

STUDY ON BIOCHEMICAL COMPOSITION IN INDIAN MAJOR CARPS FROM PAITHAN, DISTRICT AURANGABAD (M.S).

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ABSTRACT

The present work deals with study of biochemical composition in Indian major carps. The present work shows the protein and lipid contents of Indian major carps fish species showed successive decrease in their level from June 2010 to May 2011 Whereas muscle glycogen content of fish species shows significant increase during June to May are observed.

KEY WORDS: Biochemical Composition, Indian major Carps, fish

INTRODUCTION

The present study deals with biochemical composition in muscle contents of major carps, *Labeo rohita*, *Catla catla* and *Cirrhinus mrigala* collected from paithan. Biochemical composition such as Protein, lipid and glycogen content in muscles of each carp species shows seasonal variations. The fish undergo seasonal changes in growth and energy storage as energy from diet and body reserves is for maintenance, somatic growth, and reproduction. During somatic growth, lipid, protein is accumulated while protein and lipid are depleted during gonadal growth observed by Johansen et al. (1997). In the present study information on biochemical composition of muscles of major carps provides nutritive value but also helps in quality assessment by Rodriguez Gonzalez et al. (2006). Ananthi et al. (2015) also studied on biochemical content of selected fresh water fish in Grand Anicut. Deshmukh (2015) studied biochemical composition in freshwater fishes *Anabas testudineus*, *Mastacembelus armatus*. The present work provides significant of food value of major carps.

Fish have rich source of essential nutrients required for supplementing both infant and adult diets. Fish normally has more poly unsaturated fatty acids than animal fats. An increasing amount of evidences suggest that due to its high content of polyunsaturated fatty acid (PUFA) fish flesh and fish oil are beneficial in reducing the serum cholesterol by Huynh et al. (2007). Carbohydrates are the most economical and inexpensive sources of energy for fish diets reported by Eyo (2001). Protein is the most expensive part of fish feed, formed by linkages of individual amino acids, is important to accurately determine the protein requirements for each species and size of cultured fish by Cui and Wootton (1988). Lipids are high-energy nutrients that can be utilized partially to spare protein in aquaculture feeds. Lipids supply about twice the energy as proteins and carbohydrates. Lipids typically comprise about 15% of fish diets, supply essential fatty acids (EFA) and serve as transporters for fat-soluble vitamins.

MATERIALS AND METHODS

The matured fish were collected from paithan fish market and brought to laboratory for biochemical estimations. Biochemical contents like (Protein, Carbohydrates and Lipids) of fishes. The fishes are dissected out and then biochemical were estimated from fresh muscles of major carps. The Protein are estimated by Lowry method Lowry et al. (1951), Carbohydrates are estimated (Glycogen content) by using anthrone method Hedge et al. (1962) and Lipids are estimated by Cox and Pearson (1962) method.

RESULTS AND DISCUSSION

The biochemical composition of fishes shows species specific pattern in their muscle protein, glycogen and lipid contents. The protein and lipid contents of three fish species showed successive decrease in their estimated values from June to May Whereas muscle glycogen content of fish species shows significant increase during June to May are shown in Table 1.

Reay (1933) reported that deterioration of protein is linked with denaturation of fish protein that associated with frozen fish. Das (2009) reported that Lipid content of Rohu (*Labeo rohita*), Grass carp (*Ctenopharyngodon idella*) and Tilapia (*Oreochromis mossambica*) were studied in fresh condition and in freezing condition in different species showed different lipid level at different condition like Temperature, Freezing time, Location size. Padmawati and Prema

Kumari (2006) also observed that changes in biochemical contents of muscles of fish species may also be attributed to alterations in the ecology of the sampling site it is due to increased glycogenesis in muscles and accelerated conversion of liver glycogen into muscle glycogen. Chamundeshwari Devi and Vijayaragahwan (2001) reported that changes in biochemical parameters in the fishes are linked to their habitat and nutritive values of each species. Shankar and Kulkarni(2006) and Shengde and Mane (2006) studied the correlation of GSI value with increase of protein and lipids contents this increase is occur due to vitellogenesis in ovary and spermatogenesis in testes due to hormones during pre-breeding and breeding seasons of the fish.

The biochemical contents of fish provides information on physiological and nutritive values of fishes but also helps in better management practices in inland fisheries and prevention of fish capture in breeding season to maintain the diversity of fishes.

Table 1. Biochemical contents (Protein, Carbohydrates and Lipids) in muscles (mg/gm of tissue) of Indian major carps collected from paithan during June 2010 to June 2011.
Cirrhinus mrigala

| Sr.No | Months | Protein | Glycogen | Lipid |
|-------|-------------|-------------|------------|-----------|
| 01 | June - Sept | 120.4 ± 5.4 | 16.2± 2.9 | 12.7± 5.5 |
| 02 | Oct - Jan | 107.6 ± 1.3 | 17.3 ± 5.8 | 8.5± 2.4 |
| 03 | Feb - May | 94.8± 2.7 | 19.7 ± 3.3 | 6.9± 4.4 |

Catla catla

| Sr.No | Months | Protein | Glycogen | Lipid |
|-------|-------------|-------------|------------|-----------|
| 01 | June - Sept | 112.3 ± 2.6 | 19.5 ± 3.7 | 16.8± 3.7 |
| 02 | Oct - Jan | 92.6 ± 5.6 | 21.7 ± 2.9 | 11.4± 4.1 |
| 03 | Feb - May | 89.4 ± 3.8 | 24.4 ± 4.5 | 10.2± 2.3 |

Labeo rohita

| Sr.No | Months | Protein | Glycogen | Lipid |
|-------|-------------|-------------|------------|------------|
| 01 | June - Sept | 129.5 ± 6.4 | 22.6 ± 3.9 | 18.6 ± 7.2 |
| 02 | Oct - Jan | 118.6 ± 4.9 | 25.4 ± 2.7 | 15.2 ± 4.8 |
| 03 | Feb - May | 105.5 ± 3.8 | 29.9 ± 3.9 | 10.8 ± 3.4 |

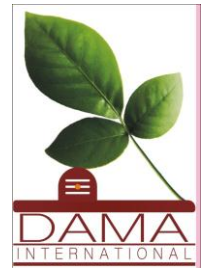
Each figure is Mean ± S.D. of 10 observations.

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