

## Studies on helminth parasites of fresh water fishes in Nathsagar reservoir, Paithan, Aurangabad district

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### Abstract

Freshwater fishes from Nathsagar reservoir, Paithan, Dist. Aurangabad (M.S.) were collected from June 2004 to May 2006. The 1296 fishes were observed from helminthic infections, out of them 761 fishes (58.71%) were infected with helminth parasites. Thirty six species of helminthes were recovered throughout the investigation i.e. 10 species of the trematodes include the genera *Genarchopsis*, Ozaki, 1925; *Orientochreadium*, Tubangui, 1931; *Oudhia*, Dayal *et al.* Gupta, 1954; *Phyllodistomum*, Braun, 1899 and *Macrotrema*, Gupta, 1931. 20 species of the cestodes included six genera i.e. *Lytocestus*, Cohn, 1908; Senga, Dollfus, 1934; Shinde, 1968; *Proteocephalus*, Weinlend, 1858; *Gangesia*, Woodland, 1924 and *Silurotaenia*, Nybelin, 1942. And six species of the nematodes included two genera. *Rhabdochona*, Railliet, 1961 and *Camalanus*, Yeh, 1960. The high prevalence (75.69%) occur in summer season where low prevalence (37.5%) in monsoon season. The *Mastacembellus armatus* is highly infected (64.58%) with helminth parasites.

**Keywords-** *Helminth parasites, prevalence, Nathsagar reservoir, freshwater fishes.*

### Introduction

Nathsagar reservoir is one of the major irrigated project in Maharashtra State. It has been constructed across the river Godavari. The catchment area of this dam is 21,750 km<sup>2</sup>. Helminth parasites (cestodes, trematodes and nematodes) were collected from Nathsagar reservoir, Paithan. Parasitic infection may occur with man and animals. From the present investigations, the results will be the key for identifying the helminthes and controlling of helminthes infecting fishes.

### Material and methods

Freshwater fishes were collected from different sites of Nathsagar dam during June 2004 to May 2006. The helminthes were collected, preserved, processed to a permanent slide and identified under a compound microscope, drawings are made-up with the aid of camera lucida and identified by Prof. B.V. Jadhav. Parasites distribution, host specificity, prevalence of helminthic infections were studied and recorded.

### Results and Discussion

There were 1296 fishes of 09 species observed with helminthic infection. 36 species of helminthes were recovered. The ten species of monogenea trematodes were *Genarchopsis piscicola*, *G. ozakii*, *Orientocradium dayali*, *p. Phillppai*, *O. clariae*, *O. mahendrai*, *O. vermai*, *Oudhia horai*, *Phyllodistomum singhiai* and *Macrotrema macroni*. The twenty species of cestodes were *Lytocestus indicus*, *L. clarie*, *L. teranesnsis*, *L. bartrachusae*, *Senga maharashtrii*, *S. mohekarae*, *S. gachuae*, *S. paithanesis*, *Circumnobothrium aurangabadensis*, *C. alii*, *C. yamaguti*, *C. ophiocephali*, *C. khami*, *Proteocephalus vitellaris*, *P. gobiolum*, *gangesia maharashtrii*, *G. dharurensis*, *G. mastacemali*, *Silurotaenia macroni* and *S. godavari*. Six species of nematodes were *Rhabdochona singhi*, *R. Mazeedi*, *R. alii*, *R. sailuensis*,

*Camallanus anafantis* and *C. unispiculus*. All worms of present investigation are shown in Table 1 with hosts.

**Prevalence-** The prevalence results are shown in Table-2. The higher prevalence occur in summer season (75.69%) followed by winter season (62.96%) and rainy season (37.5%). Because high temperature & sufficient moisture needed for the development of parasites. The higher incidence occur in host *Mastacembellus armatus* (64.58%), where as lower in *Wallago attu* (57.38%). Because these infections are host specific & morphological, physiological and ecological factors affect the host specificity. The valuable information pertaining to the influence of season on the helminth parasites was contributed by served workers like Tornquist (1931) who described about the systematic method of occurrence of certain fish parasites *Camallanus lacustris* that the infective stages invade the host during summer, the growth and maturation take place during autumn & winter and release of their infective progeny occurs during summer. According to Gibbons (1976), heavier incidence of nematodes occurs during late spring or summer month. Kennedy (1968) reported that the temperature is the major factor in controlling the seasonal distribution of many parasites.

The present investigations also occur such type of results i.e. high infection as well as prevalence occur in summer months. The population investigations can prove data for the prediction of integrated methods to achieve the regulation of number of harmful parasites, because it has been stated that a single method of control or co-ordination activities are of little value since they ameliorate the infection (Kennedy, 1975 and 1978). This type of result indicates the morphological, physiological and ecological factor (seasons) affecting the distribution of parasites.

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**Table-1: Helminths and their fish host**

Helminths	Hosts
<b>Trematoda</b>	
1. <i>Genarchopsis piscicoal</i> (Srivastava, 1933)	<i>Channa punctus</i>
2. <i>G. ozakii</i> (Bashirullah et.al.1972)	<i>Channa punctus</i>
3. <i>Orientocreoditium dayali</i> (Dayal, 1949)	<i>Channa punctus</i>
4. <i>O. philippai</i> (Gupta, 1957)	<i>Channa punctus</i>
5. <i>O. clariae</i> (Chatterji, 1933)	<i>Clarias fatrachus</i>
6. <i>O. mahendrai</i> (Gupta, 1951)	<i>Clarias batrachus</i>
7. <i>O. vermai</i> (Gupta,1951)	<i>Clarias batrachus</i>
8. <i>Oudhia horai</i> (Dayal et. Gupta, 1951)	<i>Heteropneustes fossilis</i>
9. <i>Phyllodistomum singhiai</i> (Gupta, 1951)	<i>Mastacembellus armatus</i>
10. <i>Macrotrema macroin</i> (Gupta, 1951)	<i>Macronus cavasius</i>
<b>Cestoda</b>	
11. <i>Lytocestus indicus</i> (Moghe, 1925)	<i>Clarias batrachus</i>
12. <i>L. clarias</i> (Tandon <i>et al.</i> , 2005)	<i>Clarias batrachus</i>
13. <i>L. teranaensis</i> (Kadam <i>et al.</i> , 1999)	<i>Clarias batrachus</i>
14. <i>L. batruchusae</i> (Pawar <i>et al.</i> , 2002)	<i>Clarias batrachus</i>
15. <i>Senga maharashtrii</i> (Jadhav <i>et al.</i> , 1991)	<i>Mastacembellus armatus</i>
16. <i>S. mohekarai</i> (Tat <i>et al.</i> ,1997)	<i>Mastacembellus armatus</i>
17. <i>S. gachuae</i> (Jadhav <i>et al.</i> , 1991)	<i>Mastacembellus armatus</i>
18. <i>S. paithanensis</i> (Kadam <i>et al.</i> ,1981)	<i>Mastacembellus armatus</i>
19. <i>Circumonobothrium aurangabadensis</i> (Jadhav <i>et al.</i> ,1979)	<i>Mastacembellus armatus</i>
20. <i>C.yamaguti</i> (Jadhav <i>et al.</i> , 1990)	<i>Mastacembellus armatus</i>
21. <i>C. ophioccephali</i> (Shinde, 1968)	<i>Mastacembellus armatus</i>
22. <i>C. attii</i> (Shinde <i>et al.</i> ,1994)	<i>Mastacembellus armatus</i>
23. <i>C. Khami</i> , (Shinde, 1977)	<i>Mastacembekkus armatus</i>
24. <i>Proteocephalus vitellaris</i> (Verma, 1929)	<i>Mystus seanghala</i>
25. <i>P. gobiiorum</i> (Dogell <i>et al.</i> , 1939)	<i>Mystus seanghala</i>
26. <i>Gangesia maharashtrii</i> (Jadhav <i>et al.</i> ,1995)	<i>Wallago attu</i>
27. <i>G. dharurensis</i> (Jadhav <i>et al.</i> , 1997)	<i>Wallago attu</i>
28. <i>G. mastacembali</i> (Wankhede, 2004)	<i>Wallago attu</i>
29. <i>silurotaenia macroni</i> (Shinde <i>et al.</i> , 1984)	<i>Mystus seenghala</i>
30. <i>S. gondavari</i> (Wankhede <i>et al.</i> , 2002)	<i>Mystus seenghala</i>
<b>Nematoda</b>	
31. <i>Rhabdochona singhi</i> (Ali, 1956)	<i>Laboe rohita</i>
32. <i>R. mazeedi</i> (Parsad <i>et al.</i> ,1965)	<i>Laboe rohita</i>
33. <i>R. alii</i> (Kalyankar, 1972)	<i>Laboe rohita</i>
34. <i>R. sailuensis</i> (Khadap <i>et al.</i> , 2004)	<i>Laboe rohita</i>
35. <i>Camalanus anabantis</i> (Pearse, 1933)	<i>Channa gachua</i>
36. <i>C. unispictus</i> (Khera, 1956)	<i>Channa gachua</i>

**Table 2- Total number and total prevalence (%) of infected fishes in Nathsagar Reservoir, Paithan.**

Name of Host	No. of Host dissected				No. of host infected				Prevalence(%)			
	M	W	S	T	M	W	S	T	M	W	S	T
<i>Channa punctatas</i>	48	48	48	144	18	26	34	78	37.30	54.16	70.83	54.86
<i>Heteropneustus fossiliss</i>	48	48	48	144	17	28	37	82	37.41	58.33	77.08	56.94
<i>Mastacembellus armatus</i>	48	48	48	144	20	33	40	93	41.66	68.75	83.33	64.58
<i>Clarisa batrachus</i>	48	48	48	144	20	37	35	92	41.66	77.68	72.91	63.88
<i>Macronus cavasius</i>	48	48	48	144	19	34	39	92	39.58	70.83	81.25	63.88
<i>Wallago attu</i>	48	48	48	144	16	24	34	74	33.33	50.00	70.83	51.38
<i>labeo rohita</i>	48	48	48	144	17	29	36	82	35.41	60.41	75.00	56.94
<i>Mystus seenghala</i>	48	48	48	144	18	31	35	84	37.50	64.58	72.91	58.33
<i>Channa gachua</i>	48	48	48	144	17	30	37	84	35.41	62.25	58.33	58.33
Total	432	432	432	1296	162	272	327	761	37.5	62.96	75.69	58.79

M- Monsoon season, W- Winter season, S- Summer season, T- Total.

