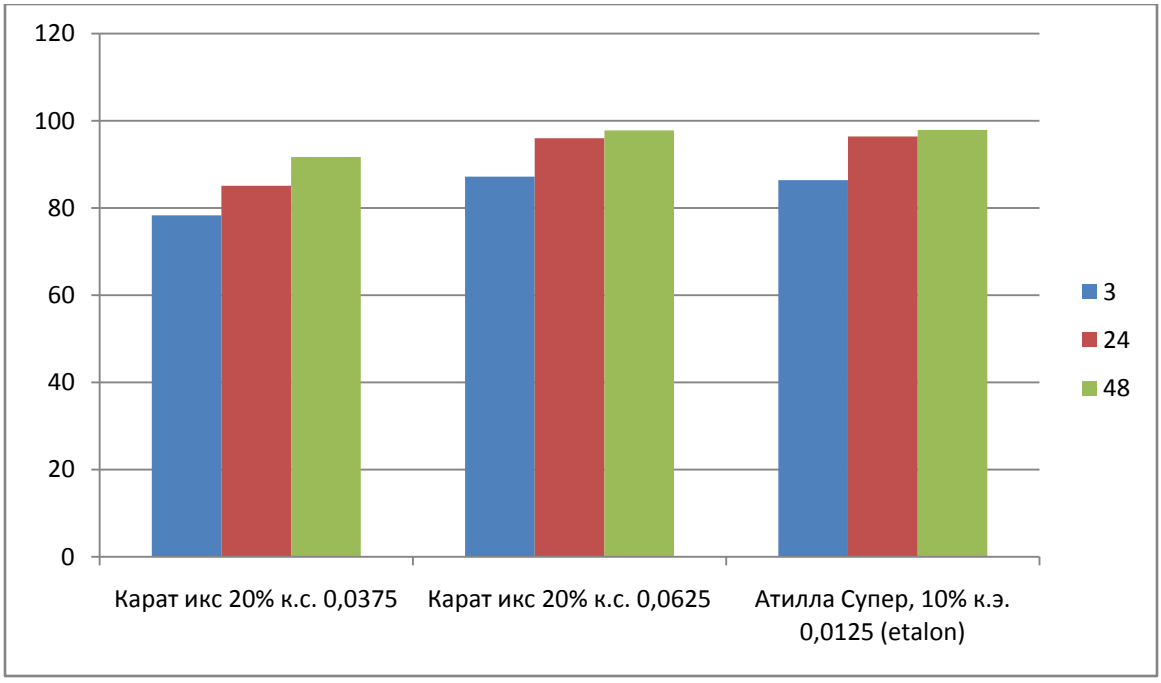

Fig. 2. Biological efficacy of the drug Karat IKS 20% k.s. against old nymphs of the Italian locust (Andijan region, Andijan district, The territory Uzbekistan 14.06.2020)

Using Karat IKS is 20% s.k.a. against young nymphs of the Italian locust amount of 0.0625 l / ha, after 3 hours of treatment shows 90.7%, after 24 and 48 hours, respectively, 98.0 and 98.9% of biological efficiency. The results of the experiment showed that the difference between the biological efficacy of the drug in the amount of 0.0375 and 0.0625 l / ha compared to the young nymphs of locusts was less than 3%, and the karat IKS to the young nymph of locusts was 20% k.s. It was concluded that it is advisable to consume the drug in an amount of 0.0375 l / ha.

A similar experiment was performed on oldnymphs of the Italian locust. According to the experimental results, the carat IKS is 20% k.s. At a dose of 0.0375 l / ha, the biological efficiency was 78.3% after 3 hours and 85.1 and 91.7% after 24 and 48 hours, respectively. In our experiment with oldnymphs at a rate of 0.0625 l / ha, the biological efficiency was 87.2% after 3 hours of treatment, and 96.0 and 97.8% after 24 and 48 hours, respectively.

Karat IKS 20% k.s. The difference between the biological efficacy of the drug obtained at the rate of consumption of 0.0375-0.0625 l / ha compared to the oldnymphs of the Italian locust was greater than 6%. Therefore carat IKS 20% k.s. It was concluded that it is advisable to use the drug in the amount of 0.0625 l / ha compared to oldnymphs of Italian locusts.

As a etalon at the experiment, Atilla Super 10% k.e. was used. The amount of 0.125 l / ha of the drug showed a biological efficiency of 98.9% in 48 hours compared to young nymphs of Italian locusts, 97.9% compared to oldnymphs.

Subsequent experiments Aikido-super 10% em.k. inBulakbashi district of Andijan region. to determine the biological effectiveness of the drug against different ages of Moroccan locusts.In the experiment, Aikido-super 10% em.k. 2 types of the drug were sprayed at the rate of 0.1 and 0.12 l / ha.In experiments to determine the biological efficacy of the drug against young nymphs

of Moroccan locusts, the biological efficacy in 3 hours after treatment at 0.1 and 0.12 l / ha was 87.6 and 91.3%, respectively, after 24 and 48 hours. the biological efficiency was 95.8 - 98.3 and 97.7-99.4%, respectively.

A similar experiment was performed on oldnymphs of Moroccan squirrels at a consumption rate of 0.1 and 0.12 l / ha after 3 hours of treatment with a biological efficiency of 78.3-89.4%, and after 24 and 48 hours, respectively, 85.2- 95.7% and 90.4-98.2% biological efficiency was achieved (Fig. 3 and 4.).

By default, in both experiments, the Atilla Super 10% k.e. drug was used. The drug showed a biological effectiveness of 91.1% in 3 hours, 98.7 and 99.5% in 24 and 48 hours compared to young Moroccan locusts in the amount of 0.125 l / ha. The drug showed a biological efficacy of 89.6% after 3 hours and 96.5 and 98.5% after 24 and 48 hours, respectively, in a trial against oldnymphs of Moroccan locusts.

According to the results of experiments, Aikido-super 10% em.k against young nymphs of the Moroccan locust. application of the drug at a dose of 0.1 l / ha, and against oldnymphs at a dose of 0.12 l / ha.

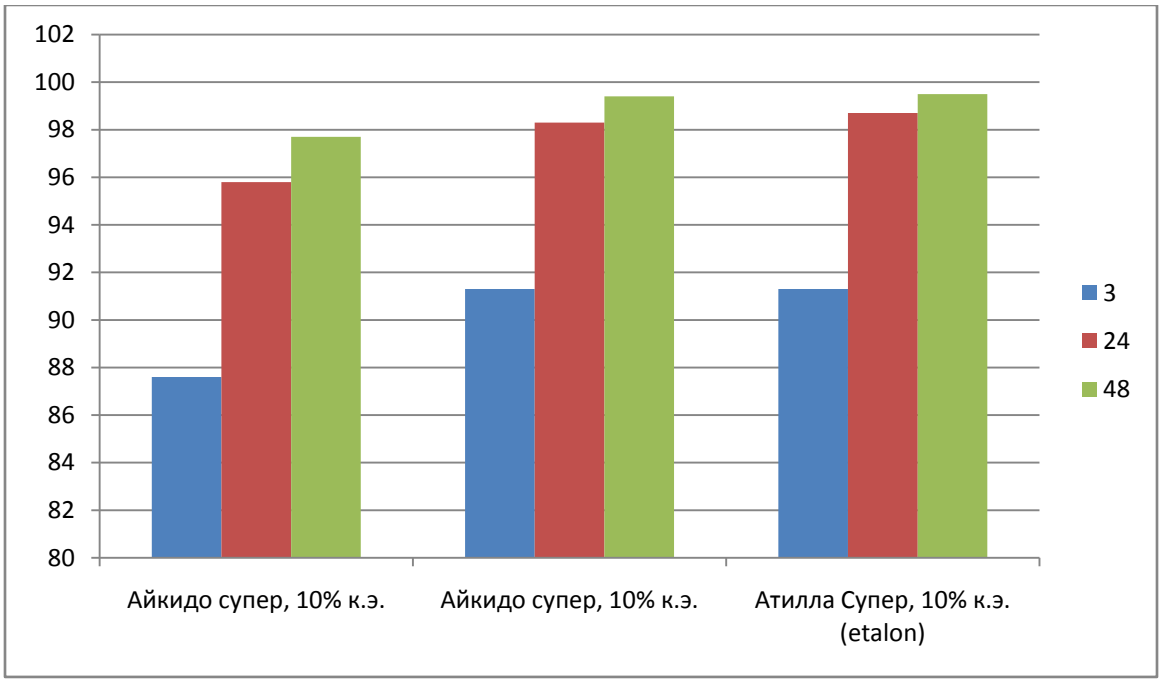

Fig. 3. Biological efficacy of Aikido super against young nymphs of Moroccan locusts, 10% e.k. Field experiment, Bulakbashi district, Andijan region, (120 l / ha), 2020 y.

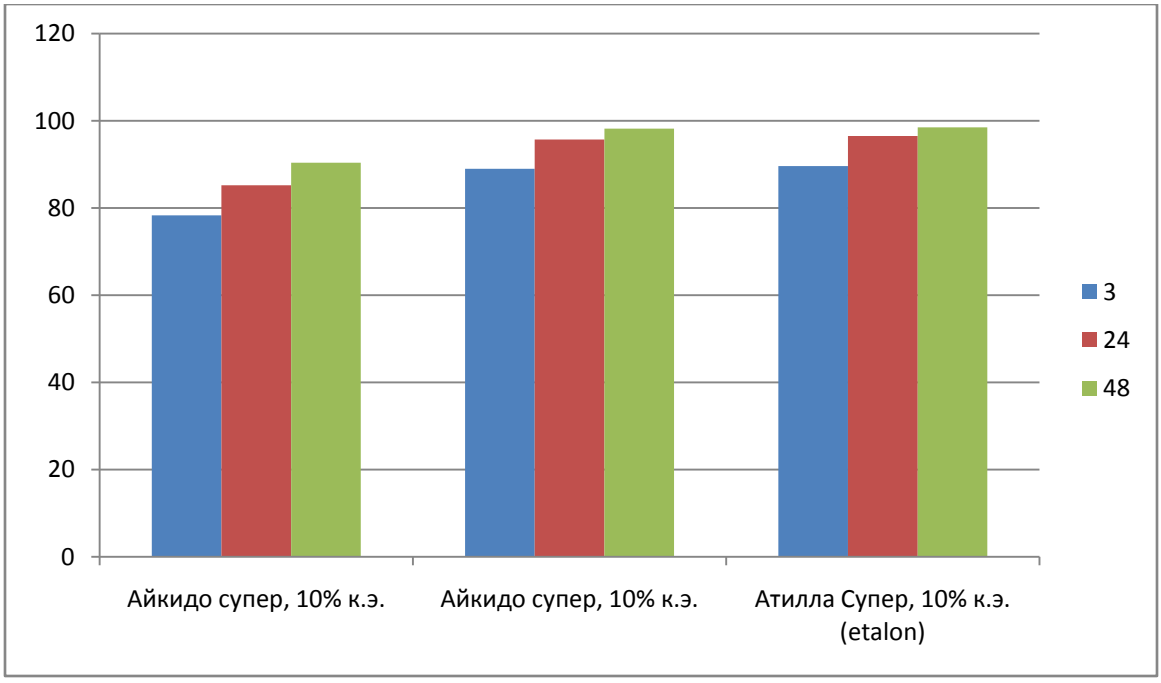

Fig. 4. Biological efficacy of Aikido super against oldnymphs of Moroccan locusts, 10% e.k. Field experiment, Bulakbashi district, Andijan region, (120 l / ha), 2020.

Further experiments were conducted in Kuva district of Fergana region. The experiments were performed to determine the biological efficacy of ALPAC 100 EC against swarming locust nymphs of different ages.

According to the experimental results, when tested against juveniles of Moroccan and Italian locusts, ALPAC 100 EC showed a biological efficiency of 94.8% at 3 hours after treatment and 98.9% after 24 hours.

In addition, experiments were conducted to determine the biological effectiveness of ALPAC 100 EC against Italian (4 and 5) nymphs of Italian and Moroccan locusts. It should be noted that within 1 hour after treatment with the drug, the nymphs stopped feeding and stopped moving. In the process of calculating the number of nymphs, 24 hours after processing, the biological efficiency was found to be 97.1%.

Karache as an etalon, 10% k.e. The drug was used in an amount of 0.125 l / ha. These experiments also showed that the drug has a high biological efficiency (98.5%). (fig. 5 and 6).

It should be noted that no nymphs were observed in the control variant during the experiments.

According to the results of experiments, Lambda-Plus, a 20% EC drug at a consumption rate of 0.75 and 0.125 l / ha, showed high biological efficacy of Italian locustinolds and children.

Experiments have been conducted to determine the biological efficacy of Lambda-Plus, a 20% EC, against nymphs of locusts of different ages in swarms. The oasis locust was found to be dominant in the experimental area. Prior to processing, the amount and density of locusts were determined in the experimental field.

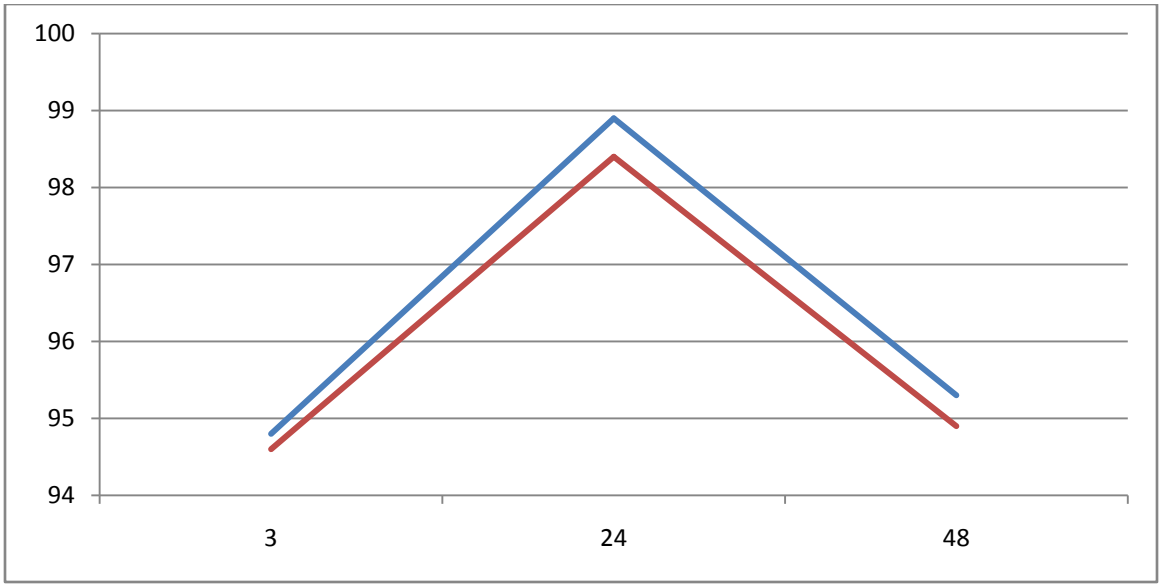

Fig. 5.ALPAC 100 EC against young nymphs of Moroccan locust. Biological effectiveness of the chemical (Sherbutaev massif, Kuva district, Fergana region)

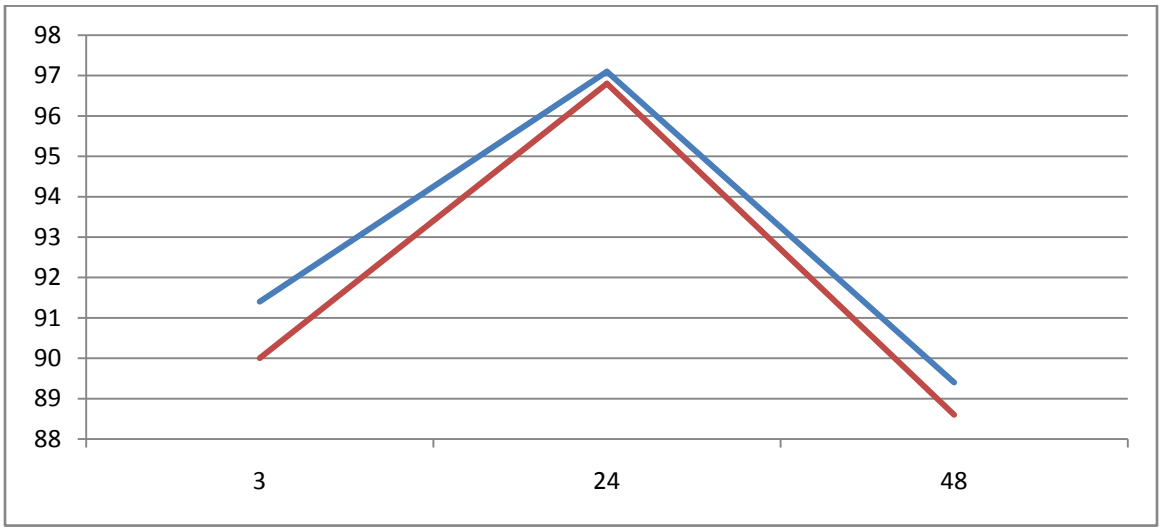

Fig. 6.ALPAC 100 EC against oldnymphs of Moroccan locust. Biological effectiveness of the chemical (Sherbutaev massif, Kuva district, Fergana region)

According to him, the number of locusts per 1 m2 is 40-100.3 hours after treatment with the drug began to count the number of locustsExperiments to determine the biological effectiveness of Lambda-Plus, 20% EC preparation against locust-forming locusts were conducted in the territory of Ulugbek massif, Bulakbashi district, Andijan region (fig. 7 and 8).

In the experiment, the drug was administered at a dose of 0.075 l / ha. Youngnymphs of locusts were selected. Calculations were performed 3 hours after treatment with the drug.It should be noted that the highest biological efficiency was observed 24 hours after treatment (95,8%).

Oldnymphs were treated at a dose of 0.125 l / ha. The results of the experiment revealed a biological efficiency of 96.8% against Italian locusts.

As an experiment, Karache received 10% em.k drug. This drug was used at a cost of 0.125 l / ha. In the etalon variant, high biological efficiency was found to be 97.8% (fig. 7 and 8).

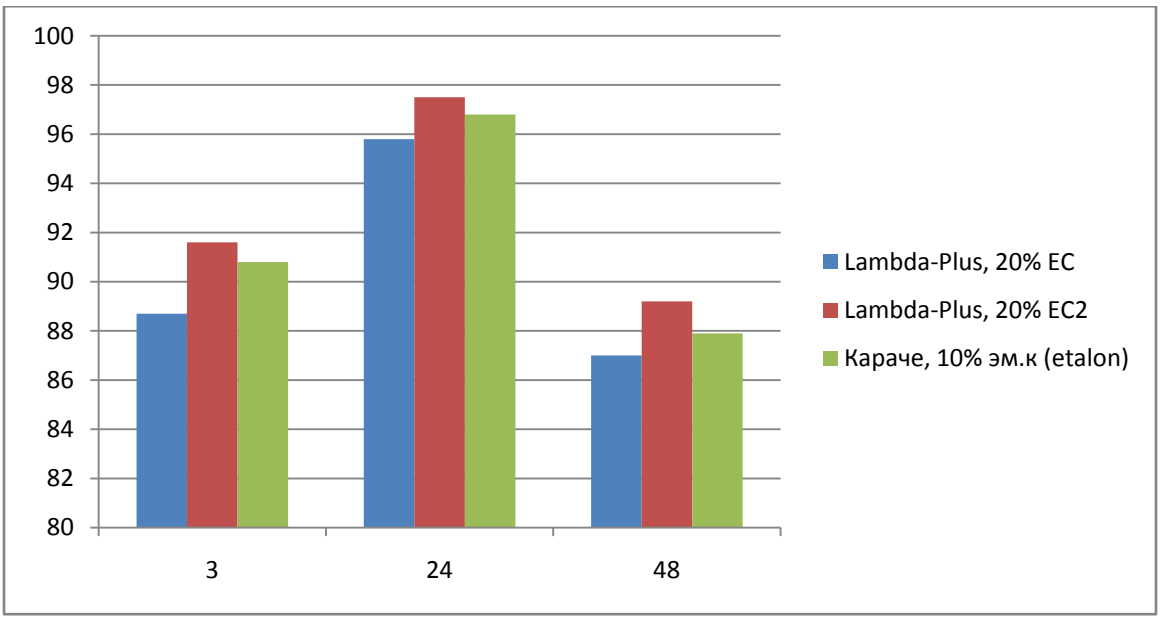

Fig. 7. Biological effectiveness of Lambda-Plus, 20% EC against young nymphs of Italian locusts (Ulugbekmassiv, Bulakbashi district, Andijan region)

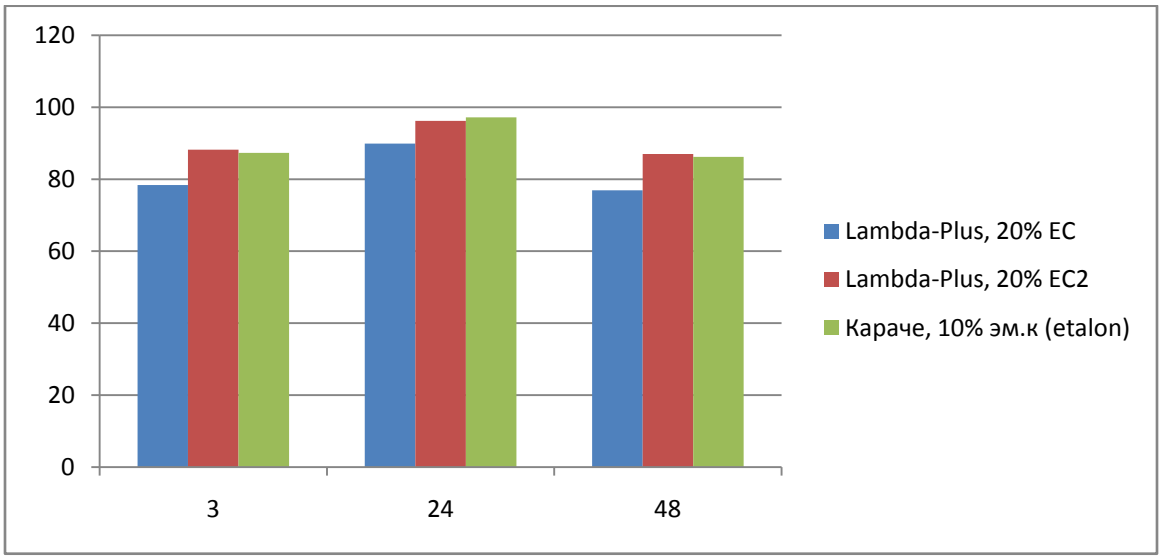

Fig. 8. Biological effectiveness of Lambda-Plus, 20% EC against olds of Italian locusts (Ulugbek massif, Bulakbashi district, Andijan region)

Alpha 10% s.k. Experiments were carried out to determine the biological effectiveness of the drug in the case of Italian locustagainst nymphs of swarming locusts of different ages.

Prior to processing, the amount and density of locusts were determined in the experimental field. According to him, the number of locusts per 1 m2 was found to be 40-50. 3 hours after treatment with the drug began to count the number of locusts.

Alpha 10% s.k. Experiments to determine the biological effectiveness of the drug against locusts were conducted in the territory of Akhunboboev, Markhamat district, Andijan region (5.13-жадвалга қаранг). In the experiment, the drug was administered at a dose of 0.1-0.15 l / ha.Young nymphs of locusts were selected and treated against them at a rate of 0.1 l / ha.Calculations were performed 3 hours after treatment with the drug.It should be noted that the highest biological efficiency was observed 24 hours after treatment (96.2%) (fig. 9-10).

Old nymphs were treated at a dose of 0.15 l / ha.The results of the experiment revealed a biological efficiency of 97.4% of Italian locusts compared to old nymphs.

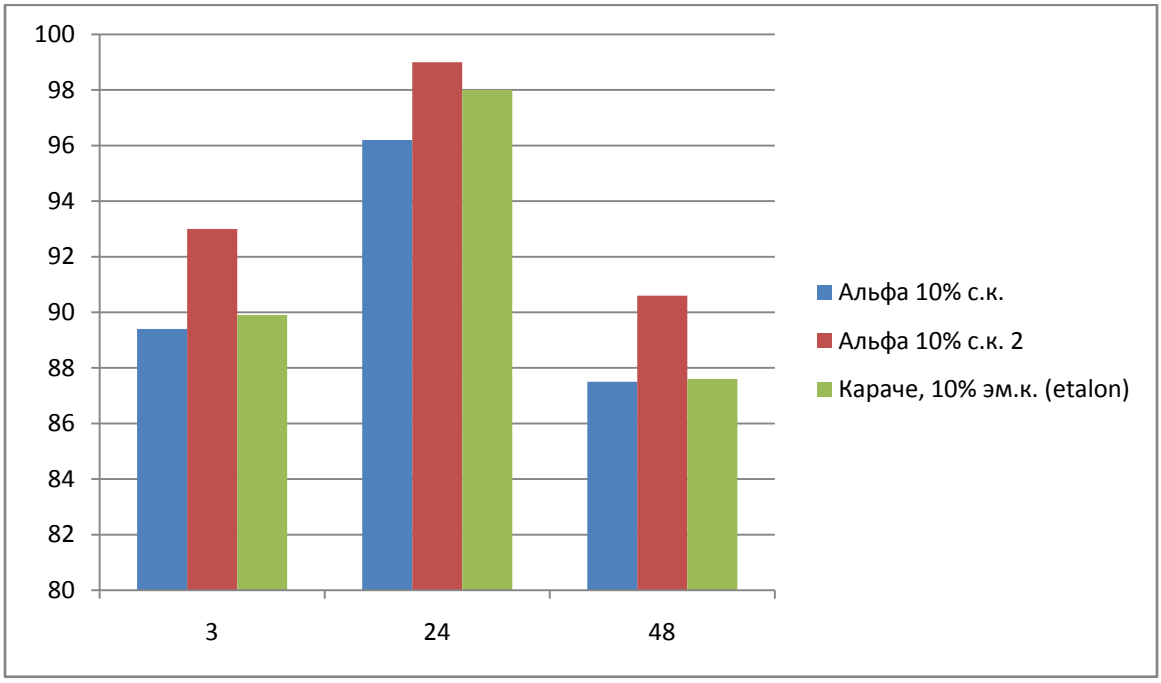

Fig. 9. Alpha 10% s.k. Biological effectiveness of the drug against Italian locust 2-3 years instar (Akhunboboev massif, Markhamat district, Andijan region)

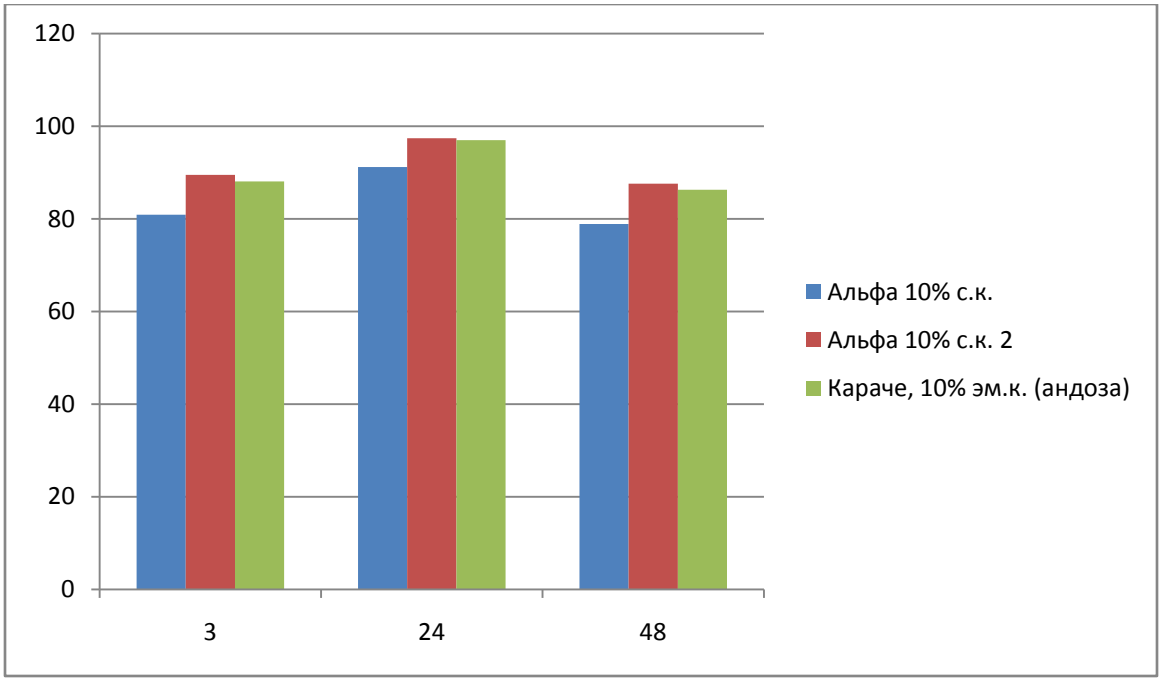

Fig. 10. Alpha 10% s.k. Biological effectiveness of the drug against Italian locust4-5 years old (Akhunboboev massif, Markhamat district, Andijan region)

DISCUSSION

Based on the experiments, it can be said that the biological effectiveness of the drug Karat X 20% sus.k. for oasis locust nymphs (2-3 years, 0.0375 l / ha-97.6%; 0.0625 l / ha-98.9%; 4-5 years, 0.0375 l / ha-91.7%; 0.0625 l / ha-97.8%;), Lambda-Plus, 20% EC biological efficiency (2-3 years, 0.075l / ha -95.8%; 0.125l / ha-97.5%; 4-5 years old, 0.075l / ha-89.9%; 0.125l / ha-96.2%), Alpha 10% s.k. biological efficiency (2-3 years, 0.1l / ha-96.2%; 0.15l / ha-99.0%; 4-5 years, 0.1l / ha-91.2%; 0.15l / ha-97.4%).

Aikido super for Moroccan locust nymphs, 10% k.e. biological efficiency (2-3 years, 0.1 l / ha-97.7%; 0.12 l / ha-99.4%; 4-5 years, 0.1 l / ha-90.4%; 0 , 12 l / ha-98.2%), biological efficacy of ALPAC 100 EC (2-3 years, 0.1 l / ha-95.3%; 4-5 years, 0.1 l / ha-89.4 %).

Based on the results of field experiments, it was recommended to include these drugs in the list of drugs approved for use against locusts in Uzbekistan.

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