



## PHILOMETROSIS OF PREDATORY FISH

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### ABSTRACT

*This article presents scientifically based information on the cases of infection with the nematode *Philometra obturans* Prenant, 1886, the pathogenesis of the development cycle, and countermeasures of common roach, whitefish, and crucian carp living in the Syr Darya reservoirs. During the study, a total of 90 specimens of different ages of 3 species of predatory fish were examined.*

Today, the demand for fish and fish products is increasing as a result of the population growth. Today, special attention is paid to the development of the fishing industry. However, there are also factors that are serious obstacles to the development of the industry. Parasitic diseases significantly affect the growth and development of fish. Parasitic diseases of fish are also dangerous for human health. It was determined that the nematode of *Philometra obturans* Prenant, 1886, which lives in the Syrdarya reservoirs, causes great economic damage to common roach, whitefish, and cod. It is important to study nematode infection of predatory fish and to develop measures to prevent them.

The main goal of our research work is to determine the incidence, development cycle, pathogenesis, and level of infection of common flounder, flounder, and crucian carp living in reservoirs of the Syrdarya region with the nematode *Philometra obturans* Prenant, 1886.

During the years 2022-2023, the research work was carried out on 90 specimens of common pike, akshla and chortanfish, belonging to three species of different ages, caught from existing water bodies in the territory of the Syrdarya region. Helminthological and ichthyoparasitological methods were used during research. Fishes were studied parasitologically on the basis of complete and incomplete helminthological examination methods (Skryabin, 1928; Bykhovskaya-Pavlovskaya, 1952, Markevych, 1952). Collected nematode samples were fixed in 70% alcohol under laboratory conditions. Information from the literature was used to determine the type of helminth (Avdeev, 1987).



As a result of our research, it was observed that the nematode *Philometra obturans* Prenant, 1886 parasitises various organs, body cavity, alimentary system and fin bladder of the Syrdarya water bodies. This species is one of the pathogenic parasitic species.

Philometrosis is a helminthic disease of fish caused by representatives of the genus *Philometra*, belonging to the family *Philometridae*. In Syr Darya reservoirs, four species *Philometra ovata*, *Ph. abdominalis*, *Ph. Intestinalis*, *Philometra obturans* is recorded. This species of nematodes parasitizes the body cavity, digestive system and fin wall of fish. As a result of severe damage to fish, it causes the death of predatory fish.

This disease is widespread in fisheries and some natural water bodies (Safarova et al., 2014, Abdug'aniev, 2022). Diseased fish cause great economic losses as a result of the product becoming unusable. Adult nematodes are red or yellowish red in color. *Philometra ovata* males are 1.7-2.3 mm long and 0.04-0.05 mm wide. The body is cylindrical, the body length of the female is 100-120 mm, the width is 0.8-1.2 mm, *Ph. abdominalis* male body length 2.1-3.7 mm, width 0.04-0.06 mm, female body length 100-120, width 0.9-1.0 mm, *Philometra obturans* male length 7.1 mm, width 0.122 mm, female length 11-13 mm, width 0.165 mm, *Philometra intestinalis* males are 7.2 mm long and 0.123 mm wide, females are 10-12 mm long and 0.166 mm wide.

It takes place with the participation of the intermediate masters of *Philometra* - Cyclops. Fish (primary host) - contract the disease by ingesting infected cyclops. Damage to fish was usually observed during the warm season, that is, in the spring and summer seasons. *Philometra* develop and multiply in the bodies of infected fish until they reach sexual maturity, which means that the females begin to spawn. The complete life cycle of *Philometra* is completed in 11-14 months (Vasilkov et al., 1989).

It was found that 17 out of 90 samples of common flounder, flounder, and flounder living in the reservoirs of Syrdarya region, i.e. 18.8%, were infected with *Philometra obturans* nematode. Invasion intensity was 1-6 copies. High rates of damage were observed mainly in the summer months.

The disease is more common between two and three-year-old fish. The main source of infection is diseased and disease-carrying fish.

Philometrosis in fish occurs acutely and chronically, depending on the degree of damage. The acute form of the disease was observed among two- to three-year-old fish feeding on zooplankton in spring and summer. The causative larvae enter the body of the fish and destroy the function of the liver, swim bladder, kidneys and other organs. The acute form lasts 1-3 days, and young fish die. When dead fish were dissected, 1-5 parasite larvae were found in their internal organs. Mortality of young fish can reach 30-55%. If the infected fish do not die, the disease becomes chronic. Weight loss, loss of movement and blood deficiency in injuries are observed. The feeding of fish becomes worse, they try to be more on the surface of the water. Helminths are more often located around the head, in the shoulder area, under the fins on the sides and abdomen, and on the fins. It occurs with the appearance of fungi in the injured areas of the skin.

When infected fish are dissected, an enlarged liver is seen. The liver is yellow and sometimes bleeds. The kidneys are somewhat enlarged, filled with blood. The wall of the swim bladder becomes opaque. It is based on the acute symptoms of the disease and the



results of helminthological examination. The internal organs are separated together with the swim bladder. Many larvae of pathogens can be seen in it. The chronic form of the disease can also be determined by examining the fish and the results of helminthological examination. A combination of veterinary-sanitary and organizational measures is used to prevent the disease.

Infected water bodies or fish farms are considered unhealthy. It is not allowed to take fish from such farms to other fish farms for breeding. For deworming of fish, nilworm is added to their food at a dose of 0.5 g/kg (Vasilkov et al., 1989). Methods of deworming fish have been developed. In this case, granular food mixed with therapeutic neem worm is used. Curative food combikorm plants are made in the form of moisture-resistant granules. Fish are fed with such pellets for 2-3 days. Deworming is recommended in spring and summer.

As a result of our research, 17 out of 90 samples of common flounder, flounder and flounder living in water reservoirs in the territory of Syrdarya region were infected with *Philometra obturans* nematode. Cases of such damage were observed more in the summer months. The extent of invasion was 18.8%, the intensity of invasion was 1-6 copies.

The cases of *P. obturans* nematode infestation of predatory fish (common flounder, flounder, and pike), development cycle, and degree of infestation were determined, and productivity declines were observed in infected predatory fish.

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