

Ecological-Faunistic Analysis of the Helminthofauna Redentia In Jizzakh Region.

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ABSTRACT. This article analyzes the ecological and faunal analysis of 177 specimens of rodent helminth fauna belonging to 7 families of 5 families of rodents (Rodentia) in the territory of Jizzakh region, and 44 (24.8%) individual rodent infestations were observed. Rodents were infested with 11 species belonging to the class of cestodes, 2 species of trematodes, 1 species of acanthocephalus and 19 species of nematodes.

KEYWORDS: helminth fauna, population, invasion, species, individual, nematode, trematode, cestode, biocenotype, parasite.

Rodents are one of the largest groups of mammals in the fauna of our country. They can be found in almost all landscapes. The number of individuals in a population of certain species of rodents or their groups is high, which is of interest to zoologists, veterinarians, and health professionals. Many species of these animals cause great damage to the agro-industrial complex, including cereals and legumes, to a certain extent to economically important plants specializing in various plantations and horticulture.

Rodentia species are the main, intermediate and additional (reservoir) hosts of helminths that cause serious worm infection diseases in domestic, wild animals and humans.

The consistent development in the scale of food production industries leads to an increase in the number of harmful biological objects. In this regard, rodents and parasitic organisms are of particular importance, as changes in their quantitative indicators in nature have a negative impact on the activities of many industrial complexes.

Particular attention is paid to the prevention and elimination of various diseases caused by rodents and their transmission, as well as their economic damage on a scientific basis. In this regard, it is important to make an inventory of harmful rodent species, assess the factors affecting their dynamics and develop control measures, including the activities of economic sectors and the characteristics of local areas.

This research work is aimed at identifying the helminth fauna of the Rodentia family in the Jizzakh region.

About 40 species of the Rodentia family are registered in the biocenoses of Uzbekistan (Shernazarov et al., 2006). 26 species of rodents have been recorded in the biogeocenoses of northeastern Uzbekistan (Kashkarov, 2019; Mitropolskaya, 2019; Khamrokulova, 2020).

Academician K.I. Preliminary research was conducted by Scriabin (1924). Subsequent research has been continued by a number of authors to study the helminth fauna of small mammals (rodents, amphibians and insects) (Adysheva, 1962; Kairov, 1963; Sultanov, 1957; Sultanov et al., 1962; Schleicher, Samsonova, 1954). The results of this study provide fragmentary data describing the helminth fauna of animals in different regions of Uzbekistan.

N.M. Matchanov et al examined 260 specimens of 11 species of rodents in some areas of Jizzakh and Syrdarya regions (Matchanov et al., 1984). Among the rodents studied, 11 species of helminths belonging to the classes Cestoda, Acanthocephala and Nematoda were identified. The total infestation of rodents with helminths was 15%.

Materials for the study were collected from endogelminths that parasitize rodents in different parts of the Jizzakh region (mountains, foothills and steppes). The research was conducted in 2020-2021 in the laboratories of the Department of Biology and Methods of Teaching Jizzakh State Pedagogical Institute and the Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan "General Parasitology".

Captured rodents K.I. Scriabin (1928) examined the complete and incomplete helminthological cracking

method. This method collected 177 samples of 7 species of rodents belonging to 5 families (Table 1). Nematodes, trematodes, cestodes, and acanthocephalus were fixed in 70% ethyl alcohol.

In helminthological studies, ectoparasites of rodents were observed to be quantitatively and qualitatively abundant, proving that they were in biocenotic contact with many species of invertebrates. The identification of the types of parasites was carried out according to the identifiers and descriptions noted by the researchers (Ryzhikov et al., 1978, 1979; Scriabin, Petrov, 1964; Anderson, 2000; Pavlovsky, 1934).

Table 1: Species of rodents studied in Jizzakh region

Family	Species	Samples
<i>Sciuridae</i>	<i>Spermophilusfulvus</i> Licht., 1823	7
<i>Allactagidae</i>	<i>Allactaga major</i> Kerr, 1792	5
<i>Cricetidae</i>	<i>Ondatrazibethicus</i> L., 1766	12
<i>Gerbillidae</i>	<i>Merionesmeridianus</i> Pallas, 1773	6
	<i>Rhombomysopimus</i> Licht., 1823	19
<i>Muridae</i>	<i>Mus musculus</i> L., 1758	51
	<i>Rattusnorvegicus</i> Berk. 1769	77
Total:		177

Processing of parasitological material was carried out in the laboratory. Permanent and transient drugs were studied using stereoscopic LOMA MB S-10, binocular VL-2200 (Olympus, Japan) microscopes

Table 2: Indicatoin of infestation with helminthes of Rodents in the Jizzakh region

Types	Number of examined animals	Infected		Number of parasitic species			
		Copy	%	Tsestoda	Trematoda	Acanthocephala	Nematoda
<i>Spermophilusfulvus</i>	7	2	28,6	1	2	1	1
<i>Ondatrazibethicus</i>	12	4	33,3	2	1	1	4
<i>Allactaga major</i>	5	1	20,0	-	-	-	1
<i>Gerbillidae</i>	19	3	15,8	2	-	1	3
<i>Merionesmeridianus</i> Pallas	6	1	16,6	4	-	-	6
<i>Mus musculus</i> L	51	14	27,5	9	2	-	14
<i>Rattusnorvegicus</i> Berk	77	19	24,7	11	-	-	19
Total	177	44	24,8				

As a result of the research, there is information on the species composition of rodent helminths in most all geographical landscape zones of Jizzakh region today.

As a result of parasitological examination of 177 individuals belonging to 7 species, Allactagidae - Kattakidae, Cricetidae - alaxurjun, Gerbillidae - ants and Muridae - mice were recorded.

In our research, special attention was paid to the study of helminth fauna of rodents, which have mainly sanitary-epizootiological significance. It is known that there are a number of many pathogenic helminthiases in humans, domestic and wild animals, which are spread by rodents, which are their natural reserve.

The total infestation of rodents with helminths was found to be 44 individuals infestation compared to the total

individuals mentioned above, which was 24,8% (Table 2). The degree of infestation of some rodents with parasitic worms is radically different from each other. In particular, in rats (15.8–16.6%), in rats (28,6%), in house mice (27,5%), and in gray rats (24,7%). The lowest infestation rate was 15,8% in floor ants.

Paramoplocephala (Lühe, 1910), Catenotaenia (Janicki, 1904), Hymenolepis (Weinland, 1858), Rodentolepis (Spassky, 1954), Taenia (178), Taenia (Linnaeus, 175), Taenia (Linnaeus, 178) of the genus Cyclophyllida (Braun, 1900) 1816), Mesocestoides (Vaillant, 1863) belong to 11 genera.

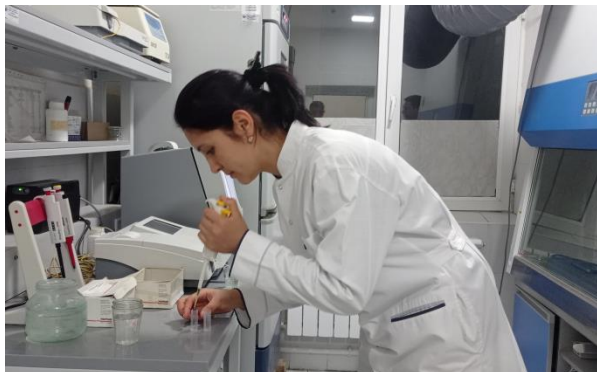
The Taeniidae (Ludwig, 1886) (3 species) family is distinguished by the diversity of rodent helminth fauna of Jizzakh region.

Sexually mature species of these cestodes are parasitic in the intestines of rodents, and micromammals are the main hosts. Taenia hydatigena (Pallas, 1766), T. pisiformis (Bloch, 1780), T. crassiceps (Ledec, 1800), Hydatigera taeniaformis (Batsch, 1786), H. krepkogorski (Schulz et Lamda, 1934) and Mesocestoides lineatus (Goeze, 1782) larvae develop in various organs of rodents, and rodents act as intermediate, reservoir hosts (Ryzhikov, 1978).

Two species of trematodes have been identified in rodents in this region: Echinostoma armigerum (Barker et Irvine, 1915) and Dicrocoelium dendriticum (Stiles et Hassall, 1896). The above-mentioned trematode species have been identified in yellow-tailed deer, muskrats, and voles.

A species belonging to the class Acanthocephala, Moniliformis moniliformis (Bremser, 1811), was found to be parasitic on the yellow-tailed deer, muskrat, and large sandpiper.

19 species were recorded from the Trichocephalida, Rhabditi, and Oxyuridava Spirurida series of the Nematoda class. The localization of these species is mainly the digestive system. During our experiments, the nematode Dipetalonema viteae (Krepkogorskaja, 1933) was found in the subcutaneous layers and in the abdominal cavity from large bivalve, red-tailed, and downhill beetles.



In the research process

In the ecosystems of Jizzakh region with a high degree of urbanization, 10 species of helminths (33,3%) of great importance in medicine and veterinary medicine were recorded in rodents, namely cestodes (7), trematodes (1), scrapes (1) and nematodes (1). As a result of studying the helminth fauna of rodents, given the available data on the biology of the 10 species of parasitic worms mentioned, it can be said that they can parasitize livestock, industrially hunted animals, as well as various human organs at a certain stage of development (Table 3).

Table 3: Common helminthofauna of Rodent for humans, farm animals, and hunted animals

Species	Agricultural animals	Hunting animals	Human
Cestodeae			
<i>Hymenolepis diminuta</i>	-	-	+
<i>Taenia hydatigena</i>	+	+	+
<i>Taenia pisiformis</i>	-	+	-
<i>Taenia crassiceps</i>	-	+	-

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<i>Hydatigera taeniaeformis</i>	-	+	+
<i>Hydatigera krepkogorski</i>	-	+	-
<i>Mesocostoides lineatus</i>	-	+	+
Trematodeae			
<i>Dicrocoelium dendriticum</i>	+	+	+
Akantosefaleae			
<i>Moniliformis moniliformis</i>	-	+	+
Nematodeae			
<i>Syphacia obvelata</i>	-	-	+

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