

REVIEW OF RESEARCH

IMPACT FACTOR : 5.7631(UIF)

ISSN: 2249-894X

VOLUME - 1 | ISSUE - 1 | MARCH - 2019

STUDIES ON PREVALENCE OF CESTODE PARASITES IN FRESHWATER FISHES FROM PARBHANIDISTRICT (M.S) INDIA

Deshmukh Shaziya Sultana K. A.* and J. M. Gaikwad** deshmukhshaziya8@gmail.comandgaikwadjaiprakash9@gmail.com *Deptof Zoology, ShriShivaji College, Parbhani(M.S) India. **Deptof Fishery Science, ShriShivaji College, Parbhani(M.S) India.

ABSTRACT :

The present investigation deals with the preliminary survey of three Piscean cestode parasites viz. Senga sp., Circumonchobothria sp. and Gangesia sp.collected from the intestine of a freshwater fishes like Cyprinuscarpio, Cirrhinamrigala, Wallgoattuandchannasp at different collection sites of Parbhani district (M.S.) India during June, 2012 to May, 2013. The high incidence of infection of all these species Senga sp., Circumonchobothria sp., Gangesia sp. was recorded in summer season (33.33%, 31.81 % &28.57 % respectively) followed by winter season (27.27 %, 20.83% & 23.52% respectively) whereas infection was low in monsoon season (15.78%, 10.52% & 18.75% respectively). The results of present study clearly indicate that environmental factors and feeding habitat influence the seasonality of parasitic infection either directly or indirectly.

KEYWORDS: Cestode parasite, Senga sp., Circumonchobothria sp. and Gangesia sp., freshwater fishes, Parbhani.

INTRODUCTION:

Cestoda is the name given to a monophyletic assemblage, commonly called tapeworms, of exclusively parasitic platyhelminths. Cestode is elongated and dorso ventrally flattened. Generally body divided into Scolex, Neck and Proglottids. The anterior most region is the scolex. Scolex serves as an organ of attachment to the host intestinal mucosa. Scolex followed by undifferentiated neck. Neck may be short or long. Neck continues with long Proglottids. The body of cestode is usually divided into segments or proglottids except in Carryophyllidae, and amphilinids. 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 are harmophrodite that is both male and female reproductive organ present in each proglottids.

In the present study, the prevalence of a helminth parasite (cestode) is investigated in freshwater cultivable fishes from Parbhani district (M.S) India .

MATERIAL AND METHODS

In the present study, intestines of various freshwater fishes like*Cyprinuscarpio*, *Cirrhinamrigala*, *Wallgoattu* and *channasp* were examined for cestode infection during the study period of June, 2012 to May, 2013 from Parbhani district, M. S., India. Cestodes were collected, preserved in 4% formalin, stained with Harris hematoxylin, dehydrated through a series of ascending alcoholic grades, cleared in xylene and mounted in D.P.X. These Cestodes were identified by standard methods by Schmidt Gerald D. [1934], Yamaguti, S. [1956]. On taxonomic observations the Cestodes are identified as *Senga sp., Circumonchobothria sp.* and *Gangesia sp.*, Obtained data were recorded; processed for study of seasonal variation.

RESULTS AND DISCUSSION

The survey was carried out with 178 freshwaterfishes, like *Cyprinuscarpio*, *Cirrhinamrigala*, *Wallgoattu* and *channasp* from various water bodies of Parbhani district. Out of 178 freshwater fishes 42 were infected with cestode, as found in annual cycle from June 2012 to May 2013. Results of present study showing prevalence of pisceancestodes are presented in Table 01.

Three species of cestode parasites were recorded viz, Senga sp., Circumonchobothria sp. and Gangesia sp. It was found that, high incidence of infection of all these species were recorded in summer (33.33%, 31.81 % & 28.57 % respectively) followed by winter (27.27 %, 20.83% & 23.52% respectively) whereas infection was lowest in monsoon season (15.78%, 10.52% & 18.75% respectively) as shown in Graph 01. The present results shows high incidence occurs in summer season followed by winter season where as low incidence were recorded in monsoon season. The valuable information pertaining to the influence of season on the cestode parasite was contributed by several workers. Bhure et al., 2010, noticed high prevalence (51.78%) of Rhabdochona sp. from carp fish Labeorohita in summer followed by winter and rainy season. High prevalence was recorded with high intensity and index of infection of Silurotaeniaraoii in summer followed by winter whereas infection was lowest in monsoon (Bhure and Nanware, 2010). Borde and Jawale, 2012 reported high cestodes infection (45.33%) from Clariasbatrachus in summer season. Jadhav and Bhure, 2006 reported environmental conditions determine the general characters of the parasitic fauna and the health of host fishes. Bhure and Nanware (2014) also reported high cestodes infection from Channapuntatus in summer season. These environmental variables include high temperature, low rainfall, sufficient moisture, water temperature, crowding that are necessary for development of parasite. High prevalence occurs in summer followed by other seasons (Sharma et al. 2010). Factors like temperature, humidity and rainfall, feeding habits of host, availability of infective host and parasite maturation are responsible for influencing the parasitic infections (Khan, 2012). The parasitic fauna, its composition, the incidence and intensity of infestations it produces, are largely determined by the host's mode of life and type of food (Kennedy, 1975 and 1976). According to Pennyuick, 1973, fishes were infected with large number of parasites in late winter to end of summer months, as ecological factors are favorable in these months. Simková et al., in 2005 during their investigation states that the increase in cestode infection in spring supports the hypothesis that the parasite life cycle could by synchronized with the beginning of host reproduction, probably induced by increasing fish hormone levels in the spring. According to Eure, 1976; Changes in the fish feeding behavior and annual temperature regime have been considered as the principal factors responsible for the seasonal incidence and intensity pattern of parasites.

CONCLUSION

In the present study, recorded data shows high incidence of infections of all the cestode species were recorded in summer followed by winter where as low in monsoon season. The results clearly indicate that environmental factors and feeding habitat influence the seasonality of parasitic infection either directly or indirectly

if convert homes					
Parasite species	Season	No. of host examine	No. of host infected	Total No. of parasites collected	Prevalence %
Senga sp.	Monsoon	19	02	05	10.52%
	Winter	24	05	09	20.83%
	Summer	22	07	15	31.81%
Circumonchobothria	Monsoon	19	03	06	15.78%
sp.	Winter	22	06	14	27.27%
	Summer	18	06	11	33.33%
Gangasia sp.	Monsoon	16	03	05	18.75%
	Winter	17	04	09	23.52%
	Summer	21	06	13	28.57%

 Table 1. Seasonal variation of Senga sp., Circumonchobothria sp. and Gangesiaspin freshwater fishes



Fig 1: Graph showing prevalence of Piscean tapeworms of freshwater fishes during different seasons.

REFERENCES

- Bhure, D.B. abdNanware. S.S., (2010). Population Dynamics of Silurotaeniaraoii from *Mystusseenghala*. The Ecosphere (An International Biannual Journal of Environment and Biological Sciences). 2(1abd2):9-12.
- Bhure, D.B., Nanware, S.S., Kardile, S.P., abdDhondge, R.M. (2010). A survey of the population ecology of *RhabdochonaRalliet*, 1916 (Nematoda ParasiticRhabdochonidae) from *Labeorohita* (Ham. and Buch.). The Ecosphere (An International Biannual Journal of Environment and Biological Sciences), 1(1) 12-24.
- Bhure. D.B. and Nanware. S.S. (2014). "Studies on prevalence of cestode parasites of freshwater fish, *Channapunctatus*. Journal of Entomology and Zoology Studies, 2 (4): 283-285
- Borde, S.N., and Jawale, S.S. (2012). Population dynamics of caryophyllidean tapeworms in *Clariasbatrachus* from Aurangabad district (MS) India. Trends in Parasitology Research, 1(1), 25-28.
- Eure, H. (1976). Seasonal abundance of *Proteocephalusambloplitis* (Cestoidea: Proteocephalidea) from largemouth bass living in a heated reservoir. Parasitology, 73 (02), 205-212.
- ✤ Jadhav, B.V., and Bhure, D.B. (2006). Population dynamics of helminth parasites in freshwater fishes from Marathwada region (MS) India. Flora and Fauna, 12: 143-148.
- Kennedy, C.R. (1975). Ecological animal parasitology. Oxford, Blackwell Scientific Publications.
- Kennedy, C.R. (1976). Ecological aspects of parasitology. North Holland publishing company Amsterdam Ox ford .Simková et al., in 2005
- Khan, R.A. (2012). Host-parasite interactions in some fish species. Journal of Parasitology Research, http://dx.doi.org/10.1155/2012/237280
- Pennyuick, K.L. (1973). Seasonal variation in the parasite population of three spined stickle backs. Gasterosteusaculeatus L. Parasitology, 63: 373-388.
- Schmidt, G.D. (1986). CRC handbook of tapeworm identification. CRC Press, Inc..
- Sharma, B., Arora. N. and Singh. D.D. (2010). Population dynamics of Carryophyllidcestode LytocestusFossilisi (Gupta, 1961) from Clariasbatrachus in Meerut (U.P). J.Env. Biosci, 24 (1): 99-101.
- ♦ Yamaguti S.(1959). SystemaHelminthum. II. The Cestodes of Vertebrates. Intescience Publ., N.Y. 860.