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Nematode Parasites in a Freshwater Fish *Glossogobius giuris*(Hamilton-Buchanan, 1822) at Lower Manair Dam, KarimnagarDt. Andhra Pradesh, India.

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Abstract: *The freshwater gobid fish Glossogobius giuris were collected from Lower Manair Dam at every week and all fishes were examined for the presence of internal nematode parasite Rhabdochona garuaiin the visceral organs. On an average prevalence40.65% were found infected and 2.30 parasites are present in each individual infected and abundance is 0.92.The results indicate that the parasitic mean intensity3.14 and relative density 1.40 is quite high in January and high prevalence55.88 in October. The prevalence 10.00 and mean intensity 1.50are less in April and Relative density 0.47in June.*
Key Words: *Nematode parasites, Digestive tract, Prevalence, Mean Intensity, Relative Density*

I. Introduction

Fish helminth parasites are generally found in all freshwater fishes. The parasite prevalence and intensity depend on many factors like parasite and its life cycle, host and its feeding habits and the physical factors of water body where the fish inhabit. The parasitic diseases, either alone or in conjunction with other environmental stresses, may influence weight or reproduction of the host, alter its population characteristics and affect its economic importance (Rohde). Parasites occupy a definite position in the animal kingdom for their remarkable adaptations and damaging activities to host. The importance of parasite is related directly to the fish that may affect the general public health (Hoffman).Fish flesh is nutritionally equivalent to meat (mutton) in protein content, low in saturated fats and high in essential minerals and vitamins. To obtain healthy and quality meat fish, it is necessary that the fish should be free from all types of infections like viral, bacterial and parasitic. The nematode parasites genus *Rhabdochona* studied by Rehana R, Bilqees FM, (1973) *Rhabdochona cavasius*sp. n. from a freshwater fish *Mystus vitattus*of Kalri lake Sindh, Pakistan and a new species of the genus *Rhabdochona* from the fish *Cybium guttatum* reported by Arya, S.N and Johnson, S., (1977a).Gupta, S.P and Srivastava, A.B., (1982), Gupta, V&Bakshi, R., (1979) and Gupta, V and Jaiswal, L.R.K., (1988) were reported new nematode parasites from freshwater fishes of Lucknow. The helminths are found in almost all the animals including fish throughout the world (Bychowsky, (1962). Trematodes live in all vertebrates inhabiting the digestive tract, accessory tubes and cavities (Roberts &Janovy, 1996) and have been reported from different species of fish (Needham & Wootten, 1978; Dhar & Kharoo, 1984; Nazir, 1996). Helminths damage health of fish by inducing variable intensity of infection depending upon the quality of environmental conditions (Read, 1992). *Glossogobius giuris*is a carnivorous fish commonly found in reservoirs, rivers and estuaries. Its food mainly consists of small fish and larvae of crustaceans. It mostly lives in clear and shallow water accumulated after rain in dams and reservoirs. The present study therefore aims to investigate the prevalence, mean intensity and relative density of parasites *Rhabdochona garuai*(Ali. 1956)in *Glossogobius giuris.* The nematode parasite *R.garuai* taxonomic classification is kingdom: Animalia, Phylum: Nematoda, Class: Secenentea, order: Spirurida, Family: Thelaziidae, Genus: Rhabdochona, Species: garuaiin *Glossogobiusgiuris*at Lower Manair Dam at Karimnagar Dt., Andhra Pradesh.

II. Materials And Methods

Freshwater fish *Glossogobius giuris* specimens were collected from Lower Manair Dam at Karimnagar district, India. Fish sampling were collected by using gill nets, cast nets and hooks. All the fishes were dissected at live condition at spot for the diagnosis of different sizes of nematode parasites. The stomach and intestine were removed carefully and kept separately in petridish.Fishes were dissected one by one exposing their visceral organs for nematode parasites. All the parasites recovered from the visceral organs were preserved in 70% alcohol. They were cleaned and kept in small vials for the study of their morphology for identification. The parasite number and place of their attachment were also recorded. External and internal morphological characters of each worm were recorded for further species identification according to Bykovskaya*et al.* (1964). This identification was confirmed by the description of the same or similar parasites (Zaidi and Khan, 1976; Akram, 1988a, b; Khan and Bilqeese, 1990; Khan, 1991; Habib, 1996; Nazir, 1996).

Parasite identification: Drawings of the parasites were made with the help of camera lucid. External and internal morphology of the parasites were sketched. Anterior and posterior regions of the parasite were drawn at high magnification in the laboratory.

STATISTICAL ANALYSIS
Ecological terms are studied as per Margolis.

(A) Prevalence = Total No. of Hosts Infected X 100
Total No. of Hosts Examined

(B) Mean Intensity =Total No. of parasites
Total No. of Infected Hosts Examined

(C) Relative Density =Total No. Parasites
Or Abundance Total No. of Hosts Examined

III. Results And Discussion

Present investigation an average per year40.65% fishes were found to be infected with nematode parasites *Rhabdochonagaruai*,the mean intensity is 2.3 and relative density is 0.92 indicated in (Table I).These nematodes were found in the intestine and visceral organs of the fish *Glossogobius giuris*except the month of May (Data is not available). The photographs (Fig: 1,2,3) (16 mega pick cells) of these nematodes shows external morphology of both male and female worms were identified as *Rhabdochona garuai* following Ali (1956), Zaidi and Khan (1976). Leningrad (1999) pointed out that an increase in temperature to certain limits accelerates the fission and larval development of parasites while beyond that limit these processes slow down. In the present study, the water temperature during summer increases in the reservoir and surface water temperature becomes high (>38°C) during summer, which was probably not suitable for the development of intermediate stages of nematode parasites. The increase in temperature probably caused the eggs degeneration, destroyed many parasites before becoming adults.

The prevalence of infection of nematode parasites in *G. giuris* during different months is listed in Table: 1, Fig: 4. the parasites show highest effect in the month of October 55.88%, lowest in April 10.00. The mean intensity is highest in the month of January 3.14, lowest in April 1.50. The relative density is highest in the month of January 1.40, lowest in June 0.40.Raja Mohammad Rafiqueet al (2003) studied a freshwater fish *Mystus vittatus* were collected from a pond at Roy walla, Kasur and examined for the presence of intestinal helminths. Only one species of nematode R*habdochona magna* was recovered from intestine of the fish. Out of 48 fish only 18 (37.5%) were found infected. The mean intensity of nematode infection remained 6.5.Muhammad Shafiq Ahmed et al (2007) studied that all (100%) *H. fossilis* were infected with nematodes, *Procamallanus heteropneustus,* only 6 (37.5%)*M. vittatus* were found infected with nematodes, *Rhabdochona magna*. *Sengataunsaensis*and 5 (31.25%) were infected with nematodes, *R. magna.* The mean intensity of infection was 14.36 in *H.fossilis.*

Theseasonal variations and efficacy of the nematode parasites in the Lower Manair Dam was lowest prevalence (28.92%), mean intensity (1.42) and relative density (0.41) for the premonsoon months, the highest prevalence (46.06%), mean intensity (2.32) and relative density (1.07) for the monsoon months. In the post monsoon period the results were slightly decreasing when compared to premonsoon months Table: 2, Fig: 5. From the data of prevalence and intensity of infection of nematode parasites studied, it is clear that water temperature have no clear cut impact on the occurrence of nematode parasites. Maximum and minimum value of prevalence and intensity of infection were found both in the months of higher and lower temperatures. The seasonal occurrence of helminth parasites in the fish may also be due to the age of fish host and life cycle of the parasites. Ecological factors have been held widely responsible for the occurrence of the adults.

Live YouTube video subscribed on Feb 5, 2014 - Uploaded by Rama Rao Karri, for watch this video http://www.youtube.com/watch?v=altB2JAtM6s.

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Table:1. Prevalence of infection of nematode parasites observed monthly in *Glossogobius giuris* visceral organs during the different months in Lower Manair Dam.

Months	Total No. of Hosts Examined	Total No. of Infected Hosts Examined	Total No. of parasites	Prevalence	Mean Intensity	Relative Density
January	47	21	66	44.68	3.14	1.40
February	37	12	26	32.43	2.17	0.70
March	17	06	10	35.29	1.67	0.59
April	20	02	03	10.00	1.50	0.15
May	-	-	-	-	-	-
June	38	12	18	31.58	1.50	0.47
July	25	10	13	45.00	1.30	0.52
August	52	23	48	44.23	2.09	0.92
September	23	12	32	52.17	2.67	1.39
October	34	19	44	55.88	2.32	1.29
November	56	22	52	39.29	2.36	0.93
December	52	24	63	46.15	2.63	1.21
Total	401	163	375	40.65	2.30	0.92

Table: 2. Seasonal variations and efficacy of the nematode parasites in *Glossogobius giuris*visceral organs.

Seasons	Total No. of Hosts Examined	Total No. of Infected Hosts Examined	Total No. of parasites	Prevalence	Mean Intensity	Relative Density
Pre monsoon	83	24	34	28.92	1.42	0.41
Monsoon	165	76	176	46.06	2.32	1.07
Post monsoon	153	63	165	41.18	2.61	1.08

Fig:1. *R. giuris* in Glassogobius visceral organs

Fig: 2. Male and and Female parasites.

Fig: 3. Male and Female *G. giuris*

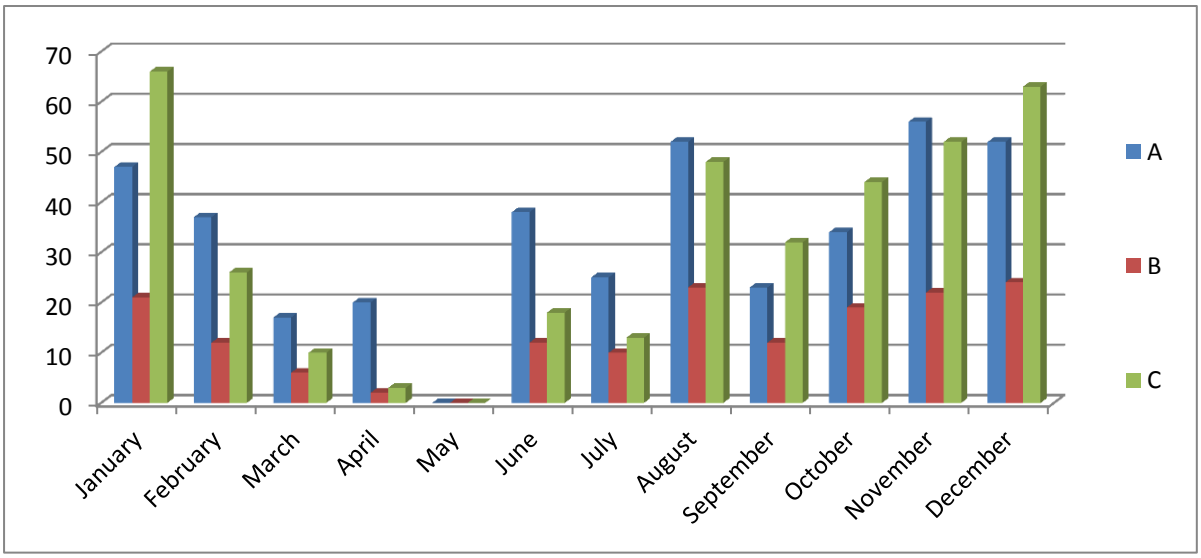
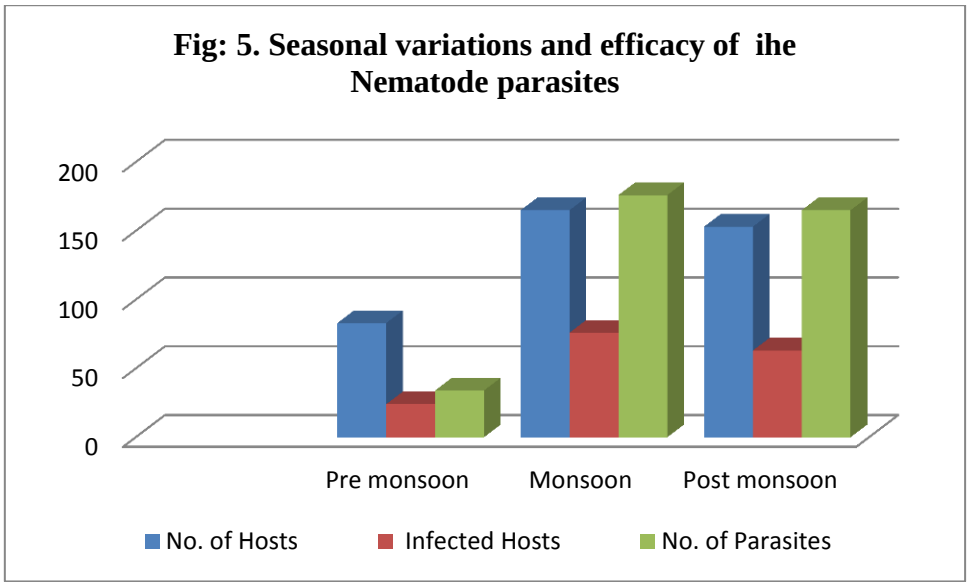


Fig: 4. Prevalence of infection of nematode parasites observed monthly in *Glossogobius giuris.* A. Total No. of Hosts Examined. B. Total No. of Infected Hosts Examined. C. Total No. of parasites.



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