

# Investigation of parasitic helminthic infections of fish caught from Aras River in 1399

## Abstract

**Background and Objective:** There are plenty of parasites that are able to infect the fishes. Some of which can also affect the humankind so that humans or fish-eating mammals can be the ultimate host of these parasites. Today, more than 40 species of parasites have been identified in fish that cause disease in humans. These parasites can be protozoa, trematodes, cestodes, nematodes, or achanthocephales. The human infection with worm parasites usually occurs during the consumption of infected meat to the larvae.

**Aim:** In principle, parasitic infections in fish are important from both ecological and health perspectives. In this study, the parasitic infestations of fish caught from Aras River in 2018 were investigated.

**Methods:** In this study, after the needed coordination with the environmental protection organization of Ardabil province and receiving the fishing license, 100 fish were caught from the Aras River or bought in Parsabad County then evaluated. Fish characteristics including genus and species of fish were identified. 15 *Cyprinus carpio*, 10 Silver carp, 5 Big head, 12 Wels or European catfish, 5 shemaya, 5 Caspian vimba, 15 Roach, 3 Pike perch, 22 Bulatmai barbel, and 8 Common breams were caught. The fish caught were coded sequentially. They were then transferred to the parasitology laboratory of Ardabil University of Medical Sciences. The fish were dissected and opened after macroscopic examination of the scales, gills, etc., and their abdominal area was explored for the presence of parasites. Then their whole gastrointestinal tract was separated and placed in a container containing 10% formalin. In order to study the parasites, wet slides were prepared from the surface of the skin (fins, dorsal, lateral and abdominal surfaces) and after removing the eyes and complete separation of the gills, the viscera were completely removed. Visceration was performed after careful macroscopic examination of the abdominal area and sampling of eggs, with abdominal incision from the head to the anus. Examination was performed on the abdominal area including liver, gallbladder by preparing wet slides from each organ and also complete incision of gastrointestinal tract, isolation of macroscopic parasites, complete washing of gastrointestinal contents and complete study of leachate obtained under stereomicroscope. Gastrointestinal parasites were isolated, counted, fixed and stained according to conventional methods. Plain and colored lactophenol (lactophenol-azocarmine) was used to clear all worm parasites.

**Results:** After examining and evaluating the samples, 18 (18%) of the fish were infected with the parasite. Helminths parasites found in fish include *Ligula intestinalis* in *Cyprinus carpio*, shemaya, Common bream; *Bothriocephalus acheilognathi* in *Cyprinus carpio* and shemaya; *Diplozoon paradoxus* in *Cyprinus carpio* and Roach; *Dactylogyrus* sp. in *Cyprinus carpio* and Common bream; *Clinostomum* spp. in *Cyprinus carpio*.

**Conclusion:** In the present study, the highest rates of helminths infestation in fish were in *Ligula instinalis* 9%, in *Dactylogyrus lancorani* 4%, in *Bothriocephalus acheilognathi* 2%, in *Diplozone paradoxon* 2% and in *Clinostoma* spp. 1%. Infection with these parasites has not been reported from humans, but due to the increasing spread of diseases of the immune system, there is a possibility of transmission of these parasites to humans. Therefore, proper training for fishermen, those who work in transporting fish, and especially cooking and cooking fish, seems to be essential for everyone.

**Keywords:** helminths parasite, fish, Aras River