OCCURRENCE OF NEMATODE PARASITIC INFECTIONS IN *CHANNA STRIATA* (BLOCH) FROM THE PENGANGA RIVER, WASHIM DISTRICT, MAHARASHTRA

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Abstract
This study investigates nematode parasitic infections in Channa striata (Bloch) collected from the Penganga River in Washim District, Maharashtra, India. A total of 48 snakehead fish were examined during the study period, of which 9 individuals were found to be infected with larval nematode parasites belonging to the genus Contracaecum. The overall prevalence of infection was 18.75%, with a mean intensity of 1.77 parasites per infected host. The nematodes were recovered from the intestinal region of the host fish. This study also represents a new locality record for larval Contracaecum species in Channa striata from the Penganga River. The findings provide baseline information on nematode infections in freshwater fishes of Washim District and contribute to understanding parasite distribution in inland aquatic ecosystems.
Keyword: *Freshwater Fish, Channa striata, Nematode, Washim*

Introduction

Fish are a high-quality, affordable, and easily available source of animal protein for humans and livestock. Approximately 25% of the world's animal protein intake is derived from fish and shellfish. Fish flesh is easily digestible and rich in essential nutrients, including minerals (phosphorus, magnesium, iron, copper, and zinc), vitamins (A and D), and unsaturated fatty acids such as omega-3.

Among freshwater fishes, species of the genus *Channa* (snakehead fishes) are predatory teleosts belonging to the family Channidae and are widely consumed across South and Southeast Asia. These fishes inhabit streams, reservoirs, lakes, swamps, paddy fields, ponds, and lowland river stretches in India, Bangladesh, Bhutan, Myanmar, Pakistan, Thailand, Sri Lanka, and Nepal **(Shrestha et al., 2019).**

Channa striata is an economically important inland fish species in the Indian subcontinent. It possesses a specialized accessory respiratory organ (pharyngeal diverticula), enabling survival under low-oxygen conditions and even short periods outside water. The species is also valued for its medicinal properties, particularly in wound healing and post-surgical recovery **(Gam et al., 2006).**

Although *Channa* species are relatively resistant to parasitic infections, adverse environmental conditions such as water pollution, temperature fluctuations, low dissolved oxygen, and inadequate food availability can increase their susceptibility to helminth parasites **(Sharma, 2012).** Due to their benthic habitat preference and carnivorous feeding behavior, snakehead fishes often serve as intermediate or paratenic hosts for various parasites.

Species of *Contracaecum* (family Anisakidae) are nematode parasites with complex life cycles involving aquatic invertebrates, fish, and piscivorous birds or mammals as definitive hosts. Some species have zoonotic importance **(Shanthala et al., 2019).** Previous studies have reported *Contracaecum* infections in several freshwater fish species **(Pardo et al., 2009; Nagasawa, 2012; Adel et al., 2013).** The occurrence and intensity of helminth infections depend on host species, age, immunity, habitat, and environmental conditions **(Khurshid & Ahmad, 2012).**

Materials and Methods

Study area

The Penganga River originates in the Ajanta Hills near Sindkhed Raja in Buldhana District, Maharashtra, and flows through several districts, including Washim. The river serves as an important source of water for irrigation, domestic use, and fisheries. Major tributaries include the Adan, Kas, Arunavati, and Kayadhu rivers. The Isapur Dam is a major hydraulic structure constructed on the Penganga River for irrigation and drinking water purposes.

Fig. Google Map images of Penganga River Washim District, Maharashtra

Methodology

A total of 48 specimens of *Channa striata* were collected from the Penganga River in Washim District between March 2024 and February 2025. Fish were transported live to the laboratory and examined immediately for parasitological analysis. The gastrointestinal tract was dissected, and nematode parasites were recovered from the intestine using fine brushes. The parasites were preserved in 70% ethanol with 10% glycerol and examined under a compound microscope. Microphotographs were taken for identification.

Parasitological indices were calculated using standard formulae:

- **Prevalence (%)** = (Number of infected hosts / Number of hosts examined) × 100
- **Mean intensity** = Number of parasites recovered / Number of infected hosts

Results

Identification of Parasite

The whitish nematodes recovered from the intestinal region of *Channa striata* were identified as larval stages of *Contracaecum* species based on morphological characteristics.

Fig. A- Fish Species Channa striata

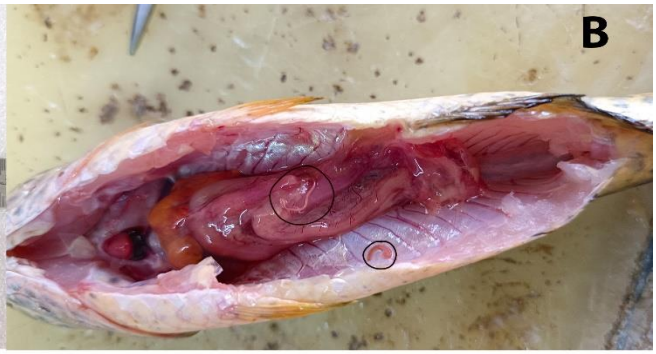

Fig. B- Nematode infection easly seen

Fig. 1 Contracaecum sp.-Anterior end

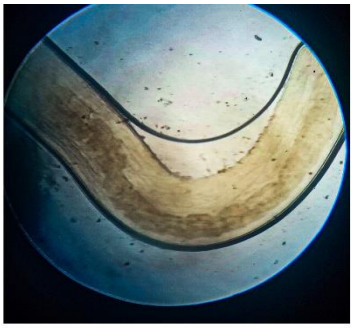

Fig. 2 Ovaries

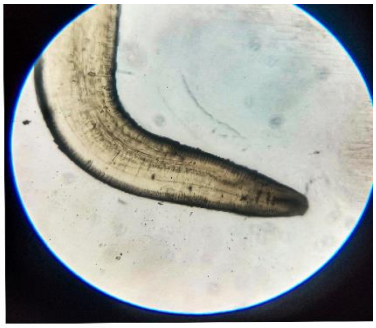

Fig. 3 Contracaecum sp. - Posterior end

Prevalence and Mean Intensity

Out of 48 fish examined, 9 individuals were infected with *Contracaecum* larvae. A total of 16 parasites were recovered from the infected hosts. The overall prevalence of infection was 18.75%, with a mean intensity of 1.77 parasites per infected fish.

Parasite	No. of fishes examine	No. of fishes infested	Prevalence	Mean Intensity
***Contracaecum* sp.**	48	9	18.75%	1.77

Discussion

Parasitic infections play a significant ecological role by influencing host population dynamics, energy flow, and trophic interactions. Nematode infections in fish generally occur through the ingestion of infected intermediate hosts or exposure to environments conducive to parasite transmission. In the present study, *Channa striata* was found to harbor larval *Contracaecum* species in its intestine. The prevalence (18.75%) and mean intensity (1.77) observed are comparable with earlier reports on freshwater fishes (Banu et al., 1993; Hossain et al., 1994; Akhter et al., 1997; Steinauer & Font, 2003). Environmental degradation, poor water quality, and altered food availability may contribute to increased parasite burden.

The presence of *Contracaecum* larvae raises concerns due to their zoonotic potential and negative effects on fish health, growth, and market value. Therefore, regular monitoring of parasitic infections and improvements in water quality management are essential for sustaining freshwater fisheries and protecting public health.

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