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Research Article

Studies on the Feeding Behavior of a Carp, *Labeo gonius* (Hamilton) from Keenjhar Lake, District Thatta, Sindh, Pakistan

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Abstract

For the feeding behavior of Carp, *Labeo gonius*, one hundred and twenty (120) specimens were collected from the landing centers of Keenjhar Lake district Thatta, from March to August 2012. Feeding habit showed that the fishes of all size groups were mainly a debris feeder with a pronounced tendency to be phytoplankton feeder. Debris was the more important and dominant food item of the fish both in small and large size groups. Among the phytoplankton *Chlorophyceae* was the chief food category which increased with body size. *Bacillariophyceae, Cyanophyceae and Euglenophyceae* also were the most important food group of this fish. The result of this study also showed that the amount of zooplankton was decreased with body size.

Keywords: Feeding behavior, debris, *Chlorophyceae*, *Labeo gonius*, Keenjhar Lake

INTRODUCTION

The food and feeding habit of fish is important and vital need for production of the fish. So the proper knowledge about food and feeding habit and electivity is a pre-requisite for successful raising of fish (Lashari, 2010). The South Asian cyprinid *Labeo gonius* (Hamilton), locally called as Gonia or Seriah found in lakes and rivers of Pakistan, India, Nepal, Myanmar and Bangladesh (Mirza, 1982). This fish can grow up to 60.0 cm and1.5 kg (Ahmed, 1936; Hussain et al., 2000; Rahman *et al.,* 2008) reported feeding habit of *Labeo gonius* from different countries but there is no information on feeding habit of *Labeo gonius* from Pakistan. The result of the present study will be useful for future researchers.

MATERIALS AND METHODS

The fish samples were purchased from the landing centers of Keenjhar Lake district Thatta, for a period of six months starting from March to August 2012 and preserved in 5% formaldehyde. Preserved fishes were taken out, measured, elementary canal was removed, and stomach contents were determined by the index of fullness and rate as 0 = empty 4= full. The point method was used as described by Miah and Dewan (1977), Dewan and Saha (1979). The preserved

stomach(gizzard) from each fish were dissected and the material containing plankton were analysed by using a Sedgewik-Rafter Counting Cell (model 550, Fisons), following the standard methods (APHA, 1985) for counting plankton, which was identified up to genus level. Stomach thoroughly washed dissect and observed under light microscope (Olympus, model B-2000) by using Sedgwick-Rafter counting cell

RESULTS

The result of present experiment indicated that *Labeo gonius* was herbivore with higher feeding preference for debris (55.09%). Chlorophyceae(16.46%) *Cyanophyceae* (9.11%) *Euglenophyceae* (7.98%) *Bacillariophyceae* (8.77%) and Zooplankton (2.60%) (Table.1).The animal foods (zooplankton) were taken by the fish in a very small amount (2.60%). The fishes were found to change their food habits with the change of their sizes. The affinity for zooplankton and debris were gradually decreased whilst the affinity for phytoplankton was gradually increased with the increase in size (Table 1). The result of the standard length and gut length ratio have been presented in (Table 2) which indicate that the ratio of gut length to standard length increased with increase in fish size.

Table 1. Percentages of different food items in the stomach content of *Labeo gonius* from Keenjhar Lake District Thatta Sindh Pakistan

	Food categories					
Months	**Bacillariophyceae %**	**Cholorophyceae %**	**Cyanophyceae %**	**Euglenophycea e %**	**Zooplankton %**	**Debris %**
March	10.52	9.99	10.53	12.26	4.70	52.0
April	14.35	22.35	0.95	7.80	1.05	53.50
May	22.07	17.43	1.07	3.35	1.59	54.50
June	7.41	23.48	3.22	15.45	1.75	52.0
July	2.24	10.47	11.83	2.58	2.34	57.50
August	3.20		11.79	11.34	3.18	60.0
September	1.58	11.32	3.08	3.08	3.62	56.0
Percent of total points	8.77	16.46	9.11	7.98	2.60	55.09

Table 2. Data on standard length and gut length of *Labeo gonius* from Keenjhar Lake District Thatta Sindh Pakistan

Length group (cm)	Average standard length (cm)	Average gut length (cm)	Standard length: gut length (ratio)
10.1-12.0	9.21± 1.90	17.28± 1.22	1:1.88
12.1-14.0	11.26± 1.74	23.32± 1.28	1:2.07
14.1-16.0	12.80± 1.20	27.53± 1.27	1:2.15
16.1-18.0	15.67± 1.33	34.83± 1.17	1:2.23

DISCUSSIONS

The food and feeding results of the present study indicated that the debris is the most important and dominant food item of the fish. *L.* gonius. The size group and percentage of total points of debris, it is concluded that the fish (*L. gonius*) changes its food habit as it grows. This phenomenon's observed in many fishes (Keast, 1965*). L. gonius* has two peak feeding activities found during the present study. *L. gonius* has showed two peak feeding activities found during the present study. Such two peaks of feeding activities were also found by Javaid (1971) in *Heteropneustes fossilis* and *Puntius sophore*. Similar observations have been reported by Quddus et al. (1991) and Rahmatullah et al. (1995).

At dawn the stomach of the fish is more or less empty with an increasing feeding intensity towards noon and at around 1000 h feeding activities reached at a peak level. Then feeding activities decreased followed by increasing feeding activities once again before sunset and then feeding activities decrease till dawn when it was at its lowest limit. Such two peaks of feeding activities were also found by Javaid (1971) in *Heteropneustes fossilis* and *Puntius sophore.* The present study indicates that *L. gonius*has pronounced electivity for different food items and that electivity varies over time.

Al-Akel *et al.*, (1987) gives information that the high feeding activity recorded fishes when gain energy through feeding exceeds on food items of choice and lost through selection of food items. In the present study the fish positively selected

some genera of phytoplankton. Some genera of phytoplankton and zooplankton were negatively selected.

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