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SYSTEMATIC ANALYSIS AND INFECTION OF THE COMMON CATFISH NEMATODE (*SILURUS GLANIS*) IN WATER BODIES IN THE NORTH-EAST OF UZBEKISTAN

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Abstract: Research was carried out on 127 specimens. native catfish (Silurus glanis) caught in water reservoirs of northeastern Uzbekistan in 2019-2022. As a result of research, 9 species of nematodes were registered in common catfish, which belonged to 4 orders, 6 families and 7 genera. Of the identified nematodes, 5 species parasitize in the larval stage and 4 species in the sexually mature stage. Infestation with nematodes ranges from 1.6% to 20.4%, and the intensity of invasion is 1–28 specimens.

Keywords: Nematoda, helminths, predatory fish, systematics, native catfish, invasion, extensiveness and intensity of invasion, Syrdarya, Uzbekistan.

Introduction. Currently, much attention is paid to the development of the fishing industry in the country. The study of fish diseases is essential for the development of fisheries. Significant progress has been made in this area. However, not enough has been done to detect and control fish diseases. On the other hand, the pathogenic effect of helminths has a serious impact on the quality of fish products, fertility, internal organs and tissues of fish, and in some cases cause their death. Under the influence of these negative factors, the fish farming sector may suffer economic losses. The detection of predatory fish diseases, the systematic analysis of parasites, the management of the abundance of parasites in water bodies and the development of control measures are of great importance today.

The purpose of the study: a systematic analysis of species of the Nematoda class parasitizing the common catfish (*Silurus glanis*) in water bodies of northeastern Uzbekistan and studying the degree of infection of fish with nematodes.

Object and methods of research. A total of 127 specimens of common catfish (*Silurus glanis*) were studied, caught from the middle course of the Syrdarya River, the South Mirzachul and Dustlik canals, natural and artificial reservoirs, and the Tuyabugiz reservoir. Fish samples were studied by methods of complete and incomplete helminthological dissection [1–3]. Collected nematodes were fixed under laboratory conditions in 4% formalin or Barbagallo liquid [1]. Determination

of the type of representatives of the Nematoda class was carried out on the basis of literature data [4–5].

Research results. As a result of research, 9 species of nematodes belonging to 4 orders, 6 families and 7 genera were recorded in the common catfish in water bodies of northeastern Uzbekistan (Table 1).

Taxonomic analysis of the nematodes of the common catfish *Silurus glanis* in water bodies of the north-east of Uzbekistan

Class	Order	Family	Genus	Number of species
Nematoda	Ascaridida	Anisakidae	*Contracaecum*	2
			Raphidascaris	1
	Spirurida	Gnathostomatidae	*Gnathostoma*	1
		Camallanidae	*Camallanus*	1
		Rhabdochonidae	*Rhabdochona*	2
	Trichocephalida	Capillariidae	*Capillaria*	1
	Dioctophymida	Dioctophymidae	*Dioctophyme*	1
	4	6	7	9

Nemathelminthes Schneider, 1866 type

Nematoda Rudolphi, 1808 class

Trichocephalida Skrjabin et Schulz, 1928 order

Capillariidae Neveu–Lemaire, 1936 family

Capillaria Zeder, 1800 genus

Capillaria tomentosa Dujardin, 1843.

Synonyms: *Capillaria brevispicula* (Linstow, 1873), *Capillaria lewaschoffi* Heinze, 1933; *Capillaria amurensis* Finogenova, 1967.

Definitive host: catfish

Location: intestine

Location: Middle course of the Syrdarya River (Dustlik canal).

The pathogenic effect of this nematode is characterized by damage to the intestinal mucosa of the catfish.

Dioctophymida Skrjabin, 1927 order

Dioctophymidae Railliet, 1915 family

Dioctophyme Collet-Meygret, 1802 genus

Dioctophyme renale Goeze, 1782 larvae

Synonym: *Ascaris renale* Goeze, 1782

Reservoir host: Catfish

Localization: intestinal wall, liver, gonads, peritoneum.

Location: Middle course of the Syrdarya River (Southern Mirzachul Canal).

Catfish is the intermediate host of this nematode. The larvae in the capsule are localized on the intestinal walls of many fish species that are reservoir hosts. The

owner of the pond is a fish. The adult form parasitizes in the kidneys of domestic and wild animals, sometimes humans. It is the causative agent of dioctophymosis.

Spirurida Chitwood, 1933 detachment

Rhabdochonidae Skrjabin, 1946 family

Rhabdochona Railliet, 1916 genus

Rhabdochona ergensi Moravec, 1968

Synonym: *Rhabdochona latifillamentosa* Chiaberashvili, 1952; *Rhabdochona sulaki* Saidov, 1953.

Definitive host: catfish

Location: intestine

Place of discovery: Middle course of the Syrdarya river.

Rhabdochona gnedini Skrjabin, 1946.

Synonym: *Rhabdochona latifillamentosa Chiaberashvili, 1952; Rhabdochona sulaki* Saidov, 1953.

Definitive host: catfish

Location: intestine.

Place of discovery: Middle course of the Syrdarya river.

Camallanidae Railliet et Henry, 1915 family

Camallanus Railliet et Henry, 1915 genus

Camallanus truncatus Rudolphi, 1814.

Definitive host: catfish

Location: stomach and intestines

Place of identification: Middle course of the Syrdarya river.

The development cycle is as follows: predatory fish (definitive hosts) - cyclops (intermediate hosts) - cyprinids (reservoir hosts) - predatory fish (definitive hosts).

Gnathostomatidae Railliet, 1895 family.

Gnathostoma Owen, 1836 genus

Gnathostoma hispidum Fedtschenko, 1872 larvae

Intermediate host: catfish

Localization: body cavity, muscles, liver, intestinal walls

Place of identification: Middle course of the Syrdarya River (Southern Mirzachul canal and artificial reservoirs).

The developmental stages occur in the presence of the first intermediate host, the cyclops; the reservoir hosts are fish, amphibians, birds, and mammals. They become infected by eating invasive cyclops.

Ascaridida Skrjabin et Schulz, 1940 squad

Anisakidae Skrjabin et Karokhin, 1945 family

Raphidascaris Railliet et Henry, 1915 genus

Raphidascaris acus Bloch, 1779 larvae

Synonym: *Ascaris acus* Bloch, 1779

Intermediate host: catfish

Localization: body cavity, liver, intestinal wall, gonads.

Place of identification: Middle course of the Syrdarya River (Dustlik canal, Tuyabugiz reservoir).

Contracaecum Railliet et Henry, 1912 genus

Contracaecum spiculigerum Rudolphi, 1809 larvae

Synonym: *Ascaris siluriglanidis* Linstow, 1883

Intermediate host: catfish

Localization: body cavity, internal organs.

Place of identification: Middle course of the Syrdarya River

Contracaecum microcephalum Rudolphi, 1819 larvae

Synonym: *Ascaris microcephala* Rudolphi, 1819; *Contracaecum squalii* Linstow, 1907; *Contracaecum squalii* Skrjabin, 1917.

Intermediate host*:* catfish

Localization: body cavity, internal organs, liver, muscles.

Place of detection: Middle course of the Syrdarya River (natural reservoirs)

The adult form of the nematode parasitizes in the stomach of the gray heron, night heron.

In our studies, it was found that the infection of common catfish with helminths of the Nematoda class in water bodies of the north-east of Uzbekistan is as follows (table 2).

Infestation of Silurus glanis with nematodes in water bodies of the north-east of Uzbekistan (n = 127)

№	Type of helminths	Localization	Infected	I, %	II, ekz.		
					min	max	M±m
1	*Contracaecum spiculgerum*	walls of internal organs	9	7,1	1	15	11,2±1,1
2	*Contracaecum microcephalum*	abdominal cavity	12	9,4	2	9	3,9±0,3
3	*Raphidascaris acus*	intestines, body cavity and gonodes	24	19,1	1	7	2,8±0,2
4	*Gnathostoma hispidum*	liver, intestines, muscles	13	10,2	1	9	2,9±0,2
5	*Rhabdochona gnedini*	intestines	8	6,3	2	18	12,6±1,3
6	*Rhabdochona engensi*	intestines	3	2,4	1	4	2,2±0,1
7	*Camallanustruncatus*	stomach and intestines	26	20,4	1	25	18,5±1,2

8	*Capillaria tomentosa*	intestines	2	1,6	1	6	1,9±0,1
9	*Dioctophyme renale*	intestinal wall, liver, gonads	21	16,5	1	8	2,8±0,1

On our studies, the highest infestation of *Silurus glanis* was noted by *Camallanus truncatus* (20.4%), then by *Raphidascaris acus* (18.1%), and the lowest infestation by *Capillaria tomentosa* (1.6%). The intensity of invasion varied from 1 to 28 ind.

Conclusion. In the course of our studies, the infestation levels and a systematic review of catfish nematodes (*Silurus glanis*) were determined.

In the reservoirs of the north-east of Uzbekistan, 9 species of nematodes have been registered in common catfish, which belong to 4 orders, 6 families and 7 genera. Common catfish for 5 species of nematodes is an intermediate host and the parasite occurs in the larval phase (larvae), and four species - as a definitive host.

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