

FAUNA AND ECOLOGY OF ZOOPARASITES IN ZOOBIOCENOSSES

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ABSTRACT

The article presents information on the fauna, ecology and parasitic diseases of harmful zooparasites (ecto-, endoparasites and zoophilic insects) common among agricultural and laboratory animals (cattle, sheep, goats, chickens, dogs, donkeys, guinea pigs, etc.) and in the areas of animal husbandry- zoobiocenoses.

Keywords Ecotone, ecotope, ecology, zoophile, synanthropus, parasite, insects, bovicola, mite, disinsection, fauna, systematization, zoobiocenoses.

Фауна и экология зоопаразитов в зообиоценозах

Аннотация

В статье приведены сведения о фауне, экологии, фенологии зоопаразитов (экто- и эндопаразиты), распространенных в зообиоценозах и среди сельскохозяйственных также лабораторных животных (крупный рогатый скот, овцы, козы, куры, собаки, ослы, морские свинки и др.), и также животноводческих хозяйств.

Ключевые слова

Экотон, экотоп, экология, зоофил, синантроп, паразит, насекомое, бовикола, клещ, дезинсекция, фауна, систематика, зообиоценоз (зоценоз).

Зообиоценозларда зоопаразитлар фаунаси ва экологияси

Аннотация

Мақолада зообиоценозларда қишлоқ хўжалиги ва лаборатория ҳайвонлари (қорамол, қўй, эчки, товуқ, ит, эшак, денгиз чўчкачаси ва бошқалар) орасида кенг тарқалган зарарли зоопаразитлар (экто- ва эндопаразитлар) фаунаси, экологияси, фенологияси ва паразитар касалликлари ҳақида маълумотлар келтирилган.

Калит сўзлар

Экотон, экотоп, экология, зоофил, синантроп, паразит, ҳашарот, бовикола, кана, дезинсекция, фауна, систематика, зообиоценоз.

I. INTRODUCTION

There are many types of harmful insects and mites in nature, most of which are carriers and distributors of deadly bacteria. More than a thousand species of them are zooparasites that live on livestock farms, cattle farms, pastures, in settlements, houses and parasitize on the body of animals and humans. Just as the distribution of these zooparasites in ecological spaces is diverse, the negative impact on the national economy is also multifaceted. In particular, harmful insects and mites as ecto- and endoparasites parasitize on the body of animals

and humans, causing parasitic diseases (entomosis and acarosis), as a result of which the milk productivity of livestock decreases by 30-40%, and meat production by 10-12 kg per year, especially causes the death of a large number of young cattle. According to scientific sources, animal husbandry in the USA suffers from zooparasitic insects worth more than \$ 10 billion a year.

In addition, blood-sucking insects and ticks are transmitted to humans and animals, causing many disasters such as plague, malaria, typhoid fever, tick-borne encephalitis, mosquito-borne encephalitis, hemorrhagic fevers, Zika virus, Ebola, nodular dermatitis, rickettsiosis, imbalance, tularemia, trypanosomiasis, leishmaniasis, tuberculosis, brucellosis, protozoosis, helminthiasis. In the coming years, the threat of their use as a means of bioterrorism is expected.

It is obvious that the study of the fauna and ecology of zooparasitic insects is an urgent problem that has not only economic and social, but also state and defense significance.

The solution to this problem will make it possible to develop measures to effectively protect livestock from zooparasites, protect public health, increase labor productivity, and further increase livestock productivity.

Research purpose. It consists of studying the fauna and ecology of zooparasites found in zoobiocenoses, that is, Zoophiles, synbovils, synanthropic insects, ticks, lice, and bovikol.

II. RESEARCH MATERIALS AND METHODOLOGY

Faunistic, epizootological, morphological studies, guidelines and identification tables in the laboratory of arachnoentomology of collected insect species "Key to chewing lice (Mallophaga), domestic insects". Fauna of the USSR. M., - L.: publishing house of the Academy of Sciences of the USSR, 1940; Puff lice. Part 1. publishing house of the Academy of Sciences of the USSR, 1959, (D.I. Blagoveshchensky), "Synanthropic Diptera of the USSR fauna". Publishing house of the Academy of Sciences of the USSR. M. 1956, (A. A. Shtakelberg), "Atlas of ixodoid ticks" M. "Kolos", 1968 (I. M. Ganiev, A. A. Aliverdiev), "Keys to arthropods harmful to human health" Medgiz Moscow, 1958 (V.N. Beklemisheva), "Keys to insects of the European part of the USSR", "Science" first part, V volume, Leningrad, 1969 (G. Ya. Bei-Bienko), "Keys to insects of the European part of the USSR", "Science" second part, V volume, Leningrad, 1970 (G. Ya. Bei-Bienko), "Flies and Disease", Volume I., Princeton University Press, Princeton, New Jersey, 1971 (By Bernard Greenberg) and using guidelines recommended by other researchers.

III. RESEARCH RESULTS

The species composition of free-living zooparasitic insects may vary to some extent in different countries, i.e. some species may be absent or, in minimal cases, may be numerically dominant, subdominant. Their faunal composition and ecology differ to some extent in different eco-stations.

The research was carried out on livestock breeding of personal subsidiary, personal and farm households in different regions of the country, in tugai forests and pastures of the Zarafshan River at 27 livestock farms and 9270 farm animals in private houses and more than 145 laboratory animals:

The following types of zooparasites and parasitic diseases have been identified in zoobiocenoses:

Table 1

s.n.	Found species of zoo parasites	Parasite names	Types of animals									
			cattle	sheep	goat	donkey	hen	dog	hedgehog	mouse	white guinea pig	
1.	<i>Bovicola bovis</i>	<i>Bovicolez</i>	+	-	-	-	-	-	-	-	-	-
2.	<i>Bovicola ovis</i>	<i>Bovicolez</i>	-	+	-	-	-	-	-	-	-	-
3.	<i>Bovicola eqvi</i>	<i>Bovicolez</i>	-	-	-	+	-	-	-	-	-	-
4.	<i>Trichodectes canis</i>	<i>Trihodectosis</i>	-	-	-	-	-	+	-	-	-	-

5.	<i>Bovicola caprae</i>	<i>Bovicolez</i>	-	-	+	-	-	-	-	-	-
6.	<i>Menacanthus stramenius</i>	<i>Menacanthosis</i>	-	-	-	-	+	-	-	-	-
7.	<i>Argas persicus</i>	<i>Argazidosis</i>	-	-	-	-	+	-	-	-	-
8.	<i>Goniocotes hologaster</i>	<i>Goniocotosis</i>	-	-	-	-	+	-	-	-	-
9.	<i>Ctenocephalides canis</i>	<i>Ctenocephalidosis</i>	-	-	-	-	-	+	-	-	-
10.	<i>Ctenocephalides caprae</i>	<i>Ctenocephalidosis</i>	-	-	+	-	-	-	-	-	-
11.	<i>Haematopinus eurysternus</i>	<i>Hematopinosis</i>	+	-	-	-	-	-	-	-	-
12.	<i>Linognathus vituli</i>	<i>Linognatosis</i>	+	-	-	-	-	-	-	-	-
13.	<i>Linognathus ovillus</i>	<i>Linognatosis</i>	-	+	-	-	-	-	-	-	-
14.	<i>Psoroptes bovis</i>	<i>Psoroptosis</i>	+	-	-	-	-	-	-	-	-
15.	<i>Psoroptes ovis</i>	<i>Psoroptosis</i>	-	+	-	-	-	-	-	-	-
16.	<i>Sarcoptes ovis</i>	<i>Sarcoptic mange</i>	-	+	-	-	-	-	-	-	-
17.	<i>Dermanyssus gallinae</i>	<i>Dermanisosis</i>	-	-	-	-	+	-	-	-	-
18.	<i>Dermacentor spp.</i>	<i>Dermacentorosis</i>	+	-	-	-	-	-	-	-	-
19.	<i>Dermacentor marginatus</i>	<i>Dermacentorosis</i>	+	-	-	-	-	-	-	-	-
20.	<i>Dermacentor dagestanicus</i>	<i>Dermacentorosis</i>	+	-	-	-	-	-	-	-	-
21.	<i>Hyalomma anatolicum</i>	<i>Hyalommoz</i>	+	+	-	-	-	-	-	-	-
22.	<i>Hyalomma plumbeum</i>	<i>Hyalommoz</i>	+	+	-	-	-	-	-	-	-
23.	<i>Hyalomma asiaticum</i>	<i>Hyalommoz</i>	-	+	-	-	-	-	-	-	-
24.	<i>Hyalomma detritum</i>	<i>Hyalommoz</i>	+	-	-	-	-	-	-	-	-
25.	<i>Haemaphysalis punctata</i>	<i>Hemafizalosis</i>	+	-	-	-	-	-	-	-	-
26.	<i>Hae. sulcata</i>	<i>Hemafizalosis</i>	+	-	-	-	-	-	-	-	-
27.	<i>Boophilus calcaratus</i>	<i>Boophilosis</i>	+	+	+	-	-	-	-	-	-
28.	<i>Rhipicephalus bursa</i>	<i>Ripicephalosis</i>	+	+	+	+	-	+	-	-	-
29.	<i>Rhipicephalus sanguineus</i>	<i>Ripicephalosis</i>	-	-	+	-	-	+	-	-	-
30.	<i>Rhipicephalus turanicus</i>	<i>Ripicephalosis</i>	+	+	+	-	-	+	-	-	-
31.	<i>Rhipicephalus pumilio</i>	<i>Ripicephalosis</i>	-	-	-	-	-	-	+	-	-
32.	<i>Hypoderma bovis</i>	<i>Hypodermatosis</i>	+	-	-	-	-	-	-	-	-
33.	<i>Oestrus ovis</i>	<i>Estrosis</i>	-	+	-	-	-	-	-	-	-
34.	<i>Alveonasmus lahorensis</i>	<i>Alveonasosis</i>	+	-	-	-	-	-	-	-	-
35.	<i>Gliricola porcelli</i>	<i>Clericolosis</i>	-	-	-	-	-	-	-	-	+
36.	<i>Laelaps echidninus</i>	<i>Laylapsosis</i>	-	-	-	-	-	-	-	+	-

It has been established that zooparasitoses of 36 nosological species predominate mainly among agricultural and laboratory animals. Of these, parasitic diseases (acarosis and entomosis) are widespread, such as bovikoliosis, linognatosis, psoroptosis, ripicephalosis, hyalomosis, and estrosis.

Permanent parasites infect animals (bovikola, trichodectes, hematopinus, linognathus, psoroptes, sarcoptes, poultry malofagus) throughout the year, most often in November-May, temporary parasites - ixodic canals in late

spring and summer, while the forms of nymphs cause epizootics during the warmer months (June-August), even in the winter months, the Argas and Dermanissus canals throughout the year.

According to the results of the study, zoophilic insects were found in all cattle on these farms, and when studying the prevalence of zoophilic, synbovil and synanthropic insects in zoobiocenoses, the following situation was observed. (Table 2).

Distribution status of zoophilous and synanthropic insects in zoobiocenoses

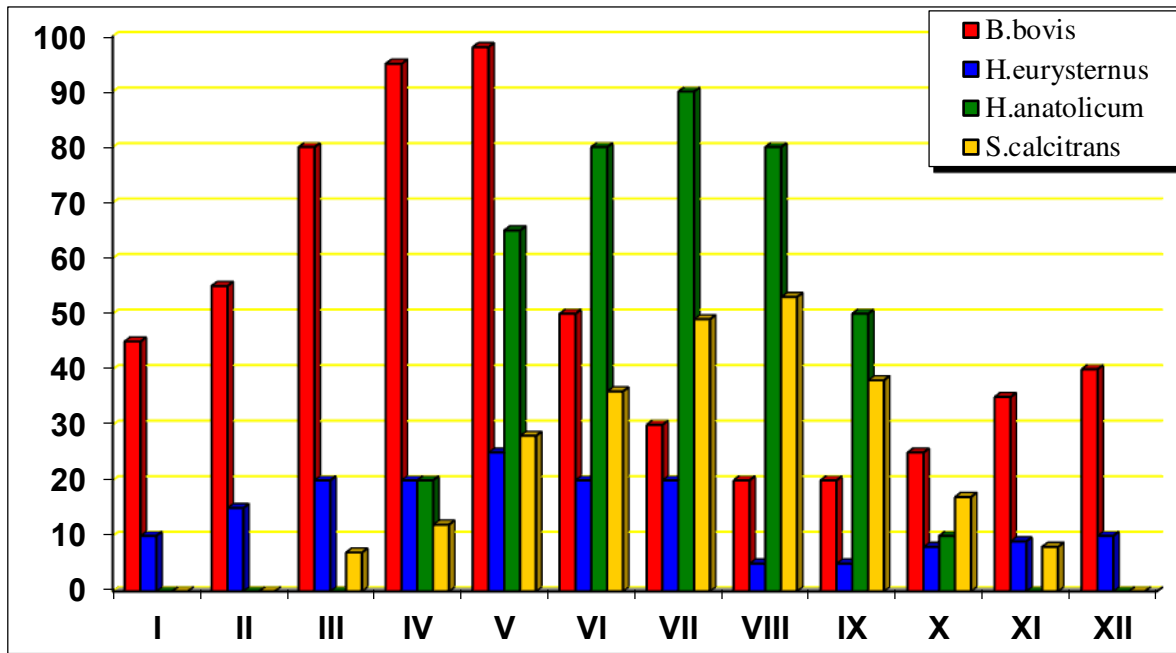
Table 2

№	Family name	All collected zoophilous insects	Number of generations	Number of species	Renewal rate, in%
1	Muscidae	1592	9	19	77,62
2	Calliphoridae	186	5	5	9,06
3	Sarcophagidae	26	4	4	1,26
4	Drosophilidae	31	1	3	1,51
5	Scatophagidae	1	1	1	0,05
6	Scatopsidae	2	1	1	0,09
7	Piophilidae	28	1	1	1,36
8	Sepsidae	5	1	2	0,24
9	Syrphidae	8	1	2	0,39
10	Milichidae	7	1	1	0,34
11	Simuliidae	127	2	2	6,19
12	Culicidae	6	1	1	0,29
13	Ceratopogonidae	1	1	1	0,05
14	Dryomyzidae	15	1	1	0,73
15	Sphaeroceridae	7	1	1	0,34
16	Formicidae	8	1	1	0,39
17	Vespidae	1	1	1	0,05
	results	2051	33	47	100

The study identified 47 species of zoophilic, synanthropic, endophilic insects belonging to 33 genera belonging to 17 families of the Arthropoda type, the Insecta class, the dipteran and Hymenoptera family of zoophilic and synanthropic insects in the observation zone (experimental field) and in livestock farms.

At the same time, representatives (species) of the Muscidae family prevailed in 77.62% of the total number of collected insects. In the Zarafshan oasis, 19 species of zoophilic and synanthropic insects of the Muscidae family, 5 species of the Calliphoridae family, 4 species of the Sarcophagidae family, 3 species of the Drosophilidae family, 2 species of the Sepsidae, Syrphidae, Simuliidae families were found.

Diagram of the seasonal distribution of the dominant zooparasitic species in zoobiocenoses:



Thus, in zoobiocenoses, Bovicola bovis turned out to be the most parasitic among cattle - up

to 98% in spring, H.eurysternus - up to 25%, H.anatolicum - up to 90% in summer, S. calcitrans - up to 53.% (extensiveness).

IV. CONCLUSIONS

1. Among the existing agricultural and laboratory animals (cattle, sheep, goats, chickens, dogs, donkeys, guinea pigs, white mice and others) in zoobiocenoses (anthropogenic biocenoses), there are 36 zoological (taxon) species of zooparasites (ecto- and endoparasites). and parasitic diseases.
2. Among cattle, sheep and goats, bovikoliosis, hematopinosis, linognatosis, entomosis and ripicephalosis, hyalommos, alveonazosis, acarosis are more common; among chickens, dermanisosis, gonicotosis, menacanthosis; among dogs, trichodectosis, ctenocephalidosis and among laboratory animals, the diseases of clericolosis and lilapsosis are common. These are diseases of epidemiological, sanitary and hygienic significance.
3. Permanent parasites (bovikola, linognatus, psoroptes, sarcoptes, mallophages) are more common in November-May, while temporary parasites (ixodids and gamazids) are more common (epizootic) in May-August and cause economic damage.
4. There are 19 species of zoophilic and synanthropic insects belonging to the Muscidae family, 5 species of the Calliphoridae family, 4 species of the Sarcophagidae family, 3 species of the Drosophilidae family, 2 species of the Sepsidae, Syrphidae, Simuliidae families in the form of infection.

Recommendations.

We study the diversity and breeding seasons of entomoses and parasitic insects in livestock conditions and recommend using the following environmentally friendly methods to combat them:

In order to prevent the spread of entomosis on the territory of farms, non-preservation of household waste on the territory of the economy, storage of garbage containers and asphaltting of their storage areas, concreting of pits and floors in sheds and constant cleaning, covering the frames and doors of sheds and washing wastewater with water (hydraulic flushing), discharge into manure using mechanisms, maintaining the cleanliness of buildings and structures using pheromone self-adhesive handles, protective nets and mosquito nets.

Preventive disinsection against these zoophilic, synanthropic, exophilic, endophilic and parasitic arthropods (acaris and hexapods) is recommended to be carried out in the spring of 2-3 months, continuous (radical) disinsection in June-August on the basis of regulatory legal acts(8).

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