

DAMAGE OF MOROCCOAN LOCUSTS (*DOCIOSTAURUS MAROCCANUS* THUNB., 1815) IN UZBEKISTAN AND USE OF MICROBIOLOGICAL PREPARATIONS AGAINST IT

N.E.Utapov*

*Doctor of Philosophy in Agricultural Sciences,
Tashkent branch of Samarkand Institute of Veterinary Medicine,
UZBEKISTAN

DOI: 10.5958/2249-7137.2021.02543.X

ABSTRACT

*The article about the results of the experiment, which provided to definite of biological efficacy the microbial preparations - Kiloca, Fast Kiloca, based on the fungi metarrhizium anisoplia. The experiments carried out in laboratory condition to control of Moroccan locust (*daciastaurus moroccanus* Thunb.) where collected from pastures of Guzar and Nishan provinces of Kashkhadarya region of the Republic of Uzbekistan.*

KEYWORDS: *Experiment, Laboratory, Preparations*

INTRODUCTION

In the world, harmful locusts require constant attention from industry experts. Only in the countries of the Caucasus and Central Asia, failure to control harmful herd locusts, such as Moroccan, Italian and Asian locusts, by causing damage to pasture lands on an area of more than 25 million hectares, as well as agricultural crops, leads to loss of received from them products. As a result, more than 20 million people could left without agricultural products.

The development and improvement of evidence-based control measures against these pests and their timely implementation in foothill, pasture and steppe zones is one of the most important tasks of almost all countries of the world where locusts are common. In particular, studies have conducted in the United States, Europe, Australia, China, the CIS countries, Africa and various regions of other Asian countries where harmful locusts are common. However, studies on the creation of conditions for microbiological control of harmful locusts, the creation of a complex for the application of modern methods and means against them, the determination of the causes of the spread of non-herd locust crops around crops, and the development of effective control measures against them.

In the Republic, some types of harmful locusts are dangerous not only for pasture plants, but also for all crops. To constantly ensure, the needs of the population in dairy and meat products, an important task is to protect the vegetation of foothill, pasture and steppe zones from harmful locusts. The Development Strategy of the Republic of Uzbekistan in 2017-2021 noted that the priority tasks of agriculture are "... the development and implementation of measures to protect plants from diseases and pests." In this regard, in order to prevent mass reproduction and create a danger to crops, it is necessary to identify the main harmful species of locusts found in the

foothills, pasture and steppe zones, study the features of their development, as well as create and implement a set of effective, environmentally friendly measures and means.

Currently, the focus in the control against pest locusts is the use and spread of ecologically safe biopesticides. In particular, it has been studied that the microbiopesticides of Green Guard SC Premium against moroccan locust and Italian locust (*Calliptamus italicus* L.) has a biological effect controlled near 80.0%, this is effectively score in Uzbekistan and Georgia [1,4,5].

In Tibet, $2,3 \times 10^5$, $2,3 \times 10^6$, $2,3 \times 10^7$, $2,3 \times 10^8$, $2,3 \times 10^9$ colonization of pests, when controlled *Metarrhizium anisopliae* against *Locusta migratoria tibetensis*, it was 71%-100% effective [4,6].

Material and methods

One such biopesticide is Xin Jiang MOER Chemscaence Co., China. Ltd., Kiloca m.sus.k based on *Metarrhizium anisopliae* fungi produced by Consumption of biopesticide (1: 20x108) 1.0-1.5l / ha as well as in order to increase the initial effect of this biopesticide, the chemical-acting compound *betacypermetrhin* belongs to the group of pyrethroids of the *Metarrhizium anisopliae* fungus (1:20x108) + 1% Fast Kiloca o.sc.k. the experiments were carried out to study the biological effectiveness of biopesticides in laboratory conditions against Moroccan locust, which produces a pile of the main pest locusts spread in the Republic in 2013 in the amount of 1,0 l/ha. The study of the biological efficacy of biopreparates used in experiments was calculated in [2] method and make a dispersion analysis of the results of the conducted experiments by the method [3].

RESULTS AND DISCUSSION

Our experiments were conducted with the creation of natural conditions for locusts in specially made boxes. On average, each of the box put nymph of healthy II-III young Moroccan locusts of 30-40. For the template, the Green Guard SC-0,5 l/ha biopesticide was used (2-table). During the accounting period of our experiments, temperatures were also monitored and the average temperature was 28-30⁰C. In experiments with Kiloca biopesticide-spreading on 1,0 l/m in the 2 day of the calculation observation in the variant used in 52,1%, If on 4 day gave 55,3%, on 6 day 62,5%, on 8 day 69,7%, on 21 day 83,4% biological effect, in the variant used to spend 1,5 l/ha, the calculation gave a biological effect of 64,6% on the 2 day of observation, 71,8% on the 4 day, 74,0% on the 6 day, 75,0% on In the variant applied to the Green Guard SC-0,5 l/ha, it was found that the calculation gave a biological effect of 29,6% on the 2 day of observation, 36% on the 4 day, 41,0% on the 6 day, 45,7% on the 8 day, and 92,0% on the 32 day.'

1-TABLE KILOCA SC. (METARRHIZIUM ANISOPLIAE) BIOLOGICAL EFFICACY OF BIOPESTICIDE AGAINST MOROCCAN LOCUST NYMPH (LABORATORY EXPERIENCE, HAND SPRAYER (120 L/HA), 25.04.2013)

Options	Preparation consumption norm l / ha	Number of nymph.										
		Processing up to 25.04.13	Observations after treatment with Biopreparat, n days after									
			27.04.2 days	29.04.4 d.	01.05.6 d.	03.05.8 d.	05.05.10 d.	07.05.12 d.	10.05.15 d.	14.05.19 d.	21.05.26 d.	27.05.32 d.
Kiloca (<i>Metarrhizium</i>)	1,0	32,0	15,3	14,3	12,0	9,7	9,3	9,3	8,3	8,3	5,3	3,7
Kiloca (<i>Metarrhizium</i>)	1,5	32,0	11,3	9,0	8,3	8,0	7,7	7,3	5,7	5,7	3,7	1,0
Green Guard SC (template)	0,5	30,0	21,1	19,2	17,7	16,3	12,5	12,0	11,7	10,0	5,7	2,4
Control	-	30,0	29,0	29,0	28,7	28,3	27,7	26,7	25,3	24,7	22,7	19,0
biological efficiency, %												
Kiloca (<i>Metarrhizium</i>)	1,0	32,0	52,1	55,3	62,5	69,7	70,9	70,9	74,0	74,0	83,4	88,4
Kiloca (<i>Metarrhizium</i>)	1,5	32,0	64,6	71,8	74,0	75,0	75,9	77,1	82,1	82,1	88,4	96,8
Green Guard SC (template)	0,5	30,0	29,6	36,0	41,0	45,7	58,3	60,0	61,0	66,7	81,0	92,0
Control	-	-	-	-	-	-	-	-	-	-	-	-

LSD₀₅= 11,2 13,6 12,4 9,7 9,3 7,6 7,9 8,1 5,1 4,8

2-TABLE FAST KILOCA M.SHUT UP.THE G. (METARRHIZIUM ANISOPLIAE +1% BETACYPERMETRHIN) BIOPESTICIDE TO MOROCCAN LOCUST'S NYMPH INJECTION BIOLOGICAL EFFICIENCY. (LABORATORY EXPERIENCE, HAND SPRAYER (120 L/HA), 25.04.2013)

Options	Preparation consumption norm l / ha	Number of nymph.										
		Processing up to 25.04.13	Observations after treatment with Biopreparat, n days after									
			27.04.2 days	29.04.4 d.	01.05.6 d.	03.05.8 d.	05.05.10 d.	07.05.12 d.	10.05.15 d.	14.05.19 d.	21.05.26 d.	27.05.32 d.
Fast Kiloca (<i>Metarrhizium</i> +1% <i>beta cypermetrhin</i>)	1,0	36,7	3,3	2,3	2,3	2,3	2,0	2,0	1,3	1,3	0,7	0,0
Green Guard SC (template)	0,5	30,0	22,0	19,3	18,0	16,4	13,3	12,0	11,3	10,7	5,8	2,7
Control	-	30,0	30,0	29,6	29,0	28,6	28,0	27,3	26,7	25,0	23,6	21,0
biological efficiency, %												

Fast Kiloca (<i>Metarrhizium</i> +1% <i>beta cypermetrhin</i>)	1,0	36,7	91,0	93, 7	93, 7	93, 7	94, 5	94, 5	96, 4	96, 4	98, 0	100
Green Guard SC (template)	0,5	30,0	26,6	35, 6	40, 0	45, 3	55, 6	60, 0	62, 3	64, 3	80, 6	91, 0
Control	-	-	-	-	-	-	-	-	-	-	-	-

LSD₀₅=

10,6 8,4 8,2 7,9 6,9 5,5 5,1 6,3 6,6 5,2

As well as, in experiments with biopesticide treated with a chemical compound Fast Kiloca 1,5 l/ha biopesticide, the calculation was made on 2 days of observation 91,0%, on 4 days 93,7%, on 6,8,10 days 93,7% -93,7% -94,5% biological efficiency, it gained 26% biological efficiency in 98,0 days, 32% in 100 days. The Green Guard SC-0,5 l/ha variant used in variant was found to have a biological effect of 26,6% on the 2 day of the follow-up, 35,6% on the 4 day, 40,0% on the 6 day, and 91,0% on the 32 day of the follow-up (2- table). In both experiments, locust's nymph did not controlled, which were put under control, was not observed.

CONCLUSIONS

According to the results of the experiment, the maximum biological effect of using Kiloca biopesticide at 1.0l / ha in the control against Moroccan locusts was 88.4%, with the highest biological efficiency of 1.5 l / ha.,8%.

Fast Kiloca also records the highest 100.0% bio-efficiency of microbiological and chemical pesticides at 1.0l / d to accelerate initial effects to improve microbial biopesticides effects.

At the expense of these Kiloca-1.0-1.5 l / ha and Fast Kiloca-1.0 l / L, it is recommended to use these biopreparations against common locust for the purpose of saving ecological environment.

REFERENCE

1. Dospexov B.A. Methodology of field opyta. - M.: Agropromizdat, 1985. - 432 c.
2. Kurdyukov V.V., Khodjaev Sh.T., Gapparov F.A. Harmful locusts // Guidelines for testing insecticides, acaricides, biologically active substances and fungicides. -Tashkent: Uzinformagroprom, 1994. - C. 18-20.
3. Tuflijev N.X. Creation of a complex of borby against vrednyx saranchovyx in predgornyx, pastbishchnyx and stepnyx zonax uzbekistana abstract of the doctoral dissertation (dsc) of agricultural science. 06.01.09. - Tashkent, 2019. - 69 p. (Uzbek, Russian).
4. Hunter D.M., Latchininsky A.V., Abashidze E., Gapparov F.A., Nurzhanov A.A., Tuflijev N.Kh., Medetov M.Z. The efficacy of *Metarrhizium acridum* against nymphs of the Italian locust, *Calliptamus italicus* (L.) (*Orthoptera:Acrididae*) in Uzbekistan and Georgia. //Journal of Orthoptera Research. – USA, 2016. – Volume 25(2): P. 61-65.
5. Sali, Y.S., Nong, X.Q., Wang, W.F., Sidike, AL.M., Zhang, Z.H. Evaluation for Virulence and Potential Application of *Metarrhizium* Strains against Tibet Migratory Locusts: *Locusta migratoria tibetensis* Chen (Orthoptera, Acridoidea). / 11th international Congress of Orthopterology, Orthoptera in scientific progress and human culture Abstract & Program. 11th-15th, Aug, 2013. Kunming, China. – P. 168.