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Studies on Prevalence of Cestode Parasites of Freshwater Fishes from Nanded Region (M.s.) India

KEYWORDS: Cestode parasites, density, freshwater fishes, Nanded region, prevalence

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ABSTRACT *Four hundred thirty eight specimen of freshwater fishes i.e. Mastacembelus armatus, Mystus seenghala,Wallago attu, Channa puntatus ,Channa gacua, Channa stratius, Clarias batrachus, Cirrihana mrigala from different places of Nanded region were examined using hand lenses and microscope between June-2011 to May-2012 for cestode parasites. Total 200 of these were infected. Cestode parasites recovered were Senga, Polyonchobothrium, Proteocephlus, Silurotaenia, Bothiocephalus, Gangesia. Result of present study indicates that adults were more infected than juveniles and males were more infected than females. The prevalence of infection rate was high in summer season (February to May) and monsoon Season (July to October).and low in Winter Season (November to January). This type of results indicated that environmental factors and feeding habitat are influencing the seasonality of parasitic infection*

INTRODUCTION

Fish is rich source of protein .It contains lipid, minerals, oils and vitamins. Fish culture provides a large reservoir of parasitic pathogen in freshwater fishes. In most part of the world, fish production is mainly from the wild. As the world population grows, fish resources are being depleted at an increasing rate as a result of environmental degradation ,over harvesting , population thus fish production could no longer meet the demand of the growing population. Since human utilizes these fishes, it is important that they should be healthy and free of infection. The parasitic infections are sometimes very fatal and cause high mortalities (Ahmed, 1994) when intermediate hosts support their life cycle. For successful prevention and elimination of such infections, it is extremely important to achieve early and correct diagnosis of the larval stages of the parasites for which fish constitute the final host. Freshwater fish serve as definitive and intermediate hosts in the life cycles of many helminth parasites (Schimdt, 2000). Parasites affect fish health, growth, and survival. The cestode parasite causes many dangerous and serious diseases to the host. The investigation deals with studies on prevalence of cestode parasites in the freshwater fishes of Nanded region.

MATERIAL AND METHODS

The freshwater fishes were collected from different localities of Nanded region during the period of June-2011 to May-2012. Fishes were opened up ventrally and expose the internal part of fishes. The entire digestive system with intestine was removed and placed in Petri dish with physiological saline. Infection of parasites was treated as follows. Collected cestode were first relaxed and then fixed in 4 % hot formalin and stained using Borax carmine (Alcoholic) for morphological study. Stained parasites were dehydrated in ascending grades of alcohol, cleared in xylene, mounted in D.P.X. Drawings were made using a Camera Lucida (Francis Weesner, 1964).The parasites were identified by using the texts of Yamagutti (1959 and 1961).

Population dynamics of helminth parasites were determined by following formulae

$$\text{Prevalence of infection} = \frac{\text{Infected host}}{\text{Total host examined}} \times 100$$

$$\text{Density of infection} = \frac{\text{No. of parasites collected in sample}}{\text{Total examined host}}$$

RESULTS

The present result shows high incidence occurs in summer season and monsoon season where as low incidence were recorded in winter season. The survey was carried out with 459 Freshwater fishes in which *Mastacembelus armatus, Mystus seenghala, Wallago attu, Channa puntatus (Bloch), Channa gachua, Channa straitus, Clarias batrachus,Cirrihana mrigala* from various localities of Nanded region. Out of 438 freshwater fishes 200 were infected with cestode found in annual cycle from June-2011 to May-2012. The parasitic examination was carried according to Lucky (1977). The intensity of infestation of each species, the host – specificity and the variation in the infestation of fishes were discussed. They were belonging with six genera i.e. *Senga sp., Gangesia sp., Proteocephalus sp., Bothriocephalus sp., Polyonchobothrium sp., Ptychobothrium sp.* The values for the incidence, density of infection in table No.1

Table No. 1 prevalence of cestode parasites from freshwater fishes during the period June 2011 to May 2012 from Nanded region.

Sr. No.	Month & year	No of host examined	No of host infected	No of cestode parasites collected	Prevalence %	Density of infection	Locality
1	June, 2011	20	02	04	10 %	0.20	Godavari river
2	July, 2011	40	16	26	40%	0.65	Godavari river

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3	August, 2011	50	25	34	50%	0.68	Asna river
4	September, 2011	45	25	30	55.55%	0.66	Vishnupuri dam
5	October, 2011	35	15	22	42.85%	0.62	Vishnupuri dam
6	November, 2011	20	5	10	25%	0.50	Asna river
7	December, 2011	25	08	12	32%	0.48	Bhategaon dam
8	January, 2012	27	07	14	25.92%	0.52	Bhategaon dam
9	February, 2012	39	19	25	48.72%	0.64	Asna River
10	March, 2012	41	22	27	53.66%	0.66	Vishnupuri dam
11	April, 2012	47	29	33	57.78%	0.70	Godavari river
12	May, 2012	49	27	33	55.10%	0.67	Godavari river
Total		438	200	270	41.38%	0.58	

Figure 1: Prevalence of cestode parasites from freshwater fishes during the period June 2011 to May 2012 from Nanded region.

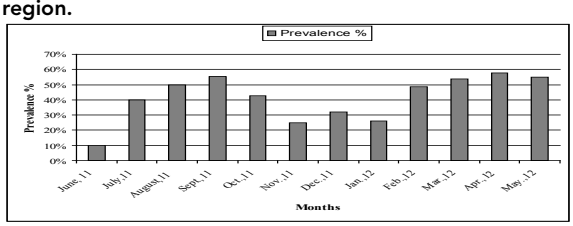
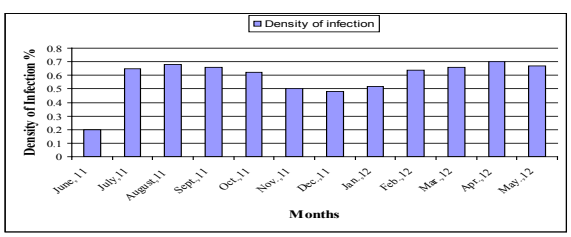


Figure 2: Density of infection of cestode parasites from freshwater fishes during the period June 2011 to May 2012 from Nanded region.



DISCUSSION

The present result shows high incidence occurs in summer season and monsoon season where as low incidence were recorded in winter season. The valuable information pertaining to the influence of season on the cestode parasite was contributed by several workers. The results of present study are partially in agreement with those conducted by Kasar et al., 2012 reported high prevalence of *Valipora singhii* from *Columba livia* is in summer season followed by winter and minimum in rainy season. Bhure et. al., 2010 observed high incidence, intensity, density and index of infection of *Silurotaenia raoii* in summer season followed by winter season whereas lower infections in monsoon season. Jadhav and Bhure, 2007 explained the development of parasites should be needed high temperature, low rainfall and sufficient moisture. Hence the high prevalence occurs in summer followed by other season. Environmental variation and its pollution influenced by existence and survival of parasites. The development of hosts as well as parasites should be needed high temperature and sufficient moisture. The morphological factors are those which like a parasite with its host at the site of attachment (Agarwal, 2006). The ecological factors means distribution and environment of the host and Physiological factors means the diet and mode of feeding (Kenndy, 1976). Bhure et. al.,2010 studied A survey of the population ecology of *Rhabdochona* Ralliet, 1916 (Nematoda-Rhabdochonidae) from *Labeo rohita (Ham. and Buch.)* his result indicate that the high incidence of infection (51.78%), intensity of infection (1.18%) and density of infection (0.613%) of *Rhabdocona sp.* occur in summer season followed by winter season and rainy season. This type of results indicated that environmental factors and feeding habitat are influencing the seasonality of parasitic infection.

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