

# **Distribution of synovial and zoophilic insects in anthropogenic biocenoses**

**Author(s),** Isaev Zh.M. C.V.S

AND

Ismoilov A. Sh.

## **Abstract:**

The article conducts research on the ecology, seasonal dynamics and taxonomy of populations of synovial, zoophilic and synanthropic insects in anthropogenic biocenoses.

In anthropogenic biocenoses, the effect of 0.025% aqueous emulsion of the drug cypermethrin (Belarus) on synovial and zoophilic insects was studied.

**Keywords:** Synovial, zoophilic, anthropogenic, biocenosis, insect, pest control, ecology, taxonomy, drug, endophilic, synanthropic, hexapod, migration,

**IJMNHS**

Accepted 2 December 2021

Published 6 December 2021

DOI: 10.5281/zenodo.5761590



About Author

**Author(s): Isaev Zh.M. C.V.S. - Scientific Supervisor.**

AND

**Ismoilov A. Sh. - Doctoral student.**

Veterinary Research Institute

**E-mail: [nivi@vetgov.uz](mailto:nivi@vetgov.uz)**



**Relevance of the topic.** In the current period, when the country's population is growing from year to year, a fuller satisfaction of the demand for meat, milk, eggs and other food products and their quality largely depends on the further development of animal husbandry and an increase in its efficiency. In addition to many factors, synovial, zoophilic and synanthropic insects have been found to have a significant negative impact on food storage quality. These insects are in direct contact with livestock and poorly canned food, causing many infectious and parasitic diseases in animals and humans. Arthropods (blood-sucking insects) also cause serious damage to livestock as mechanical carriers of dangerous transmission and parasitic diseases in humans and animals.

Thus, with an increase in the number of livestock and the volume of livestock production, it is important to eliminate the economic damage caused by synovial and zoophilic insects. Therefore, when developing effective measures to combat the diseases they cause, first of all, the study of their ecology, seasonal migration and the development of disinsection measures are of great scientific and practical importance. The solution of these problems will be important for maintaining the sanitary-epidemiological and epizootic well-being of the population of our country.

**Purpose of the study.** To study the ecology, seasonal dynamics and taxonomy of populations of synovial, zoophilic and synanthropic insects in anthropogenic biocenoses and determine the effect of the insecticide cypermethrin (Belarus) against these insects.



**Materials and research methods.** The study of ecology, seasonal dynamics and taxonomy of synovial, zoophilic and synanthropic insects was carried out at the "Plem Chorvadori" and "Istiklol" livestock farms of the Payaryk region and personal subsidiary farms of the Taylyak region and on the territory of the Research Institute of Veterinary Medicine. On livestock farms, those who were in direct contact with zoophilic species, mainly livestock, were caught using entomological traps. The captured insect species were studied in the Laboratory of Arachnoentomology by entomological and microscopic methods.

In addition, our research at the institute showed that the interior of the building (ecological corner), where insects accumulate and disturb people, is a hall (lobby), corridors, a kitchen, a toilet, a hall on the 2nd floor, a wall of a conference room and a glass surface and everything 20 m<sup>2</sup> of surface was disinfected with 0.025% aqueous emulsion of the pyrethroid preparation cypermethrin (Belarus). Disinsection was carried out using an "Avtomax" nebulizer. On each square surface, an aqueous emulsion of 50-100 ml/m<sup>2</sup> was sprayed(4).

From the day of disinsection, the physiological (ethological) and morphological (taxonomic) state of insects was studied and the insecticidal effect was determined by calculating the ratio of dead species.

The main focus was on species of veterinary and medical importance.

On a daily basis, knocked out hexapods (insects) were collected on the experimental site, using special reference books (1), tables, and a microscope (MBS), their number and species (type, class, category, family, generation,



variety) were determined (1). The study took into account the meteorological conditions.

**Research results.** During the study in the observation zone (experimental area) and in livestock farms, 28 species of zoophilic, synanthropic, endophilic insects were identified, belonging to 22 offspring from 11 families belonging to the Arthropoda type, the Insecta class, the Diptera category of zoophilic and synanthropic insects. Data on taxonomy, migration, dynamics of identified insects (hexapods) are presented in the following table (Table 1).

**Table 1.**

**Seasonal dynamics of synovial, zoophilic and synanthropic insects.**

№	Insect species	Time of migration (months)												Total
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
1	L. titillans Bezzi						2	1						3
2	L. irritans						1				1			2
3	S. calcitrans Linne						1	2	1		1			5
4	M. simplex Loew						2				2			4
5	F. scalaris Fabr.				1	2	15	10	2	3				266
6	F. incisurata Zett	2	1				67	58	5	5				138
7	F. leucosticta Meig					1	31	9	1					42
8	F. canicularis L.						23	9	3					35
9	H. dentipes F.								4	1	1			6
10	M. stabulans Flln.			1		4	48	47	2	2	7			111
11	M. assimilis Flln.						3	1						4
12	D.asiatica Zimin			2			1							3
13	Muscidae Sp.n.					1	40	11						52
14	C. vicina R.-D.		3		1	4	24	30	61	7	1			623
15	L. sericata Mg.						3	5	1	2				11



16	P. rudis F.		1			2	4	3			2			12
17	P. regina Mg.							1						1
18	B.haemorrhoidalis Flln.						4	9	2					15
19	R. striata F.							2	4					6
20	B. maculata Mg.						6	18	4	1				29
21	G. maculata							1						1
22	D. funebris F.							1						1
23	P. casei L.						1							1
24	S. violacea Mg.						1							1
25	E. tenax L.						1	1			2			4
26	Simuliidae sp.n.									4	2			6
27	Sarcophagidaesp.r							8		3	2			13
28	Flebotomidae sp.n						2	2						4
														1399

Thus, the observed ecotope (ecosystem) is dominated by 4 species *F.scalar*, *F.incisurata*, *M.stabulans*, *C.vicina*, that is, having veterinary and sanitary, epizootic significance; 8 were observed as subdominants and 16 as rare species. Of these, 19 species have been scientifically identified as mechanical carriers of infectious and invasive diseases. Therefore, it is recommended to carry out veterinary and sanitary prophylactic (disinsection) measures against them (according to the plan).

During the study, in the observation zone (experimental area) and in livestock farms, 28 species of zoophilic, synovial, synanthropic, endophilic insects belonging to 22 genera, 11 families of the Arthropoda type, Insecta class, Diptera category were identified.

At the same time, representatives (species) of the Muscidae family prevailed in 48.18% of the total number of collected insects, and representatives of the Calliphoridae family prevailed in 46.17%. In the ecotones



and ecotopes of the Zarafshan oasis, 13 species of zoophilic and synanthropic insects belonging to the Muscidae family, 3 species to the Calliphoridae family, 4 species to the Sarcophagidae family, 1 rare species from the rest of the family were found (1).

The study was also carried out on 200 head of cattle in private livestock farms "Plem Chorvadori" and "Istiklol" in the Payarik region. The livestock on the farm underwent an entomological survey. The study found that all of the cattle on these farms (100 percent) were infected with zoophilic insects. In the livestock farms "Plem Chorvadori" and "Istiklol" were treated (sprayed) cattle with 0.025% water emulsion of cypermethrin (Belarus), of which (2.5-3 l/head on the skin surface, 1-2 years old cattle - 1.5-2 l/head, calves under 1 year old 0.5-1.0 l/head). It was found that 0.025% aqueous emulsion of the drug does not adversely affect the physiological state and productivity of animals and is 100% (LD100) insecticide and larvicidal efficacy against synovial, zoophilic, synanthropic adults and fly larvae. In these farms, the predominance of the species *Lyperosia titillans*, *Lyperosia Irans*, *Fannia canicularis*, *Stomoxys calsitrans*, *Musca domestica* was observed.

**Conclusions.** 1. Against synovial, zoophilic, synanthropic insects in anthropogenic biocenoses, they were disinfected with 0.025% water emulsion with an insecticide cypermethrin (Belarus).

2. During the study, in the observation zone (experimental area) and on livestock farms, 28 species of synovial, zoophilic, synanthropic, endophilic insects belonging to 22 genera, 11 families of the Arthropoda type, Insecta class, Diptera category were identified.



3. It was found that it has 100% (LD100) insecticidal and larvicidal action when disinfected with 0.025% aqueous emulsion of cypermethrin (Belarus) against ectoparasites of cattle, that is, synovial, zoophilic, synanthropic insects in livestock farms.

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### Cite this article:

**Author(s)**, Isaev Zh.M. C.V.S., Ismoilov A. Sh., (2021). " Distribution of synovial and zoophilic insects in anthropogenic biocenoses", **Name of the Journal**: International Journal of Medicine, Nursing & Health Sciences, ([IJMNH.COM](http://IJMNH.COM)), P, 1 –8. DOI: [www.doi.org/10.5281/zenodo.5761590](http://www.doi.org/10.5281/zenodo.5761590) , Issue: 6, Vol.: 2, Article: 1, Month: December, Year: 2021. Retrieved from <https://www.ijmnh.com/all-issues/>

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