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Studies on the Prevalence of Ecto Parasites of Gulfarm (*Cyprinus Carpio*) from Carp Fish Hatchry District Badin, Sindh, Pakistan

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Abstract: The study has been carried out over period of one year from August 2011 to July 2012 to find out the parasitization of different fish species cultured at carp fish hatchery district Badin with special reference to Gulfam, *Cyprinus carpio*. 263 specimens of fish were examined for the determination of prevalence of ectoparasites. It was observed that the highest infection rate (66.6%) was observed in *C. carpio* followed by *C. punctatus* (50%) and the lowest (11.7 %) was recorded from *C. mrigala* during the present investigation. The prevalence in fish was the highest in late summer (September-October) and the lowest prevalence was found in the early summer (April-May).

Keywords: Ecto Parasites of Gulfarm (*Cyprinus Carpio*) from Carp Fish Hatchry District Badin,

1. INTRODUCTION

Cyprinus carpio locally known as Gulfam specularies (also called mirror carp) characterized by large, shiny and scattion scales. This species is strongly recommended for domestic culture due to omnivorous habit and because of the fact that its entire varieties breed freely all the year round in confined waters (Mirza 1982). The presence of ectoparasites, is too large extends detrimental for a fish population and consequently, imposes high losses (Fatima and Bilqees 1989). Parasitic invasion on fish may cause high mortality, weight losses and reduced fecundity. Crustacean parasites caused serious disease on both cultured and wild fish species These parasitic groups hampered fish growth, prevent feeding activity, especially in water contaminated with industrial and urban pollutants, poor water quality caused parasitic disease outbreak. Losses resulting from these parasites under crowded and uncultured conditions can reach catastrophic proportions. The fishes have been reported to be infected by various types of parasites. (Bilqees, 1971;1974;1976) Bilqees and Khanum, (1970) have studied the larval nematode in some carp fishes and trematodes infections . As mentioned above in Pakistan sufficient literature is available on the various parasites infecting the fish. Keeping in view an attempt has been made to find out the magnitude of parasitization in different fish species of carp from fish hatchery district Badin.

2. MATERIALS AND METHODS

Parasites identification

The parasite was identified to the group level following the literature of Chatterjee (1980). The total length of fish was taken to the nearest 0.1 cm from the tip of snout to the posterior tip of the caudal fin. After determining the sex of fishes the gills and skin were examined to search for the ectoparasites.

Statistical Analysis

The calculation of prevalence and main intensity was done following the equation mentioned by Margolis *et. al.,* (1982)

Prevalence %

Number of infected fish \total number of fishes examined X100 main intensity. The relationship between the length of fish (host) and the parasite infection was assessed by dividing the length of fishes in to four sizes -classes ranging between 8.0 cm to 35.9 cm.

3. RESULTS

Out of the 81 fish specimen of *Cyprinus carpio* examined during the present study, 53 specimen of fish were found to be infected by parasites **(Table 1)** the number and percentage of infected specimens of various fish species. The highest infection rate (66.6%) was observed in *C. carpio* and *L. roheta* (50%) infected the study period and the lowest (11.7 %) was recorded in *C. mrigala*

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Table 1 Number of fish species examined for ectoparasites during the study period

S. No.	Months	Species	Total No. of fish examined	Number of infected fish	Percentage %
1	August	Gulfam	08	03	68%
		Rahu	04	01	33%
		Thaila	03	01	9%
2	September	Gulfam	10	06	67%
		Rahu	06	02	35%
		Morakhi	03	01	12%
3	October	Gulfam	06	2	60%
		Rahu	05	2	42%
		Thaila	03	1	30%
4	November	Gulfam	08	4	50%
		Rahu	05	2	42%
		Morakhi	02	Nil	0%
5	December	Gulfam	08	5	68%
		Dahi	04	2	50%
		Shakur	04	2	50%
6	January	Gulfam	04	3	70%
		Gonia	05	2	48%
		Shakur	08	4	50%

The study showed that all the fish specimens were found infected with the ectoparasites included Argulus, Leaches and Lernea **(Table 2).** Three types of ectoparasites Argulus, Leaches, and Lernea, they damaged the fish skin, gills and fins. Each month 15-35 specimens of fish were examined for parasitic infection during the period from August 2011 to July 2012 Out of 263 specimens of fishes were examined, 47 (17.9%) of the total sample were found to be infected by parasites the highest prevalence of infection was observed in the month of October when 47.1 % of fishes were infected . The second highest prevalence 32% of infected in month of July 2012. In the month of May no fish was found to be infected by parasites. On the whole the highest prevalence of infection was found in September – November. Among the infected fish specimens, 78.7 % was found to be infected by Argulus and Lernea 21.13 % **(Table 3)**. It was also observed that no of fish was found to be infected by leaches.

Table 2 Number of fish Species infected by Ectoparasites

S. No	Months	Species	Total No. of fish examined / infected	Infected fish by Argulus	Infected Fish by Leaches	Infected Fish by Lernea
1	August	Gulfam	08/03	5	4	2
		Rahu	04/01	2	1	2
		Thaila	03/01	2	1	2
2	September	Gulfam	10/06	5	2	2
		Rahu	06/02	3	2	3
		Morakhi	03/01	2	1	1
3	October	Gulfam	06/02	2	2	2
		Rahu	05/02	3	1	4
		Thaila	03/01	3	3	--
4	November	Gulfam	08/04	8	2	3
		Rahu	05/02	3	2	2
		Morakhi	02/Nil	--	–	--
5	December	Gulfam	08/05	7	4	5
		Dahi	04/02	3	2	2
		Shakur	04/02	2	3	1
6	January	Gulfam	04/03	4	3	3
		Gonia	05/02	4	2	2
		Shakur	08/04	6	3	5

Table 3 Number of fish species infected by the Arugulas and the leeches parasites during study

S. No	Months	Number of Fish infected	Fish infected by the Arugulas	Fish infected by the leaches
01	August	02	00	02
02	September	04	02	02
03	October	08	07	01
04	November	05	04	01
05	December	04	03	01
06	January	05	04	01
07	February	03	03	00
08	March	03	03	00
09	April	02	02	00
10	May	00	00	00
11	June	06	06	00
12	July	05	03	02
	Total	47	37	10

4. DISCUSSION

The present study reports the seasonal prevalence and intensity of parasites in various fish species during the study period from August 2011 to July 2012. In Pakistan adequate literature available on taxonomy of parasites in infected fish (Bilqees ,1971; 1974; 1976; Bilqees and Khanum, 1970; Bilqees and Kazim, 1974 ; Bilqees and Jabeen, 1986; Khan and Begum 191; Khatoon and Bilqees, 1996). In the present study the parasite prevalence in fish was highest in late summer (September-November) and lowest prevalence was found in the early summer (April – May). Fatima and Bilqees (1989) while studying the seasonal variation in the intensity of parasitic infection on various edible fish by nematodes and acanthocephalan from the carp fish hatchery distinct Badin reported that highest rate of infection was observed in June when 83.38% of fishes were infected. Seasonal variation in the intensity of parasitism in various fresh water fish was studied by Linton (1914) reported market periodicity in the occurrence of parasites in fish Akhter *et. al*. (1997), Chandra *et. al.* (1997), Hussain *et. al.,* (1994) and Banu *et. al.,* (1993), found increased incidence of parasitism in fish during winter month in Bangladesh waters. Milbrink (1975) observet twopeaks of parasitic infection, one in spring and another Reimchain (1982) found the highest incidence of parasitic infection was from February to May when 81 of the fish *Cyprinus carpio* was infected.

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