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Helminth Fauna of The Wels Catfish (Silurus Glanis Linnaeus, 1758) Found in The Territory of Karakalpakstan

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Abstract

This article presents the helminth fauna, species composition, and infestation rates of the wels catfish found in the territory of Karakalpakstan. As a result of the research, 15 species of parasitic worms belonging to 3 phyla, 4 classes, 10 orders, and 13 genera were discovered. Of these, 6 species are trematodes, 2 species are cestodes, 2 species are acanthocephalans, and 5 species are nematodes.

Keywords: Wels catfish, parasitic worms, trematode, cestodes, acanthocephalans, nematodes.

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1. Introduction

The canal catfish is a species of catfish, distributed in the waters of Europe, Asia Minor, the Caspian basin, and Central Asia. They live in fast-flowing rivers and quiet underwater areas, and roam the depressions of lakes and reservoirs. It is found in the Aral Sea and similar salt waters. It is found in almost all flat-water bodies of Uzbekistan (Figure 1).

The purpose of this research is to determine the species composition of canal silk helminths distributed in some lakes of the Lower Amu Darya, as well as the degree of fish damage.

During the research period from 2023 to 2025, canal wormwood and its helminth fauna distributed in some lakes of the Lower Amu Darya River were studied. In this work, general biological, ichthyological, and helminthological methods were used. The detection of fish parasites was carried out using the "Complete and incomplete parasitological explosion" method developed by V.A. Dogel (1933) and improved by his students I.E. Bikhovskaya-Pavlovskaya (1952), B.E. Sudarkov, A.A. Shigin (1965), Z. Donec, S. Shulman (1973). The fishing was mainly carried out with the help of fishermen using nets of various sizes with holes. During the research, reference books, scales, rulers, calipers, and other measuring instruments were used. [1,2,4].

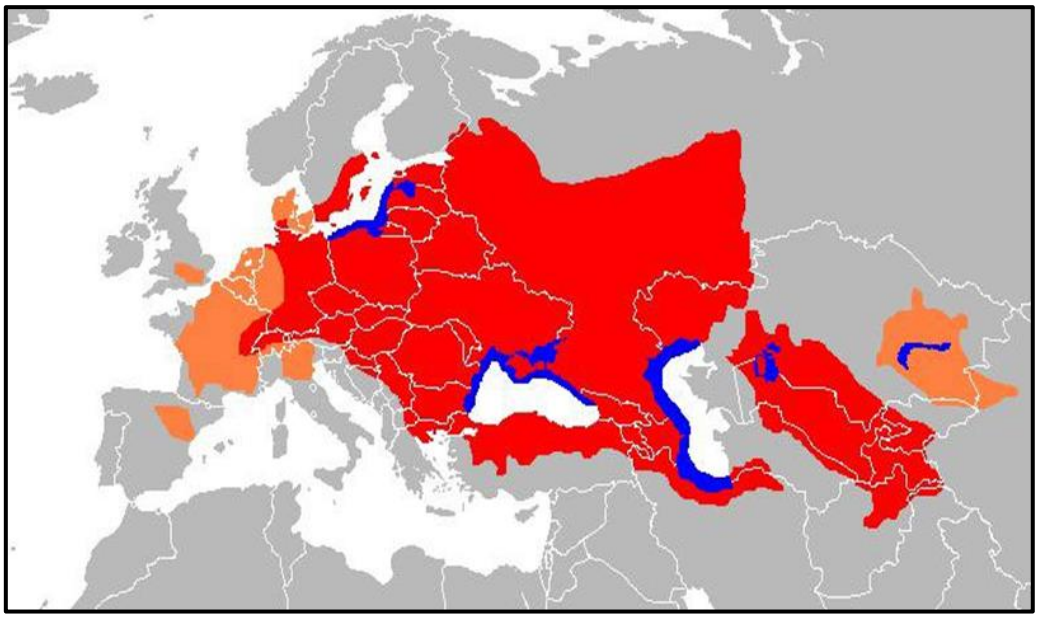

Figure 1. The range of the Silurus glanis Linnaeus, 1758 population.

As a result of the conducted research, 15 species of parasitic helminths have been identified in the pike perch inhabiting the lower reaches of the Amu Darya, belonging to 3 types, 4 classes, 10 orders, 13 families, and 14 genera (Table 1).

As a result of the experiment, depending on the localization of parasitic helminths, 11 species were identified in the intestines, 1 species in the stomach, 1 species in the eyeball, 1 species in the eye lens and eyeball, 1 species in the skin, scalp, eyelid, and muscle layer, and 2 species in the intestines, liver, and other internal organs.

Table 1

Taxonomic structure of catfish helminths caught in some lakes and collectors in the lower reaches of the Amudarya

Type	Class	Order	Family	Genus	Species
Plathelminthes Schneider, 1873	***Trematoda***	Bucephalida	Bucephalidae	*Rhipidocotyle*	*Rhipidocotyle campanula*
		Fasciolida	Bunoderidae	*Bunodera*	*Bunodera luciopercae*
			Orientocreadiidae	*Orientocreadium*	*Orientocreadium siluri*
			Allocreadiidae	*Allocreadium*	***Allocreadium siluri***
		Strigeidida	Diplostomidae	*Diplostomum*	*Diplostomum spathaceum*
				Posthodiplostomum	*Posthodiplostomum cuticola*
	Cestoda	Pseudophyllida	Triaenophoridae	*Triaenophorus*	*Triaenophorus nodulosus*
		Proteocephalida	Proteocephalidae	*Silurotaenia*	*Silurotaenia siluri*
Acanthocephales	Acanthocephala	Neoacanthocephala	Neoechinorhynchidae	*Neoechinorhynchus*	*Neoechinorhynchus rutili*
		Palaeacanthocephala	Pomphorhynchidae	*Pomphorhynchus*	*Pomphorhynchus laevis*

Nemathelminthes	Nematoda	Trichocephalida	Capillariidae	*Capillaria*	*Capillaria tomentosa*
		Dioctophymida	Dioctophymidae	*Dioctophyme*	*Dioctophyme renale*
		Spirurida	Rhabdochonidae	*Rhabdochona*	***Rhabdochona denudata***
					Rhabdochona gnedini
			Camallanidae	*Camallanus*	*Camallanus truncatus*
3	**4**	**10**	**13**	**14**	**15**

The species composition of ichthyofauna is characterized by the diversity of ecological conditions in water bodies. Parasites are one of the essential factors influencing the quantity of water bioresources and the productivity of biocenoses. The characteristics of parasite fauna formation in water basin ecosystems are linked to the strong influence of hydrological regimes (changes in water surface area, water volume, water temperature, etc.) Such influences lead to the transformation of biocenoses and changes in the population structure of parasitic groups [3].

As a result of the conducted research, 15 species of helminths have been identified in the reservoirs of the Lower Amu Darya, belonging to the classes Trematoda, Cestoda, Nematoda, and Acanthocephala.

Trematodes make up 40% of the fish species, cestodes 14.4%, acanthocephalians 13.4%, and nematodes 33.2%. As can be seen from the research results, trematodes predominate in the helminth fauna of goats. The next places are occupied by nematodes and an equal proportion of cestodes and acanthocephalans.

Three species (Diplostomum spathaceum (larvae), Dioctophyme renale (larvae), and Camallanus truncatus) can be classified as dominant in the helminth fauna of the roach, which were identified in all water bodies during the study. Two of the dominant species are found in the larval stage, and for them, the perch serves as an additional or reservoir host. Representatives of the cestoda (Triaenophorus nodulosus, Silurotaenia siluri) class were among the least parasitic species.

These helminth species were recorded in both sexes of the mackerel and in all seasons. In the studied mackerel helminth fauna, 4 epizootically important species (Rhipidocotyle campanula, Diplostomum spathaceum larvae, Dioctophyme renale larvae, Camallanus truncatus) were identified, which may lead to the widespread spread of diseases as a result of changes in environmental conditions.

It has been determined that the trematode and nematode classes constitute the core of the salmon parasitofauna caught in some lakes and collectors in the lower reaches of the Amu Darya. Among the dominant trematode species, Rhipidocotyle campanula and Diplostomum spathaceum have been identified, with a mortality rate of 21.05%. Among nematode representatives, Dioctophyme renale and Camallanus truncatus were found to be dominant. Their infestation rate was 31.6%. Acanthocephalans also have varieties with a high degree of damage. One of them is *Pomphorhynchus laevis acanthocephalus*, the degree of damage to which has been determined to be 26.3%.

Along with the degree of infestation, species with high infestation intensity are the Camallanus truncatus nematode (1-17) and the Pomphorhynchus laevis acanthocephalus (3-16).

As a result of the conducted research, 15 species belonging to 3 types, 4 classes, 10 orders, 13 families, and 14 genera were identified in the water bodies of the lower reaches of the Amu Darya. Of these, 6 species (40%) are trematodes, 2 species (13.4%) are cestodes, 2 species (13.4%) are acanthocephalans, and 5 species (33.2%) are nematodes.

If the appearance of parasitic helminths is detected in the studied lakes and collectors, it is necessary to focus on interrupting certain stages of the life cycle.

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