



COMMUNITY OF HELMINTH PARASITES IN *RITA RITA* (HAMILTON BUCHANUN)

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Key words: *Rita rita*, helminthes, prevalence and intensity of parasites.

A majority of fishes carry heavy infection of parasites, which cause deterioration in the food value of fish and may even result in their mortality. Besides, there are a number of 'helminth parasites' which are transmitted to men only through fish. The activities of parasite damage the tissues lining the wall of intestine, stomach, bile duct, liver, etc and cause microscopic lesions in the host's tissue which become the site for secondary infection by bacteria. Wisneiwski (1958) stated that the character of a water body influences and determines the parasite fauna of its community.

The physiological and biological features of the host affect the community of parasites even more seriously (Bibby 1972), and these factors determine the final composition of parasite fauna of the fish. Little is known about the distribution, pathogenic effects and control of most of the diseases in natural population of fresh water fish. The helminth parasite fauna of fresh water fishes, its frequency and distribution have been studied in many parts of the world (Kennedy and Hine 1969). The helminth parasites of fishes may harm their hosts in variety of ways e.g. a) by causing mechanical injury and atrophy of blood vessels or other ducts, b) by introducing toxic metabolic by products able to produce changes in the blood, enzyme, vitamin and hormone activity of the host, c) by depriving the fish from its nutrition, d) by acting as carrier or vectors of other pathogens and e) by providing a point of category for other pathogens through mechanical damage (Mehra 1991).

The fauna of trematodes, nematodes and cestodes, mainly caryophyllides are found both in marine and freshwater fishes of Bangladesh, as the temperature never falls below 4°C, which is a suitable temperature for excellent survival and distribution of these parasites. Bashirullah (1973), Ahmed (1981), Zaman *et al.* (1986), Khanum (1994), Khanum and Zaman (2000), Khanum and Farhana (2002), etc. worked on parasitic fauna of fresh water fishes in Bangladesh but such work is lacking on *Rita rita*. So, the present investigation was assigned on the objectives such as, parasitic community, prevalence, intensity and pattern of distribution of parasites in *R. rita*.

The specimens *R. rita* were collected during January to December 2003 from the rivers and their tributaries around Dhaka. The live fishes collected from the fishermen were immediately brought to the laboratory, Department of Zoology, University of Dhaka, for detail study of biological aspects of fishes and infestation of helminths. A total of 100 *R. rita* were examined, out of which 43 were males and 57 were females. On arrival at the laboratory the total numbers of fishes were identified, grouped, sexed and their total lengths (cm) were measured. The occurrence of the helminthes on the host fishes and their organal distributions were also taken into account. The entire viscera was then separated from the body cavity and kept in physiological saline solution (0.75% NaCl solution). The surface of the visceral organs and serious membranes

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(mesenteries, parietal and visceral peritoneum) were examined for helminth parasites. The collected helminthes were fixed in acetic-formalin-alcohol (AFA) solution and were stained in either borax carmine or semocon's aceto-carmine and then cleared by lactophenol and mounted on slides for microscopic identification. For taxonomic classification of the helminth parasites were done according to Yamaguti (1958, 1961) and available references were consulted.

Out of 100 *R. rita*, examined, 50 fishes were found infected by helminth parasites and a total of 148 parasites were collected with 2.96 mean intensity. Three species of trematodes, *Phyllodistomum folium*, *Opisthorchis gontii* and *Horatrema pristipomatis* were collected. Only one nematode *Cucullanus dogieli* was found in *R. rita*. Larval form of pseudophyllidae cestode was also collected. Prevalence of infestation of *P. folium* and *O. gontii* were similar (26%), but the intensity was higher (2.2) in case of *P. folium*. Lowest prevalence (9%) and lowest intensity (1.33) showed by *H. pristipomatis*. Infestation rate of *C. dogieli* was 10% and the intensity was 1.5. The prevalence of collected cestode larvae was found 13% and the intensity was 1.53 (Table 1).

Intensity of *P. folium* was highest both in male (2.00) and female (2.4). *Opisthorchis gontii* showed low intensity (1.5) in male and in female (1.4). Similarly, *H. pristipomatis* showed 1.25 and 1.4 intensity in male and female; *C. dogieli* showed intensity of 1.75 and 1.33 in male and female respectively (Table 1). In the present investigation, regarding the monthly infestation, higher prevalence were observed in May, June and July (73.33, 72.72 and 70% respectively) while, the mean intensity were higher in April, May, June and July (4.5, 3.45, 4.25 and 4 respectively). Lowest prevalence (30%) of infestation was recorded in December and intensity (1) in November (Table 2).

Table 1. Intensity of parasite species in male and female *Rita rita*.

Name of parasites	Total infected fish	Male fish			Female fish		
		No. of fish infected	Prevalence of infestation	No. of parasite collected	No. of fish infected	Prevalence of infestation	No. of parasite collected
<i>Phyllodistomum folium</i>	26	11	25.58	22	15	26.31	36
<i>Opigaster gontii</i>	26	10	23.25	15	16	28.07	23
<i>Horatrema pristipomatis</i>	9	4	9.30	5	5	8.77	7
Pseudophyllidae larvae	14	6	13.95	8	8	14.03	12
<i>Cucullanus dogieli</i>	10	4	8.30	7	6	10.52	8
Total/Avg.	85	35		57	50		86

Table 2. The monthly prevalence of infestation and intensity of parasites in *Rita rita*.

Months 2003	Total no. of fish examined	No. of infected fish	Prevalence (%)	Total no. of parasites collected	Mean intensity of parasites
March	6	2	33.33	5	2.5
April	7	2	28.57	9	4.5
May	15	11	73.33	38	3.09
June	11	8	72.72	34	4.25
July	10	7	70	28	4
August	6	2	33.33	6	3
September	8	4	50	7	1.75
October	12	5	41.66	6	1.2
November	15	6	40	6	1
December	10	3	30	5	1.66
Total/Avg.	100	50	50	148	2.96

During this observation period, *P. folium* was recorded for the first time from the intestine of silurid fish *R. rita* in Bangladesh. *O. gombi* was found in the intestine of silurid fish in India (Mehra 1991) but in the present investigation, for the first time, this parasite recovered from the intestine of *R. rita* in Bangladesh. The other species of *Ophisthorchis* described from the gall bladder of *R. rita*, *O. pedicellata* and *O. mehrai* and *O. ritai* found in *R. rita* in India (Gupta 1953). The nematode species recorded from the host was *C. dogieli*. Previously various nematodes recovered from intestine of *R. rita*. In 1953, Gupta described *Haptochona varmai* from *R. rita* and described another nematode *Paracucullanellus ritai*. Khan and Yaseen (1969) described *Rhabdochona magna* from intestine of *R. rita* in Chandpur. The species *C. dogieli* described by Khan and Yaseen (1969) from intestine of *Ambassis nama* in Shylhet. So, *R. rita* may be considered as new host for *C. dogieli*.

The present observation also shows that, the prevalence of parasite infestation in *R. rita* was 50% and the infection was higher in female than in male. Similar reports were also observed by Bibby (1972), Watson and Dick (1980). Thomas (1964) and Khanum (1994) and it can be concluded that these might be due to lower physiological resistance of female, specially during breeding period, rather than ecological conditions.

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