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SPECIFIC FAUNISTIC AND TAXONOMIC CHARACTERISTICS OF HELMINTHS OF SMALL HORNED CATTLE OF KARAKALPAKSTAN

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Abstract: The article presents information on the species composition of small horned cattle helminths, their systematic status, distribution, seasonal dynamics, extent of invasion and intensity of invasion in the conditions of Karakalpakstan. As a result of the study of helminths of small horned cattle of Karakalpakstan and the analysis of published literature, it was noted that 37 types of helminths parasitize small horned cattle. Of these, 34 species were found in sheep and 31 species in goats. The listed helminths belong to 25 genera, 16 families, 9 suborders, 8 families, 3 classes and 2 types of fauna. 26 types (70.2%) of 37 types of helminths parasitizing small horned cattle belong to nematodes, 8 types (21.6%) to cestodes and 3 types (8.1%) to trematodes.

Keywords: Helminth, Biohelminth, Cestodes, Trematodes, Nematodes, Extent Of Invasion, Intensity Of Invasion.

Introduction

In the world, production of ecologically clean livestock products and full satisfaction of the population's demand for quality food products is the demand of the time. In recent years, in order to further increase the productivity of livestock, helminthologists of our Republic have determined the diversity of species composition, biology, life processes, ecology and systematics of small horned cattle helminths, control of the main helminthosesa number of research works have been carried out on the development of methods [1,2,3,4].

however, in recent years, under the influence of ecological and anthropogenic factors, many changes have occurred in various regions of our Republic, especially in Karakalpakstan, that is, the reduction of pastures on a large area where agricultural animals are fed, the water of the Aral Sea drdue to the beginning of water scarcity, increasing soil salinity, unfavorable environmental factors

began to appear, which affected the fauna of helminths parasitizing small horned cattle along with all productive animals and their bioecological conditionwill not show its effect.in such conditions, some types of helminths may adapt to new conditions and environment and spread widely, while other types may decrease or disappear completely. taking this into account, new forms of animal husbandry in the field - the organization of farmers, companies, personal assistants and farms, now require new approaches to keeping, feeding and breeding animals, which are different parasites, includingrequires the use of modern effective methods to prevent and combat helminthiasis. .in this case, the helminth fauna of productive animals, including sheep and goats, their distribution, bio-ecological characteristics of their widespread representatives in all regions and regions of our Republic, including Karakalpakstan, which is one of the vast regions, continuouslyit is necessary to study on a planned basis, assess the epizootic status of dominant helminthiasis, which is widespread and cause great economic damage to sheep and goat breeding, and take into account the specific characteristics of Karakalpakstan, to improve preventive measures.

in the conditions of Karakalpakstan, which is one of such vast regions, little attention has been paid to comprehensive research on helminths of small horned cattle. Some of them are very old, dating back to the 50s and 60s of the last century, that is, M.A. sultonov and others, during the study of animal parasites of the Republic of Karakalpakstan in 1964-1965, it was noted that 18 species of helminths were found in sheep and 6 species in goats [5].

therefore, it is of great theoretical and practical importance to study the fauna, systematic status and distribution of productive animals, including helminths of small horned cattle, bio-ecological characteristics of their widespread representatives, and to improve their prevention in Karakalpakstan

The purpose of the work. It consists of analyzing the seasonal dynamics of the species composition, systematic status, distribution and damage of small horned cattle in the conditions of Karakalpakstan.

Methods

Helminthological research in the conditions of Karakalpakstan during the years 2021-2023 livestock farms in Ellikkala, Beruniy, Kegeyli, Chimboy, Karaozak, Takhtakopir, Kungirot, Konlikol, Moynaq, Amudaryo, Tortkol, Takhyatosh, Shumonoy, Khujayli, Nukus and other districts and 82 sheep and 95 goats in private households K.I. Scriabin was examined based on the method of complete helminthological examination [6]. Also, 102 separate organs of sheep and 110 separate organs of goats were examined by the method of complete and incomplete helminthological examination. in addition, in the course of research, 525 sheep and 587 goat dung samples were taken and washed sequentially in laboratory conditions, G.A. Kotelnikov, M.A. It was studied on the basis of helmintocoprological methods developed by Khrenov, Berman-Orlov, Vayda and others [7].

the works of local and foreign scientists were used to determine the species composition of helminths of small horned cattle [8,9,10,11,12].

Quantitative indicators of helminth infestation of small horned cattle and the distribution of parasitic worms in the host organism were calculated based on parasitological indicators such as invasion extent (IE) and invasion intensity (II).

as a result of our research and literature analysis, it was noted that 37 types of helminths parasitize cattle in different regions of Karakalpakstan. Of these, 34 species were found in sheep and 31 species in goats (Table 1)

1-jadval

Species composition of helminths of Karakalpakstan sheep and goats

Helminth species	Sheep	Goat
1. *Moniezia exspansa (Rudolphi, 1810)*	+	+
2. *M. benedeni (Moniez, 1879)*	+	+
3. *Avitellina centripunctata (Rivolta,1874)*	+	+
4. Thysaniezia giardi (Moniez, 1879)	+	+
5. *Taenia hydatigena (Pallas, 1766)(=Cysticercus tenuicollis) larvae*	+	+
6. *Multiceps multiceps (Leske, 1780) (=Coenurus cerebralis) larvae*	+	+
7. Echinococcus granulosus (Batsch, 1786) larvae	+	+
8. Alveococcus multicularis (Leukart, 1863) larvae	-	+
9. Fasciola gigantica L., 1758	+	+
10. Gastrothylax crumenifera (Creplin, 1847)	+	+
11. Schistosoma turkestanicum (Skrjabin, 1913)	+	+
12. Trichocephalus ovis Abildgaard, 1795	+	+
13. T. skrjabini (Baskakov, 1924)	+	+
14. *Chabertia ovina (Fabricius, 1788)*	+	+
15. *Oesophagostomum venulosum (Rudolphi, 1809)*	+	+
16. *O. columbianum Curtice, 1890*	+	+
17. *Dictyocaulus filaria (Rudolphi, 1809)*	+	+
18. *Trichostrongylus axei (Cobbold, 1879)*	+	+
19. *T. vitrinus Looss, 1905)*	+	+
20. *Trichostrongylus sp.*	+	-
21. *Haemonchus contortus (Rudolphi, 1803)*	+	+
22. *H. placei (Place, 1893)*	+	+
23. *Marshallagia marshalli Ransom, 1907*	+	+
24. *Marshallagia mongolica Schumakovitsh, 1938*	+	-
25. *Nematodirus abnormalis May, 1920*	+	+
26. *N. helvetianus May, 1920*	+	+
27. *N. oiratianus Rajewskaja, 1929*	+	+
28. *N. spathiger (Railliet, 1896)*	+	-
29. *Teladorsagia circumcincta (Stadelmann, 1894)*	+	-
30. *Ostertagia sp.*	+	-
31. *Skrjabinema ovis (Skrjabin, 1915)*	+	+
32. *S. caprae Schad, 1959*	-	+
33. *Gongylonema pulchrum Molin, 1857*	+	+
34. *Parabronema skrjabini Rassowska, 1924*	+	+
35. *Skrjabinodera saiga Gnedina et Vsevolodov, 1947*	+	-
36. *Setaria labiato-papillosa (Alessandrini, 1848)*	+	+
37. *Setaria digitata (Linstow,1906)*	-	+
Total:	**34**	**31**

Among the 34 types of helminths parasitizing sheep, the following 13 are: *Moniezia benedeni, Oesophagostomum venulosum, O. solumbianum, Dictyocaulus filaria, Trichostrongylus axei, T. vitrinus, Haemonchus placei, Marshallagia marshalli, Nematodirus abnormalis, N. helvetianus, Gongylonema pulchrum, Parabronema skrjabini, Skrjabinodera saiga* species and 27 species of 31 types of helminths parasitizing goats: *Fasciola gigantica, Gastrothylax crumenifer, Schistosoma turkestanicum, Moniezia benedeni, Avitellina centripunctata, Thysaniezia giardi, Multiceps multiceps (larvae)Alveococcus multicularis (larvae), Trichocephalus ovis, Bunostomum trigonocephalum, Chabertia ovina, Oesophagostomum venulosum, O. columbianum, Dictyocaulus filaria, Trichostrongylus axei, T. vitrines, Haemonchus contortus, H. placei, Marshallagia marshalli, Nematodirus abnormalis, N. Helvetianu Skrjabinema ovis, S. caprae, Gongylonema pulchrum, Parabronema skrjabini, Setaria labiato-papillosa, S. digitata* were identified by us for the first time in Karakalpakstan.

№	Class	Category	Subcategory	Family	A generation	Species
		Number,%	Number, %	Number,%	Number,%	Number%
1. 2. 3.	Cestodes Trematodes Nematodes	1 (12,5) 3 (37,5) 4 (50,0)	2 (22,2) 3 (33,3) 4 (44,5)	3 (20,0) 3 (20,0) 9 (60,0)	7 (28,0) 3 (12,0) 15 (60,0)	8 (21,6) 3 (8,1) 26 (70,3)
	Total:	**8 (**100)	**9 (**100)	**15 (**100)	**25 (**100)	**37 (**100)

In Karakalpakstan, 37 species of helminths parasitise 25 genera (*Moniezia, Avitellina, Thysaniezia, Taenia, Echinococcus, Multiceps, Alveococcus, Fasciola, Gastrothylax, Schistosoma, Trichocephalus, Chabertia, Oesophagostomum, Dictyocaulus, Trichostrongylus)Haemonchus, Marshallagia, Nematodirus, Teladorsagia, ostertagia, Skrjabinema, Gongylonema, Parabronema, Skrjabinodera and Setaria)*, to 15 families (*Anoplocephalidae, Avitellinidae, Taeniidae, Fasciolidae, Gastrothylacidae, Schistosomatidae, Trichocephalidae, Chabertiidae, Trichostrongylidae, Dictyocaulidae, Syphaciidae, Habronematidae, Gongylonematidae)Onchocercidae and Setariidae), into 9 small families (Anoplocephalata, Taeniata, Fasciolata, Paramphistomata, Schistosomatata, Trichocephalata, Strongylata, Oxyurata, Spirurata*), into 8 families (*Cyclophyllidea, Fasciolida, Paramphistomida, Schistosomatida, Trichocephalida, Strongylida, Oxyurida)Spirurida), belong to 3 classes (Cestoda, Trematoda and Nematoda) and 2 types of fauna (Plathelminthes and Nemathelminthes*) (Table 2).

Systematic status of helminths of small horned cattle in Karakalpakstan

Below is information about the species composition of helminths parasitizing cattle in Karakalpakstan, their systematic status, distribution, seasonal dynamics, extent of invasion, intensity of invasion and which organs they parasitize.

Type. plathelminthes Schneider, 1873

Class. Tapeworms - Cestoda Rudolphi, 1808

Category. Cyclophyllidea Brown, 1900

Subcategory. Anoplocephalata Skrjabin, 1933

Family. Anoplocephalidae Cholodkowsky, 1902

A generation. Moniezia Blanchard, 18911.

1 *Moniezia exspansa (Rudolphi, 1810)*

In this sesto, sheep and goats in farms belonging to Karaozak, Takhtakopir, Kungirot, Konlikol, Amudaryo, Tortkol, Khojayli and Ellikkala districts in Karakalpakstan and in private households. found in the small intestine in summer and autumn. In sheep, the extent of invasion was 20.1% and the intensity of invasion was from 1 to 5 animals, and in goats, the extent of invasion was 13.6% and the intensity of invasion was from 1 to 3 animals.

2. *M. benedeni (Moniez, 1879)*

In Karakalpakstan, this parasite is mainly found in the small intestines of sheep and goats in farms belonging to Karaozak, Takhtakopir, Kungirot, Konlikol, Amudaryo, Tortkol and Nukus districts, as well as in private households. , found in autumn and winter. It was found that the extent of invasion in sheep is 18.5% and the intensity of invasion is from 1 to 6 animals, and the extent of invasion is 12.2% and the intensity of invasion is from 1 to 3 animals.

Moniezias (*Moniezia exspansa and M. benedeni*) are biohelminths, and their main hosts are cattle and other ruminants. In different regions of Uzbekistan, the hosts of ooraliq are found to be cold (oribatid) mites. For example, S.A. according to the results of research conducted by Nazarova, 12 species of cold (oribatid) mites for *Moniezia exspansa* and 13 species for *M. benedeni* were identified as intermediate hosts in the conditions of Uzbekistan *[13].*

Family. Avitellinidae Spassky, 1950

A generation. Avitellina Gough, 1911

3. Avitellina centripunctata (Rivolta, 1874)

Avitellina centripunctata (Rivolta, 1874) Avitellina centripunctata from the small intestines of sheep and goats in farms belonging to Kegeili, Karaozak, Takhtakopir, Kungirot, Konlikol, Amudaryo, Tortkol and Nukus districts of Karakalpakstan and in private households. determined in summer, autumn and winter months. It was found that the extent of invasion in sheep was 6.0% and the intensity of invasion was from 1 to 3 units, and the extent of invasion was 7.8% and the intensity of invasion was 1-2 units in goats.

Avitellina centripunctata is also a biohelminth, and its main hosts are small horned cattle and other ruminants, and its intermediate hosts are hay-eating insects belonging to the genus Lachesilla, and among these insects - *Lachesilla pedicularia, L. reticulatus* and When other species are artificially infested with Avitellina eggs under natural and experimental conditions, the development of cestodes cysticercoids was found in them in 44 days [14]. also P.T. Tverdokhlebov, L.N. Romanenko and L.G. Tishenko determined that the intermediate hosts of Avitellina centripunctata are very small 5-10 mm insects with a gnawing or biting-sucking mouth apparatus - collembola belonging to the genus *Entomobrya*. Collembola turn into larval-cysticercoids in the infectious form 20 days after being infected with parasite eggs, and as a result, small horned cattle get infected by eating collembola infected with the infectious period of the parasite in the pasture.

generation Thysaniezia Skrjabin, 1925

4. *Thysaniezia giardi* (Moniez, 1879)

Thysaniezia giardi (Moniez, 1879) Thysaniezia giardi in the small intestines of sheep and goats in farms belonging to Kegeili, Karaozak, Takhtakopir, Kungirot, Konlikol, Amudaryo, Tortkol and Nukus districts of Karakalpakstan and in private households determined in spring, summer and autumn. It was found out that the extent of invasion in sheep is 6.5% and the intensity of invasion is from 1 to 3 animals, and in goats the extent of invasion is 5.8% and the intensity of invasion is 1-2 animals

Thysaniezia giardi is a biohelminth, its main hosts are cattle and other ruminants. A number of research works have been conducted by scientists to identify its intermediate hosts. For example,

V.A. according to the results of the research conducted by Potyomkina, it was noted that oribatid mites living in the soil are intermediate hosts for Tizaniesia [15].

M.I.Kuznetsov [16], taking into account the development of cysticercoid disease in the organism of representatives of the genus Lachesilla, belonging to the group of insects belonging to the Hay-eaters (Psocoptera) group, found that these insects are the intermediate hosts of this diseaseemphasizes.the above information can be used by experts to prevent the infection of small horned cattle with imaginal cestodes in the conditions of Karakalpakstan.

Subcategory. Taeniata Skrjabin et Schulz, 1937

Family Taeniidae Ludwig, 1897

Generation Taenia L.,1758

5.*Taenia hydatigena* (Pallas, 1766) (= Cysticercus tenuicollis)

Cysticercus tenuicollis parasitism in the fat and other fatty tissues of sheep and goats in farms belonging to Takhtakopir, Bozatov, Kungirot, Qonlikol and Moynaq districts of Karakalpakstan and in private households determined in spring, summer and autumn. it was found that the extent of invasion in sheep was 7.6% and the intensity of invasion was from 1 to 7 pieces, and the extent of invasion was 9.3% and the intensity of invasion was from 1 to 9 pieces. the mature stage of the parasite parasitizes in the small intestine of dogs, wolves and other carnivores, that is, these carnivores are the main hosts, and small horned cattle and other livestock are the intermediate hosts of the infestation.

Genus Echinococcus (Rudolphi, 1801)

6. *Echinococcus granulosus (Batsch, 1786) larvae*

The type of *Echinococcus granulosus (larvae*), which causes great harm to livestock, including sheep and goats, is widespread in Karakalpakstan, especially in Qonliko'l, Chimboy, Mo'inoq, Bo'zatov, Tortkol' and Nukus sheep and sheep in farms belonging to districts and in private householdsParasitism of goats was found mainly in liver and lungs in all seasons.It was found that the extent of invasion in sheep is 30.4% and the intensity of invasion is from 1 to 12 pieces, and the extent of invasion is 23.0% and the intensity of invasion is from 1 to 7 pieces.

the main hosts of echinococcus are: dogs, wolves, foxes, jackals and various rodents, and the adult period is a parasite in their intestines. Intermediate hosts are cattle and other livestock and humans. the larval stages of the blister form are parasitic mainly in their liver and lungs.

Genus Multiceps Goeze, 1782

7. *Multiceps multiceps (Leske, 1780) (=Coenurus cerebralis)*

Coenurus cerebralis mainly parasitizes sheep and goats, and sometimes other livestock. multiceps multiceps, the larva of the cestode species Coenurus cerebralis parasitizes in the brain and in some cases in the spinal cord of animals. In Karakalpakstan, this parasite was detected in spring and autumn in farms belonging to Kegeyli, Bozatov, Kungirot, Qonlikol, Tortkol and Khujayli districts, as well as in sheep and goats in private households. It was found that the extent of invasion in sheep was 9.8% and the intensity of invasion was from 1 to 3 animals, and the extent of invasion was 7.8% and the intensity of invasion was from 1 to 2 animals.

multiceps multiceps is also a biohelminth, and its main hosts are dogs, wolves, foxes, jackals and other carnivores, i.e., it is a parasite in their intestines during the adult stage. Intermediate hosts are mainly small cattle and sometimes pigs, horses and other animals. the cystic larval stage parasitizes sheep and goats in the brain, and in some cases in the spinal cord.

S. Madyarov and V. Sodikov [17] provide information that people are also sick with senurosis.

A generation. Alveococcus Abuladze, 1960

8. *Alveococcus multicularis (Leukart, 1863) larvae*

Adults of *Alveococcus multicularis* mainly parasitize in the intestines of carnivores - foxes, wolves, wolves, cats and dogs, that is, these animals are considered the main hosts of alveococcus. in adulthood, their length is 1.8-3 mm and the number of joints is 3-4.

Intermediate hosts of alveococcus are mainly rodents. In rare cases, it has been found to occur in cattle, sheep and humans. the larval stage parasitizes the liver of intermediate hosts.It should be noted that as a result of our research in the conditions of Karakalpakstan, *Alveococcus multilocularis (larvae)* in the liver of goats were detected by us for the first time in the liver of goats in Uzbekistan, including Karakalpakstan (*Figure-1).*

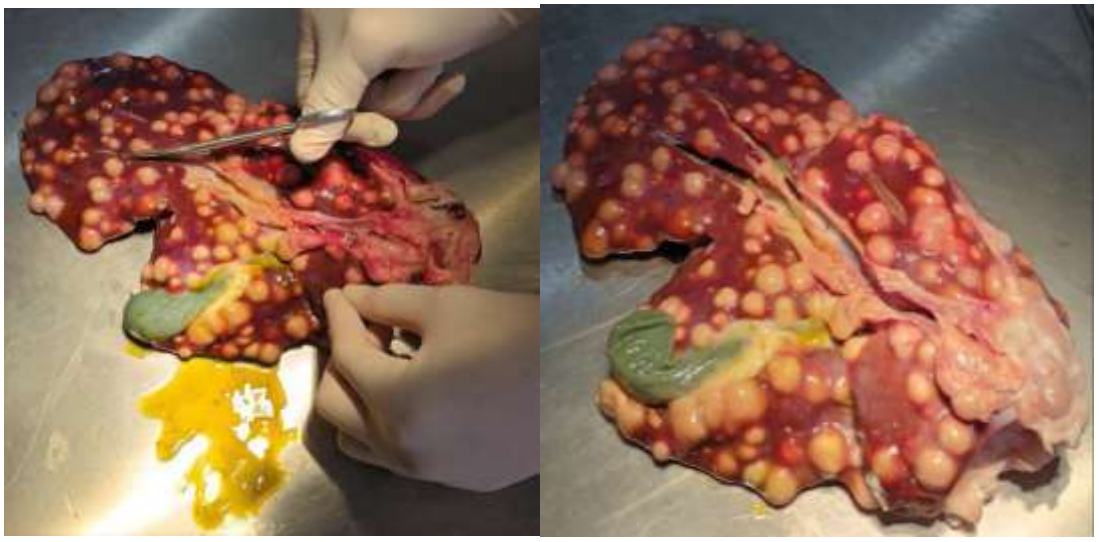

Figure 1. *Alveococcus multicularis larvae* found in the liver of goats. Original.

The larva of this parasite was detected by us for the first time in spring in the CIS, including in the liver of goats belonging to the Khuzhaili district in Uzbekistan (Korakalpakistan) [18]. It was found that the extent of infestation in goats is 0.5%, and the intensity of infestation is from 1 to 108 units.

The larval stage is in the form of very small pea-like, sometimes nut-like, round multi-chambered blisters, bluish-fluid in color.

Type. Plathelminthes Schneider, 1873

Class. trematoda Rudolphi, 1808

Category. Fasciolida Skrjabin et Schulz, 1937

Subcategory. Fasciolata Skrjabin et Schulz, 1936

Family. Fasciolidae Railliet, 1895

A generation. Fasciola L., 1758

9. *Fasciola gigantica (Cobbold, 1856)*

In Karakalpakstan in farms belonging to Karaozak, Takhtakopir, Kungirot, Qonlikol, Kegeili, Bozatov, Amudaryo, Tortkol, Ellikkala, Beruniy, Chimboy, Shumonoy and Nukus districts and in the liver and bile ducts of sheep and goats in private households in all seasonsmeeting was found.In sheep, the extent of invasion was 43%, and the intensity of invasion was from 1 to 283 animals, and in goats, the extent of invasion was 38%, and the intensity of invasion was from 2 to 87 animals.

Fasciola gigantica is a biohelminth that parasitizes the liver and biliary tract of sheep, goats and other livestock as well as humans.

Limnaea ovata, L. bactriana, L. impure, L. subdisjuncta, L. auricularia, and L. peregera were identified as intermediate hosts [19,20,21].

According to the literature, *Fasciola gigantica*, which belongs to the class of trematodes,

parasitizes the liver and bile ducts of small horned cattle in some regions of our Republic, especially in the conditions of Karakalpakstan, causing a high degree of fasciolosis in themdefined [22,23,24].

According to the results of our research carried out in Uzbekistan, including Karakalpakstan, we discovered for the first time that Fasciola gigantica parasitises the liver and lungs of merino sheep from small horned cattle [25]. this type of trematode has not been found to parasitize the lungs of ungulates in the CIS, including Uzbekistan.

It is known from the literature that from the fasciola species, *Fasciola hepatica*, D. in Bulgaria in 1959found by Bankov in the genital tract and uterus of one cow [26].According to the results of our research conducted on small horned cattle in Karakalpakstan, 283 pieces of *Fasciola gigantica* belonging to the class of trematodes are parasitized in the liver of a 3-year-old female merino sheep, as well as in her lungs. and 34 copies of the juvenile form were found to meet (Fig. 2).it was found out that these indicators are mostly found in female sheep around 3 years old.according to the results of the analysis, after *F. gigantica* begins to mature, it passes from the lung parenchyma to the alveoli, enters the bronchus, moves through the bronchial mucus, reaches the trachea and the pharynx, and can be re-swallowed through the pharynx.

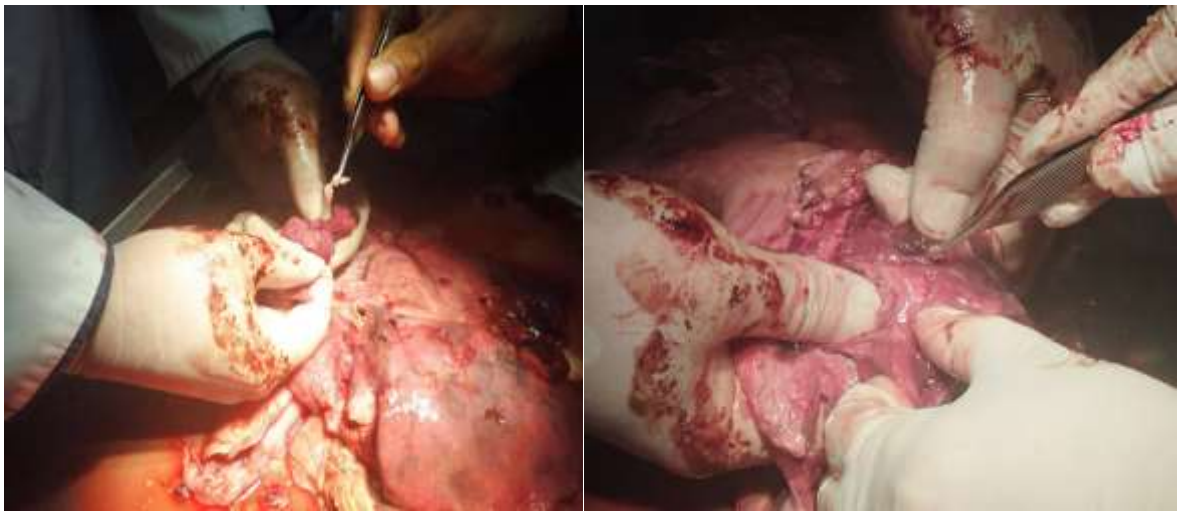

Figure 2. Fasciola gigantica found in sheep lungs. Original.

Category. Paramphistomi Skrjabin et Schulz, 1937

Subcategory. Paramphistomata Skrjabin et Schulz, 1937

Family. Gastrothylacidae Stiles et Goldberger, 1910

A generation. Gastrothylax Poirler, 1883

10. *Gastrothylax crumenifera (*Creplin, 1847)

In Karakalpakstan, in the stomachs of sheep and goats (large stomachs and small stomachs) in farms belonging to Takhtakopir, Kungirot, Qonlikol, Amudaryo, Tortkol and Kegeili districts and in private households. found in summer and autumn. In sheep, the extent of invasion was 3.3%, and the intensity of invasion was from 1 to 22 individuals, and in goats, the extent of invasion was 3.4%, and the intensity of invasion was from 1 to 20 individuals. this parasite is also a biohelminth, and its main hosts are sheep and goats, and it parasitizes in their large and small stomachs.

And the species *Gyraulus albus, G. ehrenbergi, Planorbis sieversi and Anisus ladanensis* living in freshwater gastropods were identified as intermediate hosts [27,28,29].

Category. In Schistosomatida (Skrjabin et Schulz, 1937), Azimov, 1970

Subcategory. schistosomatata (Skrjabin et Schulz, 1937)

Family. Schistosomatidae Stiles et Hassall, 1898

A generation. Schistosoma Dutt et Srivastava, 1955

11. *Schistosoma turkestanicum (Orientobilharzia turkestanica (Skrjabin, 1913)*

Schistosoma turkestanicum in Karakalpakstan in farms belonging to Kegeili, Karaozak, Takhtakopir, Kungirot, Konlikol, Amudaryo, Tortkol, Beruniy, Bozatov and Muynoq districts and in private households. Goats' stomachs and intestines from blood vessels spring, autumn andfound in winter seasons. In sheep, it was found that the extent of invasion was 23% and the intensity of invasion was from 37 to 1,200 animals, and in goats the extent of invasion was 22.4% and the intensity of invasion was from 96 to 50,000 animals.

Schistosoma turkestanicum is also a biohelminth, its main hosts are sheep and other ungulates, and it parasitizes in the blood vessels and lymph nodes of their stomach and intestines.

Lymnaea tenera, L. auricularia, L. pereger, L. gedroziana were identified as intermediate hosts from freshwater gastropod mollusks [30,31].

Type. Nemathelminthes Schneider, 1873

Class. Nematoda Rudolphi, 1808

Category. Trichocephalida Skrjabin et Schulz, 1928

Subcategory. trichocephalata Railliet et Henry, 1913

Family. Trichocephalidae Baird, 1853

A generation. Trichocephalus Schrank, 1788

In the conditions of Karakalpakstan, there are 2 species of *Trichocephalus genus, namely Trichocephalus ovis and Trichocephalus skrjabini.*

12. *Trichocephalus ovis Abildgaard, 1795*

Trichocephalus ovis in sheep and goats in farms belonging to Kegeili, Karaozak, Takhtakopir, Kungirot, Konlikol, Amudaryo, Tortkol and Nukus districts of Karakalpakstan and in private households it was found to parasitize in the large intestines, mainly in the caecum. it was noted that they occur in sheep and goats in spring, summer, autumn and winter, that is, in all seasons of the year. it was found that the extent of invasion in sheep was 17.4% and the intensity of invasion was from 1 to 17 individuals, and the extent of invasion was 21.0% and the intensity of invasion was from 1 to 33 individuals.

Trichocephalus ovis is a geohelminth, that is, its development is direct, the entire development process takes place in one host.

13. *Trichocephalus skrjabini (Baskakov, 1924)*

Trichocephalus skrjabini in the farms belonging to Kegeyli, Bozatov, Karaozak, Takhtakopir, Kungirot, Konlikoul and Amudaryo districts of Karakalpakstan and in the large intestine of sheep and goats in private households, it was noted that it parasitises mainly in the caecum. It was found that sheep and goats are infected with this nematode mainly in spring and autumn. It was found that the extent of invasion in sheep was 20.1% and the intensity of invasion was from 1 to 23 pieces, and the extent of invasion was 23.0% and the intensity of invasion was from 1 to 31 pieces. trichocephalus skrjabini is also a geohelminth, the entire development process takes place in one host.

Category. Strongylida Railliet et Henry, 1913

Subcategory. Strongylata Railliet et Henry, 1913

Family. Chabertiidae (Popova, 1952)

A generation. *Chabertia Railliet et Henry*, 1909

14. *Chabertia ovina (Fabricius, 1788)*

Chabertia ovina in farms belonging to Qonlikol, Amudaryo, Tortkol, Beruniy, Bozatov, Mo'inoq, Takhiatosh, Khojayli, Chimboy, Shumanoy and Nukus districts of Karakalpakstan and sheep in private households and was determined from the colon of goats in spring, summer and

autumn. It was found that the extent of invasion in sheep is 18.5% and the intensity of invasion is from 2 to 25 pieces, and the extent of invasion is 16.6% and the intensity of invasion is from 3 to 20 pieces. *Chabertia ovina* is a geohelminth, and the entire development process takes place in one host.

generation Oesophagostomum Molin, 1861

In the conditions of Karakalpakstan, it was found that 2 species of nematodes belonging to the genus Oesophagostomum, namely Oesophagostomum venulosum and Oesophagostomum columbianum, parasitize cattle with small horns.

15. *Oesophagostomum venulosum (Rudolphi, 1809)*

Oesophagostomum venulosum in farms belonging to Qonlikol, Amudaryo, Tortkol, Beruniy, Bozatov, Mo'inoq, Takhiatosh, Khojayli, Chimboy, Shumanoy and Ellikkala districts of Karakalpakstan and sheep in private households and mainly in the large intestine of goats, and sometimes in the small intestinewas recorded in the intestines in spring, summer and autumn.it was found that the extent of invasion in sheep was 17.4% and the intensity of invasion was from 1 to 7 pieces, and the extent of invasion was 24.9% and the intensity of invasion was from 3 to 10 pieces. oesophagostomum venulosum is a geohelminth, the entire development process takes place in one host, that is, without intermediate and additional hosts.

16. *Oesophagostomum columbianum Curtice, 1890*

This nematode infects sheep and goats in farms belonging to Kegeyli, Karaozak, Takhtakopir, Kunghirot, Moynoq, Takhiatosh, Khojayli, Shumanoi, Ellikkala and Chimboy districts of Karakalpakstan, as well as sheep and goats in private households was found in the large intestine in spring, summer and autumn. It was found that the extent of invasion in sheep was 26.6%, and the intensity of invasion was from 2 to 7 pieces, and the extent of invasion was 31.2%, and the intensity of invasion was from 3 to 10 pieces. The nematode *oesophagostomum venulosum* develops directly, that is, in one host.

Family. Dictyocaulidae Skrjabin, 1914

A generation. Dictyocaulus Railliet et Henry, 1907

17. *Dictyocaulus filaria (Rudolphi, 1809*

Dictyocaulus filaria is a farm belonging to Kegeyli, Karaozak, Takhtakopir, Kungirot, Konlikol, Amudaryo, Tortkol, Moynoq, Takhiatosh, Khojayli, Ellikkala and Nukus districts of Karakalpakstan. in the lungs, bronchi and tracheas of sheep and goats in private householdsit was found to parasitize in spring, summer and autumn it was found that the extent of invasion in sheep was 31.0% and the intensity of invasion was from 2 to 11 animals, and the extent of invasion was 26.0% and the intensity of invasion was from 1 to 3 animals.

Dictyocaulus filaria is also a geohelminth, and the entire development process takes place in one host.

Family. Trichostrongylidae Leiper, 1912

A generation. Trichostrongylus Looss, 1905

3 types of Trichostrongylus genus, namely Trichostrongylus axei, Trichostrongylus vitrinus and Trichostrongylus sp. meeting was found.

18. *Trichostrongylus axei (Cobbold, 1879)*

Trichostrongylus axei in farms belonging to Kegeyli, Karaozak, Takhtakopir, Kungirot, Konlikol, Bozatov, Mo'inoq, Takhiatosh, Khojayli, Chimboy and Shumanoi districts of Karakalpakstan and private mainly in the small intestines of domestic sheep and goats, and sometimeswas found to be parasitic in the rennet.this nematode was recorded in spring, summer and autumn in cattle with small horns. In sheep, the extent of invasion was 37.0%, and the intensity of

invasion was from 2 to 61 pieces, and in goats, the extent of invasion was 39.0%, and the intensity of invasion was from 18 to 54 pieces.

trichostrongylus axei is a geohelminth, its development is direct, that is, the entire development process takes place in one host

19. *Trichostrongylus vitrinus Looss, 1905*

This parasite belongs to Kegeyli, Karaozak, Takhtakopir, Kungirot, Konlikol, Amudaryo, Tortkol, Beruniy, Bozatov, Moynaq, Takhiatosh and Khojayli districts of Karakalpakstan. spring, summer and autumn mainly in the small intestine of sheep and goats on farms and in private householdsfound init was found that the extent of invasion in sheep was 29.3% and the intensity of invasion was from 3 to 75 pieces, and the extent of invasion was 34.7% and the intensity of invasion was from 11 to 45 pieces. trichostrongylus vitrinus is a geohelminth, and the entire development process takes place in one host

20. *Trichostrongylus sp.*

Trichostrongylus sp. It was detected by Sultanov M.A. and others in April and October from the small intestines of livestock farms belonging to Kegeili, Kungirot and Chimbai districts of Karakalpakstan. the extent of infestation in sheep was 0.7%. Trichostrongylus sp. geohelminth, the entire development process takes place in one host.

A generation. Haemonchus Cobbold, 1898

In Karakalpakstan, small horned cattle are infected with 2 species of the genus Haemonchus, namely Haemonchus contortus and Haemonchus placei.

21. *Haemonchus contortus (Rudolphi, 1803)*

Haemonchus contortus in the farms belonging to Kegeili, Karaozak, Takhtakopir, Kunghirot, Bozatov, Chimboy and Nukus districts of Karakalpakstan and mainly in the udder, sometimes in the small intestines of sheep and goats in private households found to be parasitic. it was observed that the parasite met in spring, summer and autumn. It was found that the extent of invasion in sheep is 37% and the intensity of invasion is from 5 to 57 pieces, and the extent of invasion is 23.0% and the intensity of invasion is from 9 to 25 pieces.

The entire development process of Haemonchus contortus takes place in one host.

22. Haemonchus placei (Place, 1893)

Haemonchus placei in Karakalpakstan's farms belonging to Kungirot, Konlikol, Amudaryo, Tortkol, Beruniy, Bo'zatov, Mo'inoq, Takhiatosh, Khojayli, Chimboy and Shumanoi districts of Estonia and parasitism in the udder and small intestine of sheep and goats in private householdsit was found that they meet in spring, summer and autumn.it was found that the extent of invasion in sheep was 19.0% and the intensity of invasion was from 5 to 33 pieces, and the extent of invasion was 20.0% and the intensity of invasion was from 5 to 21 pieces. The development of Haemonchus placei is straightforward.

A generation. Marshallagia Orloff, 1933

23. *Marshallagia marshalli Ransom, 1907marshallagia marshalli in the farms belonging to Karaozak, Takhtakopir, Kungirot, Konlikoul, Bozatov, Mo'inoq, Takhiatosh, Khojayli, Chimboy, Shumanoy and Kegeyli districts of Karakalpakstan and private parasitism in the colostrum and small intestine of domestic sheep and goatsit was noted.It was found that the parasite is mainly found in spring, summer and autumn. It was found that the extent of invasion in sheep was 16.3% and the intensity of invasion was from 3 to 54 pieces, and the extent of invasion was 8.7% and the intensity of invasion was from 3 to 45 pieces. marshallagia marshalli is a geohelminth, and the entire development process takes place in one host.*

24. *Marshallagia mongolica Schumakovitch, 1938*

This nematode was detected in the colostrum and small intestine of sheep in private households in the farms belonging to Takhtakopir, Bozatov, Moynaq, Chimboy, Shumanoy and Ellikkala districts of Karakalpakstan in spring and autumn. It was found that the extent of infestation in sheep is 7.6% and the intensity of infestation is from 3 to 27 pieces. Marshallagia mongolica is also a geohelminth, and the entire development process takes place in one host.

A generation. Nematodirus Ransom, 1907

4 species of Nematodirus genus, namely Nematodirus abnormalis, Nematodirus helvetianus, Nematodirus oiratianus and Nematodirus spathiger were found in Karakalpakstan.

25. *Nematodirus abnormalis May, 1920*

Parasitism of *Nematodirus abnormalis* in the small intestine of sheep and goats in Karakalpakstan in Karaozak, Takhtakopir, Kungirot, Bozatov, Chimboy and Shumanoi districts and in private households, and the seasons are spring, summer and autumnit was found that they met init was found that the extent of invasion in sheep was 28.3% and the intensity of invasion was from 1 to 120 pieces, and the extent of invasion was 33.6% and the intensity of invasion was from 10 to 150 pieces. Development of Nematodirus abnormalis takes place in one host.

26. *Nematodirus helvetianus May, 1920*

This nematode belongs to Takhtakopir, Kungirot, Qonlikol, Amudaryo, Tortkol, Beruniy, Bozatov, Moynaq, Takhiatosh, Kegeyli, Karaozak and Khojayli districts of Karakalpakstan. found in the small intestines of sheep and goats on farms and in private households, spring, summer and autumnit was found that they met inIt was found that the extent of invasion in sheep was 24.4%, and the intensity of invasion was from 2 to 10 pieces, and the extent of invasion was 30.2%, and the intensity of invasion was from 8 to 110 pieces. The development of Nematodirus helvetianus is straightforward.

27. *Nematodirus oiratianus Rajewskaja, 1929*

Nematodirus oiratianus parasitizes in the small intestines of sheep and goats in the farms belonging to Karaozak, Kunghirot, Qonlikol, Mo'inoq, Takhiatosh, Khojayli, Chimboy and Shumanoi districts of Karakalpakstan and in private households and this nematode is mainly spring, summer and autumnwas determined in months.it was found that the extent of invasion in sheep was 20.6% and the intensity of invasion was from 1 to 25 pieces, and the extent of invasion was 28.8% and the intensity of invasion was from 3 to 90 pieces.

The development of Nematodirus oiratianus is also direct, that is, the entire development process takes place in one host.

28. *Nematodirus spathiger (Railliet, 1896)*

This parasite parasitizes in the small intestine of sheep in private households and farms belonging to Kegeili, Karaozak, Takhtakopir, Kungirot, Konlikoul, Amudaryo, Ellikkala, Chimboy, Shumanoi and Nukus districts of Karakalpakstan. and it was mainly detected in the spring and autumn months.In sheep, the extent of infestation was 6.0%, and the intensity of infestation was from 3 to 10 pieces. The development is direct, that is, the entire development process takes place in one master.

A generation. Teladorsagia Andreeva et Satubaldin, 1954

29. *Teladorsagia circumcincta (Stadelmann, 1894)*

It was found that *Teladorsagia circumcincta* can be found in spring and autumn in the farms belonging to Bozatov, Moynok, Takhyatosh, Khojaly and Chimboy districts of Karakalpakstan and in the udders of sheep in private households. it was found out that the extent of infestation in sheep is 7.6% and the intensity of infestation is from 2 to 5 pieces. All the development process takes place in

one master.

A generation. Ostertagia Ransom, 1907

30. *Ostertagia sp.*

Ostertagia sp. M.A. Sultanov and others found out that 3 grains were found in the udder of one head of sheep in the livestock farm belonging to Kegeyli district of Karakalpakstan in July. In sheep, the extent of infestation was 0.7%. The entire development process of ostertagia sp takes place in one host.

Category. Skrjabin in Oxyuri, 1923

Subcategory. Oxyurata Skrjabin, 1923

Family. Syphaciidae Skrjabin et Schikhobalova, 1951

A generation. Skrjabinema Werestschagin, 1926

as a result of our research work, it was found that 2 species of Skrjabinema genus, namely Skrjabinema ovis and Skrjabinema caprae, parasitize small horned cattle in the conditions of Karakalpakstan.

31. *Skrjabinema ovis (Skrjabin, 1915)*

Parasitism of Skrjabinema ovis in the large intestine of sheep and goats in private households in farms belonging to Qonlikol, Amudaryo, Tortkol, Beruniy, Bozatov, Mo'inoq and Ellikkala districts of Karakalpakstan was determined. it became known that the parasite is found mainly in spring, summer and autumn. It was found that the extent of invasion in sheep was 6.0% and the intensity of invasion was from 4 to 12 pieces, and the extent of invasion was 10.7% and the intensity of invasion was from 3 to 20 pieces in goats. skrjabinema ovis is a geohelminth, that is, the development process takes place in one host.

32. *Skrjabinema caprae Schad, 1959*

Skrjabinema caprae was detected in the large intestines of goats in the farms of Kungirot, Qonlikol, Shumonoy and Khojaly districts of Karakalpakstan and in private households in spring, summer and autumn. it was found that the extent of invasion in goats was 10.2% and the intensity of invasion was from 1 to 7 pieces. This nematode is also a geohelminth, and the development process takes place only in goats, that is, in one host.

Category. Spirurida (Railliet, 1914

Subcategory. Spirurata (Railliet, 1914

family Gongylonematidae Sobolev, 1949

A generation. Gongylonema Molin, 1857

33. *Gongylonema pulchrum Molin, 1857*

Gongylonema pulchrum in farms belonging to Amudaryo, Tortkol, Beruniy, Bozatov, Moynaq, Takhyatosh, Khojayli, Chimboy, Shumonoy and Ellikkala districts of Karakalpakstan, as well as in sheep and goats in private households. in the epithelium of the mucous membrane of the nose and throatfound to be parasitic.this nematode was found in spring, summer and autumn in small horned cattle. In sheep, the extent of invasion was 6.5%, and the intensity of invasion was from 3 to 7 pieces, and in goats, the extent of invasion was 8.3%, and the intensity of invasion was from 1 to 5 pieces.

gongylonema pulchrum is a biohelminth, and in Uzbekistan about 50 species of dung beetles - Aphodius, Geotrupes, Gmnopleurus, Chironitis, Scarabeus and other genera - have been found infected with gongylonema larvae [32].

Family. Habronematidae Ivaschkin, 1961

generation Parabronema Baylis, 1921

34. *Parabronema skrjabini Rassowska, 1924*

This nematode belongs to Karaozak, Takhtakopir, Kungirot, Konlikol, Amudaryo, Tortkol, Chimboy, Khojayli, Beruniy, Bozatov, Moynaq and Takhyatosh districts of Karakalpakstan. in spring, summer and autumn months on farms and in sheep and goat dairy in private householdsfound to be parasitic.it was found that the extent of invasion in sheep was 9.2% and the intensity of invasion was from 3 to 17 pieces, and the extent of invasion was 13.6% and the intensity of invasion was from 5 to 123 pieces.

Parabronema skrjabini is considered a biohelminth, and its intermediate hosts in different regions of Uzbekistan are two-winged insects - small cow fly (Liperosia titillans), southern cow fly (L. irritans) and autumn fly (Stomoxys calcitrans) [33].

family Onchocercidae (Leiper, 1911)

A generation. Skrjabinodera Gnedina, et Vsevolodov, 1947

35. *Skrjabinodera saiga Gnedina et Vsevolodov, 1947*

Skrjabinodera saiga was detected in the subscapular muscle fibers of sheep in the farms belonging to Takhtakopir, Kungirot and Chimboy districts of Karakalpakstan and in private households in spring and autumn. it was found out that the extent of infestation in sheep is 7.6% and the intensity of infestation is from 2 to 7 pieces.

Family. Setariidae (Yorke et Maplestone, 1926)

A generation. Setaria Viborg, 1795

In the conditions of Karakalpakstan, it was found that 2 species of the genus *Setaria, namely Setaria labiatopapillosa and Setaria digitata*, parasitize cattle with small horns.

36. *Setaria labiatpapillosa (Alessandrini, 1838)*

Setaria labiatpapillosa Chimboy, Kegeili, Karaozak, Takhtakopir, Kungirot, Konlikol, Amudaryo, Tortkol, Beruniy, Bozatov, Moynoq, Takhiatosh and Khojayli of Karakalpakstan in farms belonging to districts and in the abdominal cavity of sheep and goats in private householdsparasitizes in the pancreas and in the fat and abdominal fat.it was determined that small horned cattle are affected mainly in spring, summer and autumn months. It was found that the extent of invasion in sheep was 11.4% and the intensity of invasion was from 1 to 6 pieces, and the extent of invasion was 8.8% and the intensity of invasion was from 1 to 4 pieces in goats. this parasite is a biohelminth, and in various regions of Uzbekistan it has been determined that Aedes caspius caspius is a blood-sucking dipteran - a representative of the original mosquito family - as an intermediate host of the causative agents of cetariosis [34]

37. *Setaria digitata (Linstow, 1906)*

Setaria digitata was found in the stomachs of goats in private households in the farms belonging to Karaozak, Takhtakopir, Kungirot and Amudaryo districts of Karakalpakstan in spring and autumn. It was found that the extent of infestation in goats was 4.9%, and the intensity of infestation was from 1 to 9 pieces. This nematode is a biohelminth, and its intermediate hosts are blood-sucking dipterans - species of Anopheles, Aedes and Armigeres genera [35,36,37].

Conclusion

As a result of the research conducted in this way, it was noted that 37 types of helminths parasitize cattle in Karakalpakstan. Of these, 34 species were found in sheep and 31 species in goats. 37 types of helminths that parasitize cattle in Karakalpakstan belong to 25 genera (Moniezia, Avitellina, Thysaniezia, Taenia, Echinococcus, Multiceps, Alveococcus, Fasciola, Gastrothylax, Schistosoma, Trichocephalus, Chabertia, Oesophagostomum, Dictyocaulus,

TrichostrongylusHaemonchus, Marshallagia, Nematodirus, Teladorsagia, Ostertagia, Skrjabinema, Gongylonema, Parabronema, Skrjabinodera and Setaria), to 15 families (Anoplocephalidae, Avitellinidae, Taeniidae, Fasciolidae, Gastrothylacidae, Schistosomatidae, Trichocephalidae, Chabertiidae, Trichostrongylidae)Dictyocaulidae, Syphaciidae, Habronematidae, Gongylonematidae, Onchocercidae and Setariidae), 9 small families (Anoplocephalata, Taeniata, Fasciolata, Paramphistomata, Schistosomatata, Trichocephalata, Strongylata, Oxyurata, Spirurata), 8 families (Cyclophyllidea, Fasciolida, Paramphistomida)Schistosomatida, Trichocephalida, Strongylida, Oxyurida, Spirurida), belonging to 3 classes (Cestoda, Trematoda and Nematoda) and 2 types of fauna (Plathelminthes and Nemathelminthes).

When the identified helminths were analyzed by classes, it was found that 8 species belong to the class of cestodes, 3 species to the class of trematodes, and 26 species to the class of nematodes.

Alveococcus multicularis larvae from cestodes were recorded for the first time from the liver of goats in the CIS, including Uzbekistan (Karakalpakstan). also, it was discovered by us for the first time in the CIS, including Uzbekistan, that Fasciola gigantica parasitizes sheep's liver as well as their lungs.

The above information serves as the main scientific source for specialists in the development of practical recommendations for the identification of pathogens of pathogenic helminthiasis in small-horned cattle in the conditions of Karakalpakstan and their prevention.

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