



An Emphirical Study of Gut Contents of Major Carps for Their Food Habits from Singanallurlake of Coimbatore District, Tamilnadu

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ABSTRACT

The food relationships determine population levels, rates of growth and conditions of fish. Fishes feed on open water pelagic organisms includes algae, protozoans and microcrustaceans, debris and plant stems and leaves. The gut content analysis gives an idea about the actual diet of the fish species. In aquaculture practice, to increase the yield of cultured fish the accurate knowledge of food and feeding is essential. According to the availability of fishes and the availability of water in the lake the fishes were collected and carried to the laboratory for study of gut content.

KEYWORDS : Gut content, major carps, lake, plankton and food habit.

INTRODUCTION

In India there has been significant growth in fish production in the recent years and it is now the third largest producer of fish and second largest producer of fresh water fish in the world. The growth of the fish is optimum when the environmental conditions are in optimum quantity. Naturally growth of the fish is governed by the parameter such as availability of sufficient food resources. The major food of the carps consists of sand, mud, algae and decaying vegetation. The major carps *Catla catla*, and *Labeo rohita*, from Singanallur Lake were collected monthly and studied for their gut content during 2015. In present investigation, the gut contents of some cultivated selected major carps were analyzed in the laboratory for confirming their food habits during 2015. In present study, it was found that the gut contents of major carp's species consist of phytoplankton's, zooplanktons and decaying plant and animal organic material which confirm the feeding habits of the major carps.

FOOD AND ENVIRONMENT

In many tropical countries fish consumption now exceeds that of all other animal protein. Fish is a valuable source of protein and occupies a significant position in the socio-economic fabric of the South-Asian countries. Most of the countries in the world depend on fisheries as a source of food supply and protein foods. The food studies may show details of the ecological relationships among organisms.

The food relationships determine population levels, rates of growth and conditions of fish. Feeding of most fishes in nature may presumed to be upon bacteria, desmids, diatoms and other microscopic plankters, both plant and animal.

Fishes feed on open water pelagic organisms includes **algae, protozoans and micro crustaceans**, debris and plant stems and leaves. The gut content analysis gives an idea about the actual diet of the fish species. In aquaculture practice, to increase the yield of cultured fish the accurate knowledge of food and feeding is essential. Still today nobody has studied the contents of the major carps from Singanallur-Lake. Keeping in view above facts the present study was carried out which provides the information of actual food of major carps.

LOCATION

The city is located on the banks of Noyyal River surrounded by the Western Ghats. Coimbatore lies at 11°16' N 76°58' 21' E in South India at 411 meters (1349 ft.) above sea level on the banks of the Noyyal River, in south-western Tamil Nadu. It covers an area of 642.12 km² (247.92 sq. mi). The network of manmade wetlands in Coimbatore is its lifeline. Artificial lakes located in and around the city are unique systems of storm drainage, interconnected, designed and maintained from hundreds of years ago. Currently, in the Noyyal river basin there are 24 lakes in Coimbatore. Present study has been carried out in Singanallur Lake at Coimbatore district.

REVIEW OF LITERATURE

The major food of the carps consists of sand, mud, algae and decay-

ing vegetation. *Labeo rohita* is a column feeder fish. The adults are herbivorous but young fry feed on zooplanktons. Fingerling feeds vegetable debris and minute plants.

Adults feed vegetable debris, small plants, detritus and mud. *Catla catla* is a surface feeder and plankton feeder. The fry of *Catla* feeds on water fleas and animalcules. Fingerling feeds on water fleas, few planktonic algae and some vegetable debris. Adult's fish feed on water fleas, vegetable debris and some algae.

Nikol'skii (1963) divided food of fishes into four categories according to the relationships between fishes and their food. These categories are:

- **Basic food**, which the fish usually consumes comprising the main part of the gut content;
- **Secondary food**, which is frequently found in the guts of fishes but in small amounts;
- **Incidental food**, which only rarely enters the gut; and,
- **Obligatory food**, which the fish consumes in the absence of basic food.

The natural food of fishes comes from many groups of plants and animals that inhabit water as well as from other that do not. The diet of fishes like every other character is exceedingly varied. In general, the larger fishes take the larger prey while the small and the young fishes live on the tiny organisms but there are exceptions and vegetarians occur as well as fresh eaters (Kyle H.M, 1999).

METHODOLOGY

The major carps *Catla catla*, and *Labeo rohita*, from Singanallur lake were collected monthly and studied for their gut content during 2015. According to the availability of fishes and the availability of water in the lake the fishes were collected and carried to the laboratory for study of gut content. The fishes were dissected and their stomach were removed and preserved in 4% formalin.

Then the preserved material from the stomach was removed and identified under the microscope for confirming the food habits of the major carps.

RESULTS AND DISCUSSION

Present study is an attempt to elucidate the feeding habits of the carp, viz. *Catla catla* (Ham), *Labeo rohita* (Ham) from Singanallur lake in relation to available food and the utilization of the food consumed.

Table 1: Gut Contents of *Labeo rohita* during 2015

SL.NO	NAME OF THE GUT CONTENT	MONTHS		
		APRIL	MAY	JUNE
1	Cyclops sp.	-	+	+
2	Brachionus sp.	+	+	+
3	Spirogyra sp.	++	++	+

4	Crustacean append.	-	+	-
5	Euglena sp.	++	+	++
6	Keratella sp.	+	+	++
7	Nostoc sp.	++	+	+
8	Plant tissue	++	++	++
9	Fragilaria sp.	+	++	+
10	Oscillatoria sp.	+	+	+
11	Spirulina sp.	+	+	++
12	Microcystis aeruginosa	+	++	+++
13	Surirella sp	+	+	++
14	Gomphonema sp.	+	++	+
15	Calothrix epiphytica	++	+	-
16	Chlorella sp.	++	++	+
17	Diatoma sp.	+	-	-
NO.OF FISHES EXAMINED FOR GUT CONTENT		6	8	7
+,++ PRESENT - ABSENT				

Table 2: Gut Contents of *Catla catla* during 2015

SL.NO	NAME OF THE GUT CONTENT	MONTHS		
		APRIL	MAY	JUNE
1	Brachionus sp.	+	-	+
2	Insect wing	++	+	+
3	Spirulina sp.	+	++	+
4	Diatoma sp.	-	-	-
5	Oscillatoria sp.	++	++	++
6	Calothrix epiphytica	+++	+	++
7	Gomphonema sp.	++	++	+
8	Surirella sp	+	++	++
9	Cyclops sp.	-	-	+
10	Keratella sp.	+	+	+
11	Fragilaria sp.	++	+	++
12	Chlorella sp.	++	+	+++
13	Plant tissue	++	+	++
14	Nostoc sp.	+	++	+
15	Euglena sp.	+	++	-
16	Crustacean append.	-	-	+
17	Spirogyra sp.	+	+	-
18	Coelastrum sp.		+	++
19	Selenastrum sp		+	++
NO.OF FISHES EXAMINED FOR GUT CONTENT		9	8	8
+,++ PRESENT - ABSENT				

In present investigation, it has been found that in the gut contents of *Labeo rohita* about 17 species, in the gut contents of *Catla catla* about 19 species of phytoplanktons, zooplanktons and other vegetable were reported.

Present study indicates that the major carps feed mostly on the phytoplankton's and vegetable matter. The *Labeo rohita* shows the vegetarian food habit. The *Keratella* species and *Cyclops* species were reported in the gut content of the fingerlings of *Labeo rohita*. *Catla catla* shows the omnivorous food habit.

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