

***In vitro* studies of cestode parasite prevalence in *Mastacembalus armatus*, *Channa punctatus* (Bloch) and *Wallago attu* in fresh water fishes from Vishnupuri Dam (M S) India**

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Abstract

The present investigation was carried out in freshwater fishes from vishnupuri dam which *Mastacembalus armatus*, *Channa punctatus* (Bloch) and *Wallago attu* (Bleaker, 1857) collected from Vishnupuri dam. Among freshwater fishes were contaminated with cestode parasite during dissection of fishes. Three species were detected viz. *Circumonchobothria* sp. *Gangasia* sp. and *Senga* sp.

In the Present study, freshwater fishes from Vishnupuri dam infected with cestode parasite were recorded high incidence of cestode infection in all these host were recorded high prevalence of cestode infection in May month and it was 38.46%, in April month 30.43% and followed by march 20.83% and also least in month of January and Feb 2025 respectively. These results clearly showed that infection of cestode mostly lowest in winter month and highest in summer month.

Keywords: *Mastacembalus armatus*, *Channa punctatus* (Bloch), *Wallago attu* (Bleake, 1857), *Circumonchobothria* sp. and prevalence, Vishnupuri Dam etc

Introduction

Cestodes are an important class of endo parasitic organism commonly called as tapeworm are flat, segmented worm in phylum Platyhelminthes, Class cestoda, they infect to host through oral ingestion of egg or larvae. Generally, body divided into Scolex, Neck and Proglottids. Infections caused by various pathogens among fishes in natural and man-made culture systems are harmful for fish health, growth and fishery industry. The parasitic infections are sometimes very fatal and cause high mortalities when their life cycles are well supported by intermediate hosts. The helminth parasites mainly found in freshwater fishes are trematodes, cestodes, acanthocephalans and nematodes that complete their life cycles through intermediate hosts like snails and piscivorous birds (Schmidt, 1988).

Second most host of cestode is a fish. In fish, juvenile cestode stages (metacestodes) are found in internal organs or muscle, with the adult stages in the intestine. Cestodes lack a digestive system in both larval and adult stage. The exchange of nutrients and waste products taking place through the body wall or integuments. Adult worm is hermaphrodites that is both male and female reproductive organ present in each proglottids.

The prevalence of cestode parasite in fish increase rapidly and results in fish mortality (Nidhi Arora *et.al*, 2010). Also, Asawari Fartade *et.al*, investigated in 2018, the high infections of helminth parasite (incidence, intensity, density and index of infection) were occurred in summer season. Then it was followed by winter whereas very low in monsoon season.

So present investigation on prevalence of cestode parasite in freshwater fishes from yeldari dam located in Parbhani district Maharashtra, India.

Material and method

Fishes sample were collected from vishnupuri dam fresh water fishes at the located on the Godavari River in Nanded,

Maharashtra, near Asarjan village at latitude of 19.46676° N and a longitude of 76.52692° E. during the year 2024 and 2025. In present investigate cestode parasite prevalence from freshwater fishes viz *Mastacembalus armatus*, *Channa punctatus* and *Wallago attu* they collected and examined for cestode infection. Then cestode parasite were preserved in 4% formaline, washed in saline and water, dehydrated in various alcoholic grades, stained with Harris haematoxylin and Borax carmine, cleared in xylene, mounted in D.P.X. Drawings were made with the aid of camera Lucida and identification by standard methods (Gerald D. Schmidt, 1934; Yamaguti, S., 1959; Hiware, Jadhav and Mohekar, 2003; and Bhure, 2008) ^[2, 8, 9, 10].

Prevalence (Incidence) of infection were recorded and calculated according to Margolis *et.al.*, (1982). and D. B. Bhure *et.al*, (2016) ^[6].

$$\text{Prevalence of Infection (\%)} = \frac{\text{Number of Infected Host}}{\text{Number of Total Host Examined}} \times 100$$

Results and Conclusion

The present investigation was carried out in freshwater fishes from Yeldari dam which *Mastacembalus armatus*, *Channa punctatus* (Bloch) and *Wallago attu* (Bleaker, 1857) collected from Vishnupuri dam. Among freshwater fishes were contaminated with cestode parasite during dissection of fishes. Three species were detected viz. *Circumonchobothria* sp. *Gangasia* sp. and *Senga* sp. mentioned in following Table No.1.

D. B. Bhure *et.al*, (2016) ^[6] Reported the Diversity of piscine Cestodes includes 26 species of five genera. Ten species of *Senga*, Seven of *Gangesia*, Four of *Silurotaenia*, Three of *Polyonchobothrium* and Two of *Proteocephalus* were reported from *Channa* sp. from different localities of Marathwada Region of Maharashtra.

Table 1: Cestode parasite found in freshwater fishes from Vishnupuri Dam

Cestode Parasite sp	Host	Habitat	Locality
1) <i>Circumonchobothria</i> sp. 2) <i>Gangasia</i> sp. 3) <i>Senga</i> sp.	1) <i>Mastacembelus armatus</i> 2) <i>Channa punctatus</i> 3) <i>Wallago attu</i>	Intestine	Yeldari dam

*Wallago attu**Mastacembelus armatus**Channa punctatus***Cestode parasite seen under microscope collected from host intestine at vishnupuri Dam***Senga* sp.*Gangasia* sp.*Circumonchobothria* sp.

In the Present study, freshwater fishes from yeldari dam infected with cestode parasite were recorded high incidence of cestode infection in all these host were recorded high prevalence of cestode infection in May month and it was 38.46%, in April month 30.43% and followed by march 20.83% and also least in month of January and Feb 2020 respectively. These results clearly showed that infection of cestode mostly lowest in winter month and highest in summer month as shown in table and graph.

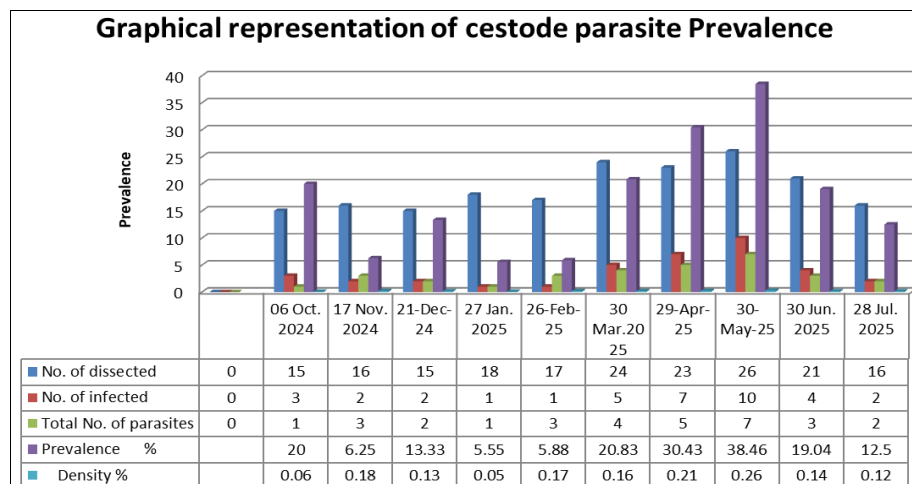
Bhure *et al.*, 2010 ^[3], Reported that high prevalence of

cestode parasite found in carp fish in summer followed by winter and rainy season. Also, Borde and Jawale, 2012 ^[4] reported high cestode infection to *Clarias batrachus* in summer season.

Bhure and Nanware, 2014 ^[5] reported high cestodes infection from *Channa punctatus* in summer season and Deshmukh Shaziya Sultana, 2019 ^[7] also reported high incidence of infections of all the cestode species were recorded in summer followed by winter where as low in monsoon season.

Table 2: Monthly variation of Cestode parasite in freshwater fishes from Vishnupur Dam

Sr. No	Month & Year (DD/MM/YY)	No. of Dissected Hosts	No. of Infected Hosts	Total No. of Parasites collected	Prevalence %	Density %
1	06 Oct. 2024	15	03	01	20.00	0.06
2	17 Nov. 2024	16	02	03	06.25	0.18
3	21 Dec 2024	15	02	02	13.33	0.13
4	27 Jan. 2025	18	01	01	05.55	0.05
5	26 Feb 2025	17	01	03	05.88	0.17
6	30 Mar.2025	24	05	04	20.83	0.16
7	29 Apr 2025	23	07	05	30.43	0.21
8	30 May 2025	26	10	07	38.46	0.26
9	30 Jun. 2025	21	04	03	19.04	0.14
10	28 Jul. 2025	16	02	02	12.50	0.12



Conclusion

Freshwater fishes infected by cestode parasite are positively correlated with season that are summer, winter and rainy. Out of that high infection of cestode found in summer season. It menaces that environmental factor both that are biotic and abiotic, positively effect on fishes Also, these result help for further studies about effect of cestode parasite on fish health and their biochemistry and also it helps to awareness within consumer. Fish helminthes parasites are generally found in all freshwater fishes. The parasite prevalence and intensity depend on many factors like parasite species and its life cycle, host and its feeding habits and the physical factors of water body where the fish inhabits.

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