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The Importance Of Bionazorating Agencies In Limiting The Number Of Population Of Eurygaster Integriceps Puton

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Abstract: Eurygaster integriceps Put. its natural cousins — eggs and imago parasites, entomopathogenic fungi — have been studied in limiting the number of populations. There are 3 species of phase flies parasitizing in the Tashkent oasis: gray phase-Phasia subcoleoptrata (Linnaeus, 1767), olachipor phase-Ectophasia crassipennis (Fabricius, 1794) and dark phase-Helomiya lateralis Meig. prevalence and their biological efficacy were determined. The species composition of hasva egg parasites was studied and data were obtained that they are 100% harmful to hasva eggs by mid-May.

Keywords: Eurygaster integriceps Put., entomophagous, endoparasite, bioagent, pathogenicity, biological efficacy, phase flies, ovarian parasites, entomopathogenic fungi.

Introduction.

In the process of growing grain in the world, various pests, especially pests in grain crops (Eurygaster integriceps Put.) Cause great damage to yields. It was found that 90-100% of the crop dies due to harmful weeds.

Hasva causes considerable damage in Central Asia by absorbing the juice of wheat and barley stalks and corn; in this case, winter wheat is particularly severely damaged [3, 22].

Several studies have been conducted on the study of phase flies from the natural entomophagous hasva, which have been found to cause serious damage to the composition of its population by infecting hasva imago [2, 17, 19, 20].

It has also been reported that ovarian parasites have high biological efficacy in pests [2, 7, 17, 21]. Parasitism of oviparous parasites Trissolcus grandis (Thomson, 1860) and Telenomus chloropus (Thomson, 1861) in sperm eggs has been reported in different countries [14, 16].

In irrigated arable lands and mountainous areas, the rate of infestation with harmful ovarian parasites has been found to be 70% [8], 80% [4, 11, 13, 15, 16] and 90% [9].

A species of entomopathogenic fungi belonging to Bauveria, Spicaria, Fusarium, Penicillum and other genera has been recorded in Hasva [5]. Including the Beauveria bassiana (Bals.) Vuill. the pathogenicity of the fungus has been elucidated in the work of a number of scientists [1, 12, 18].

Materials and methods.

In order to study the entomopathogenic fungi of the pest, its eggs and imago parasites, research was conducted in 2017-2021 in several regions of the Tashkent oasis.

To do this, in areas where harmful pests overwinter, materials were collected from the wheat fields of farms where the pest is widespread at different stages of development of pests. The collected materials were studied in the laboratory. The work on determination of species composition of harmful weevil imago and ovarian parasites was carried out mainly by G.A. Viktorov [2].

It is not possible to visually determine exactly which type of parasite is infected by the oviparous parasites. To determine the species composition of these parasites, the eggs they infected were collected, collected during the flight of the parasite imagos, and the drug was prepared and studied under binoculars. Thus, the taxa of the species were studied by determining the specificity of their mustache joints and the number of hairs located on them, the head, chest, abdomen. According to Viktorov [2], isolation of entomopathogenic fungi, their reproduction in the laboratory and microscopic studies were performed by AA Evlakhova [6], work on the identification of fungal species by AA Evlakhova [6] and E.Z. Koval [10]. was carried out.

In order to study the parasitic entomophagous pests, biological materials were collected from grain fields and wintering areas of the pest. The obtained materials were studied in the laboratory of the Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan.

Results and feedback.

The species composition of phase mosquitoes, which are parasites of the imaginary mosquito, was studied. . spread. The systematic status of these species is as follows:

Class Insects - Insecta

Category Bivalves - Diptera

Family Taxina flies - Tachinidae

Small family Faziins - Phasiinae

I. Generation Phasia

1. Tur Phasia subcoleoptrata (Linnaeus, 1767) - gray phase

II. Generation Ectophasia

2. Tur Ectophasia crassipennis (Fabricius, 1794) - olachipor phase

III. Generation Helomyia

3. Tur Helomyia lateralis Meig. - dark phase.

For the first time, the distribution, bioecological features and parasite-host relationships of these species in the Tashkent region were studied in detail.

1. Gray phase - Phasia subcoleoptrata (Linnaeus, 1767)

Location: Ortachirchik, Akhangaron, Piskent districts of Tashkent region.

Meeting time: During the study, 2017-2021 was held from April 19 to May 25.

Features: Regular species.

Average damage rate: 2.1-2.4%.

Separate morphological features of the imago: The size of the fly is 5-7 mm. The body is yellow-gray in the form of a dark coating. The upper transverse vascular lines of the wing are longer than the branch of R_5 (wing vascular cell). m (medial) vein bending is angular (Fig. 1).

External signs of the egg: The egg is long - oval, measuring 0.7 x 0.15 mm. In order to lay eggs, flies injure the scleritis of the abdomen, thereby placing the egg directly into the abdomen of the body of the uterus.

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1- picture. Phasia subcoleoptrata (Linnaeus, 1767)- gray phase fly moth (A) and imagosi (B) (orig.)

Bioecology: Gray phase mosquito imago was found to be a parasite imago parasite in grain fields during April and May 2017-2021. This phase lays the eggs of the mosquitoes only on the bodies of adult individuals who, in turn, have physiologically valuable development. The larvae that hatch from the eggs spend their developmental stage on the inside of the adult hasva body during the gibbernation period.

The gray phase fly reproduces twice a season in grain agrobiocenosis and overwinters in the larval stage. The period of flight of the summer generation of flies of this parasite out of the fungus coincides with the period of mass feeding of the new generation of flies.

Compared to other phase flies, the gray phase fly is relatively less harmful to the summer generation of hasva. The gray phase larvae, which have passed through the developmental stages by infecting the new generation hasva imago, emerge from the body of the host, enter the diapause in the form of a sponge in the soil, overwinter and fly away in early spring. Its opaque phase lasts longer than the opaque phase of other phases. In early spring, this species flies much earlier than other species.

Phasia subcoleoptrata (Linnaeus, 1767) phase fly Helioma lateralis Meig in natural conditions. late in the phase mosquito, i.e. on average 6-7 days later forms a fungus. Gumbagi Helomiya lateralis Meig. the phase mosquito is larger than the fungus, the characteristics characteristic of the morphology of the fungi are common to 3 species.

2. Olachipor phase - Ectophasia crassipennis (Fabricius, 1794)

Location: Ortachirchik, Akhangaron, Pskent districts of Tashkent region.

Meeting time: During the study, 2017-2021 was held from April 5 to June 5.

Features: Regular species.

Average damage rate: 3.9-4.2%.

Individual morphological features of the image: Size 6-12 mm. The head is light, the forehead is reddish-yellow with a band. The base of the wings is yellow-red. The abdomen is yellow, with a long transverse band in the middle forming a black color (Fig. 2).

External signs of ovary: Shape elongated, without oval shape. Size 0.8-0.9 mm. He lays his eggs under a shield of jealousy.

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2- picture Phasia crassipennis- olachipor phase fly mushroom (A)
and imagosi (B) (orig.)

Bioecology: Olachipor phase was found in Tashkent region in Ortachirchik, Akhangaron, Pskent districts. This type of phase is developing in Uzbekistan for two generations. This species, like other phase species, infects only in the imago state of the hasva. Its second-generation flies begin to fly and infect it during the period of intensive feeding of the new generation of hawks imago.

The II-year-old larvae, which develop in the peritoneal cavity of the pest, go into a state of diapause and overwinter inside the body of the host. During the development of phase mosquitoes in the body of the hasva, the larvae cause the development of eggs in the ovary of the female hasva.

Female individuals of a sexually incompletely infected insect remain completely infertile during exposure to phase flies.

3. Dark phase - Helomyia lateralis Meig.

Location: Ortachirchik, Akhangaron, Pskent districts of Tashkent region.

Meeting time: During the study, 2017-2021 was held from April 5 to June 5.

Features: Regular species.

Average damage rate: 1.8-2.1%.

Distinctive morphological features of the image: Variable in appearance and size. Body size is 4.5-8.0 mm. The female's body is glossy black. The wings are discolored, yellow-based, glossy (Fig. 3). Males are relatively white, with yellow spots on the sides of the abdomen.

External signs of the egg: Size 0.2 mm. The eggs, unlike other phase mosquito eggs, have a rod-shaped handle. Pests lay their eggs on the front shoulder area of the body.

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4.3- picture. Helomiya lateralis Meig.- dark phase mosquito bubble (A)
and imagosi (B) (orig.)

Bioecology: The parasitic larvae that hatch from the egg enter the body through a thin area of chitin in the host's body, during which time most of the larvae are killed during movement in the host's body. The parasite was found to be in a larval state in the body of the mosquito imaging the wintering mosquito. The larva develops in the abdomen at different stages of development and feeds on its hemolymph fluid. Studies have shown that the larvae that develop develop often emerge from the tip of the abdomen of the hasva body, in some cases from the part of the breast attached to the abdomen, and soon turn into a fungus. In all cases, the parasitic larva of the infected mosquito is completely killed after it has cracked its body.

Helomiya lateralis Meig in the body of the hasva in the conditions of the Tashkent oasis. the fungal transformation of the phase fly begins in the first ten days of April and lasts until the tenth day of

June. Helomiya lateralis Meig. pharyngeal mosquito fungus Phasia subcoleoptrata (Linnaeus, 1767) is small and brown in color compared to the pharyngeal mosquito, with a blunt front and a relatively elongated back and two brown bulges. The fungal period of this phase fly lasts 16-18 days. When the flying phase flies were cared for with a solution of honey and sugar, they were found to live an average of 9 days.

The dark phase mosquito lives from the first ten days of April to the third ten days of May and begins to lay its first eggs in the body of the mosquito in the first ten days of April.

The mass flight of all types of phase flies occurred in late April and early May. The flight of phase flies from the fungi takes place after an average of 10-12 days, and this naturally occurred in late April.

Identified phase mosquito species can be considered as a bioagent in the management of their pest population numbers as a parasite of the pest. In the Tashkent region, the total infestation of phase mosquitoes was 7.8-8.6%. In terms of parasitism in mosquitoes, olacter Ectophasia crassipennis (Fabricius, 1794) - the natural biological efficiency of the phase fly was the highest, ie 3.9-4.2%. While the parasitic activity of the natural population of the dark phase mosquito killed 1.8-2.1% of the harmful mosquito imago, the natural biological damage efficiency of the gray phase mosquito was 2.1-2.4% (Fig. 4).

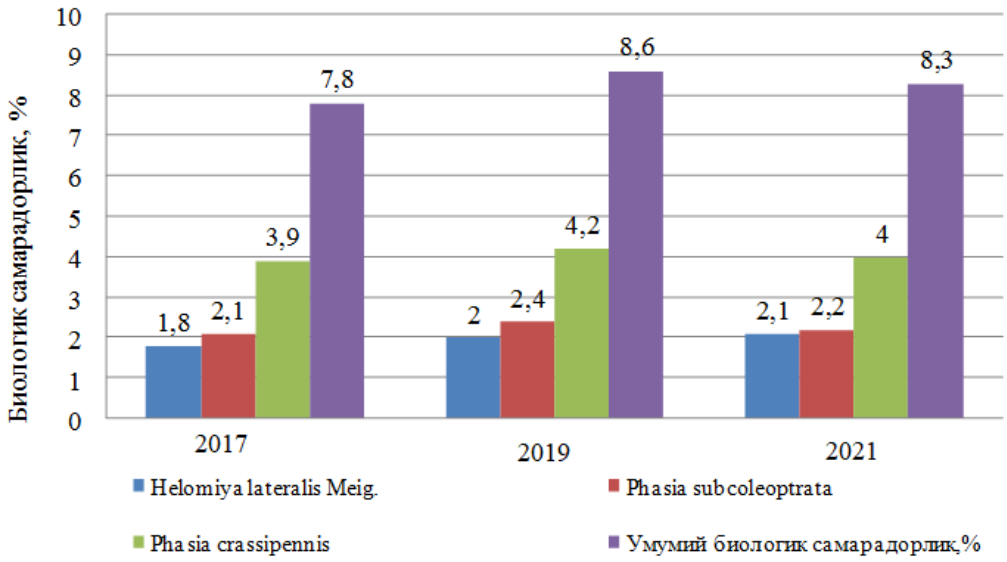

Figure 4. Information on the infestation of harmful mosquitoes with phase flies in the conditions of Tashkent region

In the scientific literature, 4 species of phase flies have been reported as parasites of harmful mosquitoes [2]. During our research, it was found that Slotiomyia helluo-yellow (gold) phase mosquito is not found in the Tashkent region.

Its Trissolcus spp, Telenomus spp. The importance of ovarian parasites such as is known from data from scientific sources. The prevalence of parasitic species Trisssolcus grandis (Thomson, 1860) and Telenomus chloropus (Thomson, 1861) has been recorded in many countries [1, 2, 11].

As a result of the research, data were collected on the importance of telenomuses as parasitic ovaries in the conditions of Tashkent voxelitis. Ovarian parasites have been reported to be infested with parasite eggs when the air temperature is stable at 17ºC. As a result of the constant occurrence of harmful weevil imagos during the growing season of the plant and the duration of the egg-laying period, favorable conditions are created for the development of ovarian parasites that parasitize its eggs.

As a result of identification of the collected samples, it was determined that the most widespread and practically important species in the conditions of Tashkent region belong to the genus Telenomus and Trissolcus of the subfamily Scelioninae. Their taxonomic status is as follows.

Class Insects - Insecta

Category Pardaqanotlilar - Hymenoptera

Large family Platygastroidea

Oila Scelionidae

Generation Trissolcus.

Species such as T. flavipes, T. maori, T. grandis, T. oenone, T. simony, T. basalis, T. pseudoturesis, T. scutelaris, which belong to this genus, are known to be widespread in nature. Of these, T. simony Mayr, 1879., T. grandis Thomson, 1860. The distribution of the species in Central Asia as a parasite of the eggs of the harmful hawthorn has been cited in scientific sources [2].

Trissolcus grandis (Thomson, 1860) **- big triscolus**

Location: Ortachirchik, Akhangaron, Piskent districts of Tashkent region.

Meeting time: During the study, 2017 - 2021 met from 20 April to 5 June.

Features: Regular species.

The ovipositor protrudes from the top of the abdomen, the body covering is not a metallic luster (Scelionidae). The posterior part of the thorax is clearly divided into two parapsidal grooves (Trissolcus). The thigh of the foot is completely or partially darkened of the hind leg [2].

Trissolcus simoni (Mayr, 1879) **- Simoni triscolusi**

Location: Ortachirchik, Akhangaron, Piskent districts of Tashkent region.

Meeting time: During the study, 2017-2019 met from 20 April to 5 June.

Features: Regular species.

Specific morphological features of the imago: The ovary protrudes from the top of the abdomen, the body covering is not metallic luster .. The back of the breast is clearly divided into two parapsidal grooves (Trissolcus). The temporal part is bulging, in females the base of the mustache is thin,

the posterior part of the breast is transversely curved between the parapsidal fossa, and when enlarged it looks like a third parapsidal fossa [2].

Generation Telenomus.

There are 25 species of this genus in the world [165].

1. Tur: Telenomus sokolovi (Mayr, 1940) – Sokolov telenomusi

Location: Ortachirchik, Akhangaron, Pskent districts of Tashkent region.

Meeting time: During the study, 2017 - 2021 met from 20 April to 5 June.

Features: Regular species.

The ovary protrudes from the top of the abdomen, the body covering is not metallic luster. The posterior part of the chest is not separated by a parapsidal fossa (Telenomus). The forehead is smooth and shiny, the eyes are covered with hairs, the body is compact, the abdomen is the first tergiti without a sublateral tumor [2].

Experiments have shown that Trissolcus grandis (Thomson, 1860), Trissolcus simony (Mayr, 1879), and Telenomus sokolovi (Mayr, 1940), which belong to these two genera, are the dominant species of the noxious egg parasite.

Subsequent studies were conducted based on generally accepted methods [2] for the study of ovarian parasites of the ovary (because their bioecology is very close and similar) and collected theoretical and practical data on the total contamination of ovipositor eggs with telenomins.

In Ortachirchik, Ahangaron, Pskent districts of Tashkent region in the second decade of May 2017, the incidence of harmful weevil eggs in the grain fields with egg-laying parasites was found to be 86.4-91.2%. In order to study the seasonal infestation of sorghum eggs with egg-laying parasites, the research started from the period of sorghum migration (06.04) and continued until the grain harvest (15.06). The experiments were conducted for 40 days, from April 15 to May 25.

In the laboratory, the eggs collected from the weeds were left in the field for one week to be damaged in the field and then brought to the laboratory conditions and their degree of contamination was determined. As of April 20, the damage rate of field eggs left in field conditions was 5.1%. On April 25 and 30, the proportion of infected eggs was 11.4 and 13.5%, respectively. The figure was 37.8% on the fifth day of the first decade of May and 75.8% on the ninth day.

The data show that the rate of infection of ovipositor eggs with oviparous parasites has been steadily increasing since the beginning of the experiment - April 20, and for a period of one month, ie May 19, was 98.5%. The parasitic activity of oviparous parasites was quite high, and by the end of the experiment, the flow rate was always 100% on the day of calculation (Fig. 5).

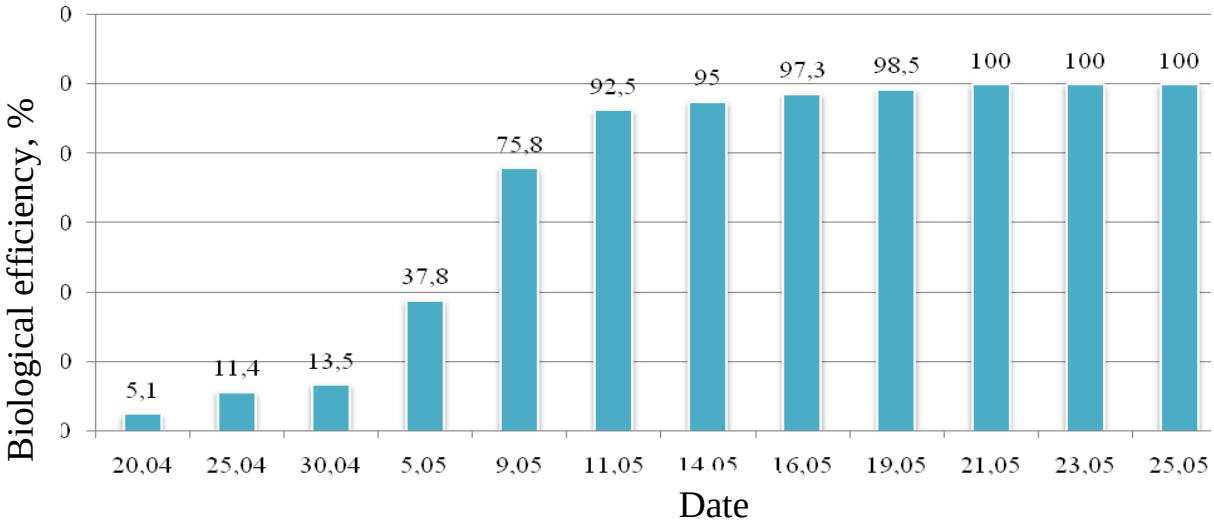

Figure 4.5. Infection of the eggs of imagolari, which hibernate with harmful ovaries, by ovarian parasitic entomophagous

The density of parasites in the field is also of great importance in the process of oviposition of egg-laying parasites and in their selection. In the initial periods of the experiment, i.e., April 20; One or two egg lesions were detected from a set of hashish eggs placed in grain fields for 25 days of infestation.

On April 20 and 25, only 3 or 4 of the 14 eggs in the set of eggs installed in the grain fields were infected with the telenomin parasite (Figure 6). Then the number of infected eggs from each set increased. It has been found that parasite imagoes can infect all eggs as a result of their ability to select eggs in this way and the limited ability to select them as the density of the parasites increases.

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Figure 6. With harmful ovarian parasites that lay eggs
in cases where the density of the imago in the field is low
damage. A- 3 eggs are infected. Infected eggs
turned black. B is a condition in which 4 eggs are infected and larvae hatch from uninfected eggs

Experiments have shown that as the density of the ovaries increases, they can damage all the eggs. With the emergence of the next generation of oviparous parasite imagos, i.e., May 11 and 14, it was observed that parasitic imagoes infect most or all of the ovipositor eggs (Fig. 7).

The data obtained can be used to determine the density of imago parasites in the field and to make short-term predictions of its development.

A B

Figure 7. With harmful ovarian parasites that lay eggs
in cases where the density of the imago is high in field conditions
damage.

According to the results of daily monitoring of the development of pests in the field, the density of imago in the field, their sex ratio, the number of eggs laid, the number of eggs laid, daily data on the infestation of eggs with telenomins, complete forecasting of harm to the population a program for setting calendar dates will be developed.

Harmful hasva-Eurygaster integriceps Put in several areas of the Tashkent oasis. species imago and larvae Aspergillus flavus, Paecilomyces sp., Microascus (Scopulariopsis) brevicaulus (Sacc.) Bain., Cordyceps sp. entomopathogenic fungi, eggs Telenomus sp. The composition of the population affected by parasites of ovarian parasites and imago Helomiya lateralis Meig., Phasia subcoleoptrata (Linnaeus, 1767), Phasia crassipennis (Fabricius, 1794), as well as natural predators - beetles, ants, spiders.

Conclusion.

In the Tashkent region, natural entomophages - oviparous parasites and phase flies, in which disease-causing entomopathogenic fungi play an important role as a bioagent in limiting the number of harmful mosquito populations. There are 3 species of phase flies parasitizing in the conditions of the Tashkent oasis: gray phase-Phasia subcoleoptrata Linnaeus, 1767, olachipor phase - Ectophasia crassipennis (Fabricius, 1794) and dark phase-Helomiya lateralis Meig. prevalence and their biological efficacy were determined. At the same time, the species composition of hawthorn egg parasites was studied and data were obtained that they are 100% harmful to hawthorn eggs by mid-May.

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