



STUDIES ON INCIDENCE OF INFECTION OF CESTODE PARASITES FROM MASTACEMBELUS ARMATUS

Dhanraj Balbhim Bhure and Sanjay Shamrao Nanware

Department of Zoology (UG &PG), Yeshwant Mahavidyalaya, Nanded 431 602 M. S., India
drajbhure82@gmail.com, snanware@rediffmail.com

ABSTRACT :

Present investigation deals with the preliminary survey of cestode parasites collected from the intestine of a *Mastacembelus armatus* at different collection sites of Nanded district (M.S.) India during February, 2018 to January, 2019. The high incidence of infection of *Polygoncobotrium Sp.*, *Ptychobothrium Sp.* and *Senga Sp.* were recorded in Summer season (70.00%;60.00%;76.66%) followed by winter season (46.66%; 40.00%; 53.33%) whereas infection was low in Monsoon season (26.66%; 23.33%;30.00%) respectively. Results of present study clearly indicate that environmental factors and feeding habitat are influence the seasonality of parasitic infection either directly or indirectly.

Key words- Cestode parasites, Incidence of infection, *Mastacembelus armatus*, Nanded, *Polygoncobotrium Sp.*, *Ptychobothrium Sp.*, *Senga Sp.*

INTRODUCTION

This study was planned to record the incidence of infection of Cestode parasites collected from the intestine of a *Mastacembelus armatus* Seasonal prevalence were studied throughout the year dividing into three seasons, Summer (February-May), Winter (October-January) and Monsoon (June-September).

MATERIALS AND METHODS

In the present study, intestines of *Mastacembelus armatus* were examined for cestodes infection during the period of February,2018 to January,2019 from Nanded Region, M. S., India. Cestodes were collected, preserved in hot 4% formalin, dehydrated in various alcoholic grades, stained with Borax carmine, cleared in xylene and mounted in D.P.X. These Cestodes were identified by standard methods. Obtained data were recorded; processed for study of seasonal variation.

RESULTS AND DISCUSSION

The high incidence of infection of *Polygoncobotrium Sp.*, *Ptychobothrium Sp.* and *Senga Sp.* were recorded in Summer season (70.00%;60.00%;76.66%) followed by winter season (46.66%; 40.00%; 53.33%) whereas infection was low in Monsoon season (26.66%; 23.33%;30.00%) respectively. Results of present study on incidence of infection of Cestode Parasites are presented in Table 01; 02 &03 and Figure 01; 02 &03.

Table 1-Incidence of infection of *Polyoncobothrium* Sp. of *Mastacembelus armatus* during February, 2018 to January,2019.

Seasons	No. of the host Examined	No. of the host Infected	Total No. parasites collected	Incidence %
Summer, (Feb.,2018-May,2018)	30	21	25	70.00%
Monsoon (June, 2018 –Sept., 2018)	30	08	11	26.66%
Winter (Oct.,2018- Jan., 2019)	30	14	17	46.66%

Table 2- Incidence of infection of *Ptychobothrium* Sp. of *Mastacembelus armatus* during February, 2018 to January,2019.

Seasons	No. of the host Examined	No. of the host Infected	Total No. parasites collected	Incidence %
Summer, (Feb.,2018-May,2018)	30	20	23	60.00%
Monsoon (June, 2018 –Sept., 2018)	30	07	09	23.33%
Winter (Oct.,2018- Jan., 2019)	30	12	14	40.00%

Table 3- Incidence of infection of *Senga* Sp. of *Mastacembelus armatus* during February, 2018 to January,2019.

Seasons	No. of the host Examined	No. of the host Infected	Total No. parasites collected	Incidence %
Summer, (Feb.,2018-May,2018)	30	23	27	76.66%
Monsoon (June, 2018 –Sept., 2018)	30	09	14	30.00%
Winter (Oct.,2018- Jan., 2019)	30	16	20	53.33%

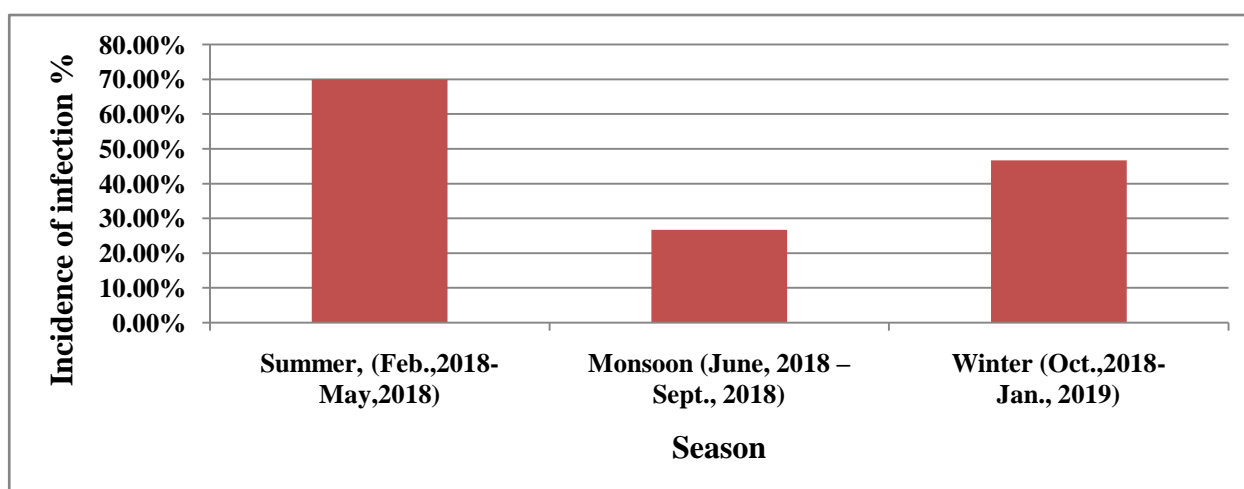


Figure1: Graph showing Incidence of infection of *Polyoncobothrium* Sp. of *Mastacembelus armatus* during February, 2018 to January, 2019.

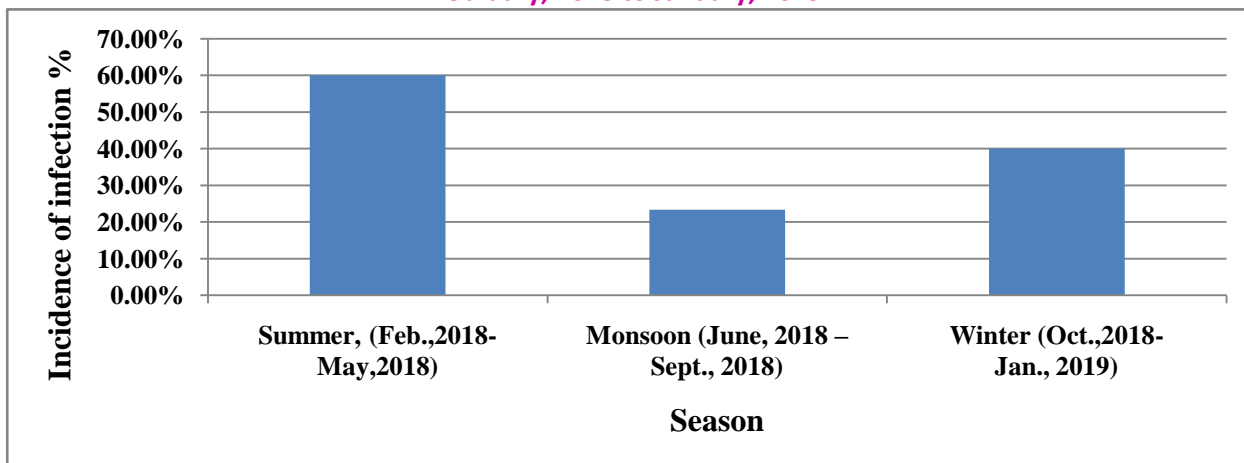


Figure2: Graph showing Incidence of infection of *Ptychobothrium* Sp. of *Mastacembelus armatus* during February, 2018 to January, 2019.

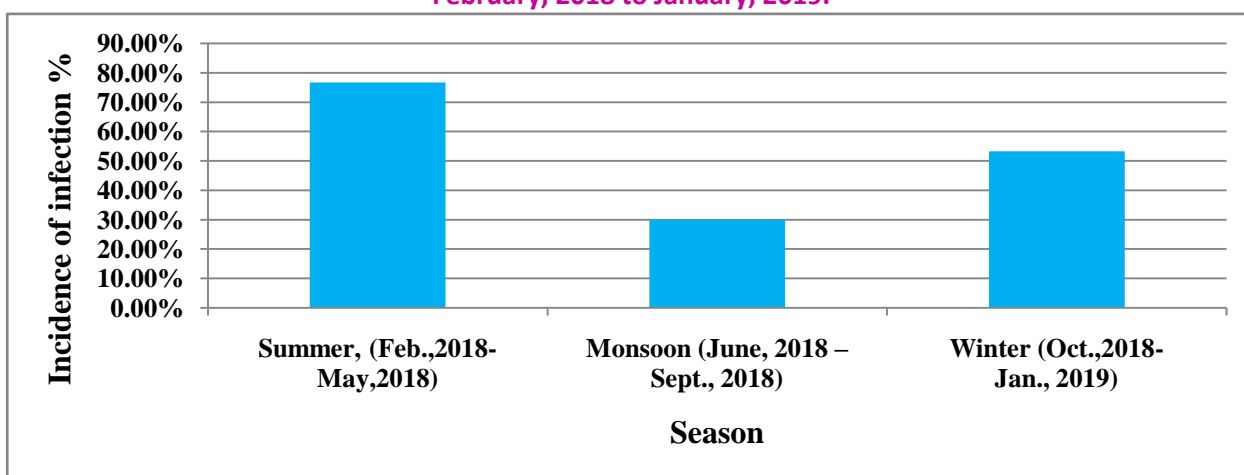


Figure3: Graph showing Incidence of infection of *Senga* Sp. of *Mastacembelus armatus* during February, 2018 to January, 2019.

Results of present study are in agreement with earlier work reported by various workers. Bhure et.al., 2007 reported high incidence of infection of Trematodes of freshwater fishes in summer season followed by winter and monsoon season. Bhure et. al., 2010 reported high incidence ,intensity, and density of *Rhabdocona* sp. and *Spinitectus* Sp.in summer followed by winter and rainy season. Shahin et.al., 2011 studied prevalence of Chicken Cestodiasis in Egypt and reported highest incidence in summer 5.54% and Autumn 5.6% and lowest incidence during Winter 3.3% and Spring 2.2%. Bhure et al., 2013 studied diversity and prevalence of avian cestodes and reported high prevalence in summer where as low in monsoon season. Bhure and Nanware, 2014 recorded high incidence of infection of *Cotugnia dignopora*, *Cotugnia diamarae* and *Raillietina (R.) domestica* in summer (75%, 67.85 % & 71.42%) followed by winter (60%, 52 % & 48%) whereas low infections in monsoon season (38.09%, 33.33% & 38.09%). Bhure and Nanware, 2014 recorded high incidence of infection of *Senga* sp., *Gangesia* sp., *Proteocephalus* sp. infected to *Channa* sp. was in summer followed by winter whereas infection was low in monsoon.

Data of present investigation shows high incidence of infections of cestodes was in summer followed by winter where as low in monsoon due to environmental factors and feeding habitat influence the seasonality of parasitic infection either directly or indirectly (Anderson ,1978,1982; Kennedy,1968,1970,1974,1976,1977; Bhure,2008).

ACKNOWLEDGEMENTS

The authors express sincere thanks to Principal, Yeshwant Mahavidyalaya Nanded for facilities provided.

REFERENCES

1. **Anderson, R.M. And May, R.M., 1978.** The regulation of the host population growth by parasite species. *Parasitology* **76**: 199-157.
2. **Anderson, R.M. And Gordon, D.M., 1982.** Processes influencing the distribution of parasite numbers within host population with special emphasis on parasite-induced host mortalities. *Parasitology* **85**: 373-398
3. **Bhure, D.B., Jadhav, B.V., Pathan, D.M. and Padwal, Nitin, 2007.** Population index of some trematode parasites in freshwater fishes from Aurangabad. *Proc. 16th All India ZSI conference, Fisheries and Fish Toxycology. Chapter -20, pp. 217-229.*
4. **Bhure, D.B., Jadhav, S.S., Supugade, V.B., Sawant, A.D. and Jadhav, B.V., 2007.** Population Dynamics of Trematode parasites in freshwater fishes from Nath Sagar reservoir at Paithan Aurangabad District. *Proc. Nat. Work. on Recent. Trends in Biotechnology. pp120-124.*
5. **Bhure Dhanraj Balbhim 2008.** Faunal diversity of helminth parasites of freshwater fishes from Maharashtra State, India. *Ph.D. Thesis, Dr. B. A.M.U.Aurangabad, M.S.India. pp.1-178.*
6. **Bhure, D.B., Nanware, S.S., Kardile, S.P. and Dhondge, R. M., 2010.** A survey of the population ecology of *Rhabdochona* Ralliet, 1916 (Nematoda-Rhabdochonidae) from *Labeo rohita* (Ham. and Buch.). *The Ecosphere (An International Biannual Journal of Environment and Biological Sciences).* **1(1)**:12-24.
7. **Bhure, Dhanraj Balbhim, Nanware, Sanjay Shamrao and Dhondge, Ramesh Mohanrao., 2010.** Studies on population dynamics of piscian nematode *Spinectectus corti* Moorthy,1938 *The Ecosphere (An International Biannual Journal of Environment and Biological Sciences).* **1(1)**:130-132.
8. **Bhure, Dhanraj Balbhim, Nanware, Sanjay Shamrao and Sunnap, Namrata V. 2013.** Status of Diversity of Cestode Parasites of Domestic Fowl (*Gallus Gallus Domesticus*) from Nanded District, Maharashtra State. *Indian Journal of Applied Research.* **Vol.3 (10)**: 28-31
9. **Bhure, Dhanraj Balbhim, Nanware, Sanjay Shamrao and Kasar C.R. 2014.** Studies on Prevalence of Cesodes Parasitizing *Gallus gallus domesticus*. *Environment Conservation Journal.* **Vol. 15 (1&2)** pp 171-175.
10. **Bhure, Dhanraj Balbhim, Nanware, Sanjay Shamrao 2014.** Studies on Prevalence of Cestode Parasites of Freshwater Fish, *Channa punctatus*. *Journal of Entomology and Zoology Studies.* **Vol. 2(4)** pp 283-285.
11. **Kennedy, C.R. ,1968.** Population biology of the Cestode *caryophyllaeus* (Pallas, 1781) in dace, *Leuciscus leuciscus* L. of the river Avon. *J. Parasitol* **54**: 538-543.
12. **Kennedy, C.R. And Hine, D.M.,1970.** Population biology of the cestode *Proteocephalus torulus* (Bat Sch) in dace *Leuciscus leuciscus* (L) of the river Avon. *J.Fish Biol.* **1(3)**: 209-219.
13. **Kennedy, C.R. ,1974.** A checklist of British and Irish freshwater fish parasites with notes on their distribution. *J. fish Biol.* **6 (5)**: 613-644.
14. **Kennedy, C.R. ,1976.** *Ecological aspects of parasitology.* North Holland publishing company Amsterdam 10x ford.
15. **Kennedy, C.R. , 1977(a).**The regulation of fish parasite populations. In regulation of parasite population 61-109.
16. **Shahin, A.M., Lebdah, M.A., Abu-Elkheir, S. A. and Elmeligy, M.M.2011.** Prevalence of Chicken Cestodiasis in Egypt. *New York Science Journal*; **4(9)**:21-29.
17. **Yamaguti, S. 1959.** *Systema Helminthum. II. The Cestodes of Vertebrates.* Intescience Publ., N.Y., pp 860.