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In Vitro studies on prevalence of cestode parasite in freshwater fishes from somthana (MS) India

Amol A Palke
Department of Zoology, Arts, Science & Commerce College, Badnapur Tq- Badnapur District Jalna, Maharashtra, India

Abstract
The present investigation was carried out in freshwater fishes from Somthana dam which *Mastacembalus armatus*, *Channa punctatus* (Bloch) and *Wallago attu* (Bleaker, 1857) collected from yeldari 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 Somthana dam infected with cestode parasite were recorded high incidence of cestode infection in all these host were recorded high prevalence of cestode infection in April month and it was 38.46%, in March month 30.43% and followed by Feb 20.83% and also least in month of January 2024 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, prevalence, Somthana 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.
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 where as 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 yeldari dam jintur district Parbhani at the GPS latitude N 19° 43' 12.4'' Longitude E 76° 43' 55". during the year 2019 and 2020. In present investigate cestode parasite prevalence from freshwater fishes viz *Mastacembelus 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].

$$\textbf{Prevalence of Infection (\%)} = \frac{Number\ of\ Infected\ Host}{Number\ of\ Total\ Host\ Examined}\ X100$$

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 yeldari 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*, (20016) Reported the Diversity of piscean Cestodes includes 26 species of five genera. Ten species of *Senga*, Seven of *Gangesia*, Four of *Silurotaenia*, Three of *Polyoncobothrium* 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 Somthana Dam

Cestode Parasite sp	Host	Habitat	Locality
1. ***Circumonchobothria yelderensis n.sp.***	1. ***Mastacembelus armatus***	**Intestine**	**Somthanadam**
2. ***Gangesia sp.***	2. ***Channa punctatus***		
3. ***Senga punctatusae n. sp.***	3. ***Wallago attu***		

Wallago attu

Mastacembalus armatus

Channa punctatus

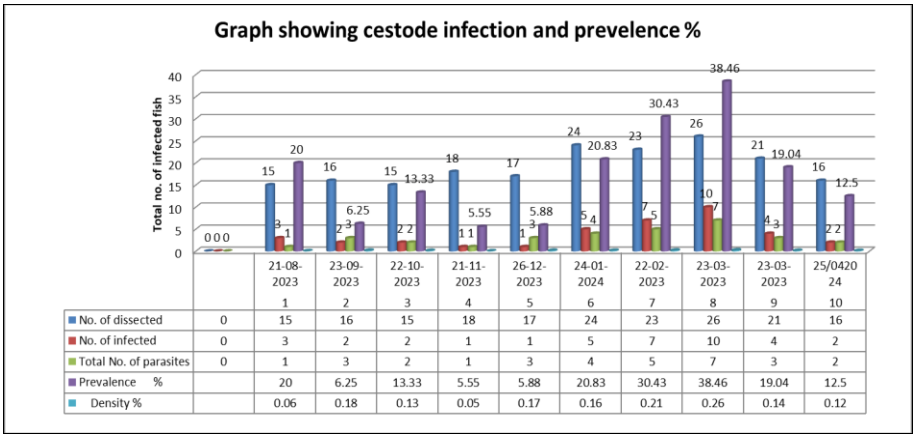
In the Present study, freshwater fishes from yeldari dam infected with cestode parasite were recorded high incidence of cestode infection in all these host were recorded high prevalence of cestode infection in April month and it was 38.46%, in March month 30.43% and followed by Feb 20.83% and also least in month of January 2024 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 *Clariasbatrachus* in summer season.

Bhure and Nanware, 2014 [5] reported high cestodes infection from Channa puntatus 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 Somthana Dam

Sr. No	Month & Year (DD/MM/YY)	No. of dissected Hosts	No. of infected Hosts	Total No. of parasites collected	Prevalence %	Density %
1	21/08/2023	15	03	01	20.00	0.06
2	23/09/2023	16	02	03	06.25	0.18
3	22/10/2023	15	02	02	13.33	0.13
4	21/11/2023	18	01	01	05.55	0.05
5	26/12/2023	17	01	03	05.88	0.17
6	24/01/2024	24	05	04	20.83	0.16
7	22/02/2023	23	07	05	30.43	0.21
8	23/03/2023	26	10	07	38.46	0.26
9	23/03/2023	21	04	03	19.04	0.14
10	25/042024	16	02	02	12.50	0.12



Conclusion

Freshwater fishes infected by cestode parasite are positively correlation 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.

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