

## Diversity of Fish Nematodes of Utra Lake in Manipur

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### Abstract

Fishes of Utra lake in Manipur were investigated for parasitic infection. *Anabas testudineus*, *Channa orientalis*, *Clarias batrachus*, *Colisa labiosus* were found to be infected by the nematode parasites. The fish nematode *Camallanus anabantis* was found to be of high abundance (52.6%) while *Procamallanus sussobranchi* was found to be of low abundance (2.2%).

**Key words :** Nematodes, Fishes, Helminth, Utra Lake.

In recent times there has been increasing interest in fish nematodes. The identity of fish nematodes has to be established to formulate effective treatment of a nematode disease or control measures of prophylactic nature. Fish being the important and easily digestible source of nutrition are prone to a variety of nematode infection. Such infections not only deteriorate the muscle quality but sometimes damage the fish as a result of internal injury.

Utra Lake is an old eutrophic wetland located at about 20 km on the south-western side of Imphal in Bishnupur district. It is situated between 24° 25' N-24° 40' N latitude and 93° 45'—93° 55' E and is located above 783 m above the MSL. The total surface area of lake is about 36.6 ha (90.4 acre). The dimensions are found to be maximal in the rainy seasons. When the maximum length and breadth measures approximately 0.71 km and 0.494 km respectively, the depth of the water varies from a minimum of 0.68 m to a maximum of 2.18 m during different seasons of year and the average depth is estimated as 1.43 m.

Chubb (1—4) illustrated the studies of seasonal occurrence of helminthes in freshwater fishes in different climatic zones of the world. Work of Yamaguti (5, 6) related to the occurrence of helminth parasite in vertebrate host is of immense importance zones of the world. Agarwal (7) described some trematode parasites of freshwater fishes from Lucknow. Tondon (8) studied on helminth parasites of Indian fishes.

Shomorendro and Jha (9) studied the acanthocephalan parasites of certain fishes from Manipur. Kar (10) made detailed study of the limnology and ichthyofauna of the waterbodies of north-east (NE) India including diseases in fishes. Kar and Sen (11) studied the systematic list and distribution of fish biodiversity in Mizoram, Tripura and Barak drainage in north east India. Kar et al. (12) studied on the panorama of fish biodiversity in certain rivers and wetlands and protected areas in Assam. Kar et al. (13) studied on the effect of length of fish on the occurrence of nematode and acantocephalan parasites.

(The authors are thankful to the Director, ZSI, Kolkata; Assam University, Central; Silchar and Principal, Thambal Marik College, Oinam for giving laboratory facilities. Thanks are due to S. R. Dey Sarkar and Dr S. B. Bhattacharya of ZSI, for identifying the specimens and to UGC, New Delhi for granting UGC-fellowship to the first author).

### Methods

The fishes were collected live and carried in containers to the laboratory in polythene bags containing water of the same locality. The external and internal organs were thoroughly examined for the nematode parasites. After being fully relaxed the collected nematodes were fixed and stored in 70% alcohol. To

**Table 1.** Nematode species showing the percentage of abundance in some fishes of Utra lake, Manipur. (+) indicates presence, (-) indicates absence. A=*Anabas testudineus*, B=*Channa orientalis*, C=*Clarias batrachus*, D=*Monopterus albus*, and E=*Syphacia* sp.

Name of the nematodes	Name of the fish host					Total no. of worms found	Percent of abundance
	A	B	C	D	E		
1. <i>Camallanus anabantis</i>	+(250)	+(50)	-	+(1)	-	301	52.6
2. <i>Paraquimperia manipurensis</i>	+(60)	-	-	-	-	60	10.4
3. <i>Procamallanus succobranchi</i>	-	-	+(13)	-	-	13	2.2
4. <i>Paragendria</i> sp.	-	+(68)	-	-	-	68	11.8
5. <i>Chabaudus</i> sp.	-	+(40)	-	-	-	40	6.9
6. <i>Syphacia</i> sp.	-	-	-	-	+(90)	90	15.7
Grand Total						572	

facilitate identification of the worms they were cleared in lactophenol and mounted in glycerine gelly.

### Results and Discussion

In 189 fishes examined belonging to three different orders 142 specimens (75.1%) were parasitized by one or more species of nematodes (Tables 1 and 2). A total of 572 nematode species were found infected in the fishes. The prevalence of infection is highest in *Anabas testudineus* (95.8%) and lowest in *Monopterus albus* (33.3%). However, there is no report of infection in *Colisa labiosus* and *Clarias batrachus* by the *Camallanus* sp.

**Table 2.** Host-parasite list and prevalence of infection.

Fish hosts	Name of the nematode	No. of fishes examined	No. of fishes infected	No. of nematodes found	Prevalence
					Percent of infection
<i>Anabas testudineus</i>	<i>Camallanus</i> sp.,	72	69	250	95.8
<i>Channa orientalis</i>	<i>Paraquimperia</i> sp.,				
	<i>Camallanus</i> sp.,	39	20	50	51.2
	<i>Paragendria</i> sp.,			68	
	<i>Chabaudus</i> sp.,			40	
<i>Monopterus albus</i>	<i>Camallanus</i> sp.	3	1	1	33.3
<i>Colisa labiosus</i>	<i>Syphacia</i> sp.	50	42	90	84.0
<i>Clarias batrachus</i>	<i>Procamallanus</i> sp.	25	10	13	40.0
Total		189	142	572	

### References

- Chubb J. C. 1977. Seasonal occurrence of helminth parasites in fishes. Part I. Monogenea. *In Advances in parasitology*. Academic Press, New York, USA. 15 : 133—199.
- Chubb J. C. 1979. Seasonal occurrence of helminth parasites in fishes. Part II. Trematoda. *In Advances in parasitology*. Academic Press, New York, USA. 17 : 171—313.
- Chubb J. C. 1980. Seasonal occurrence of helminth parasites in fishes. Part III. Larval Cestode and Nematoda. *In Advances in parasitology*. Academic Press. New York, USA. 18 : 1—120.
- Chubb J. C. 1982. Seasonal occurrence of helminth parasites in fishes. Part IV. Adult Cestoda, Nematoda and Acanthocephala. *In Advances in parasitology*. Academic Press. New York, USA. 20 : 1—292.
- Yamaguti S. 1958. *Systema Helminthum Volume 1. The digenetic trematodes of vertebrates*. Interscience, New York, USA.
- Yamaguti S. 1961. *Systema Helminthum Volume III. The nematode of vertebrates Part I and II*. Interscience, pp. 1—1261.
- Agarwal V. 1966. Studies on some trematode parasites of freshwater fishes from Lucknow. *Ann. Parasitol. Hum Camp.* 41 : 217—237.
- Tondon V. I. 1982. Studies of helminth parasites of Indian fishes. Ph.D. thesis, Lucknow Univ., Lucknow, India.
- Shomorendra M. and A. N. Jha. 2009. Acanthocephalan parasites of certain fishes from Manipur, India : One known species of genus *Pallisentis* and one new species of genus *Acanthocephalus*. *Uttar Pradesh J. Zool.* 29 : 1—6.
- Kar D. 2007. Fundamental of limnology and aquaculture and biotechnology. Daya Publ. House, New Delhi, India. 609 pp.
- Kar D. and S. Sen. 2007. Systematics list and distribution of fish biodiversity in Mizoram, Tripura and Barak drainage in north east India. *Zoos Print J.* 22 :

- 2599—2607.
12. Kar D., A. H. Barbhuiya, A. R. Baruah, C. Choudhury, P. Banerjee, K. Paul, A. Bhattacharjee, R. Saikia, B. Das, R. Barman and B. Saha. 2008. Panorama of fish diversity in certain rivers, wetlands and protected areas in Assam. *Geobios* 36 : 57—64.
  13. Kar D., A. H. Barbhuiya. 2009. Mahseer Fishes of Barak Drainage, Mizoram and Tripura. Souvenir : Nat. Symp. on Coldwater Fisheries Management : New Strategies and Approaches, 2—4 Oct 2009. Direct. Coldwater Fish. Res., ICAR, Bhaimtal, Uttarakhand, India. 77—80 pp.