

COMPARATIVE STUDY OF PROXIMATE COMPOSITION OF FRESHWATER FISH LABEOROHITA AND CATLACATLA IN ALLAHABAD

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ABSTRACT

Optimum dietary protein requirement in the diets of stunted fingerlings of *Labeorohita* was reviewed in this study. The nutritive and medicinal value of fish has been recognized from time immemorial. The proximate biochemical analysis of *Labeorohita* and *Catlacatla* fish collected from Ganga river at Allahabad was carried out and compared to ascertain their gross chemical composition. Samples of muscle tissues were collected and processed for estimation of its Moisture, Ash, Carbohydrate, Protein, Fat, Phosphorus, Potassium and Cholesterol. The aim of this work is to determine the micronutrients and proximate biochemical composition of some freshwater species from arid zone of Allahabad.

Key words: Organic matter, Biochemical and Proximate analysis.

INTRODUCTION

Fish growth is influenced by a number of factors including food, space, temperature, salinity, season and physical activity. Since fish are poikilothermic and live permanently immersed in water, they are directly affected by changes in their ambient medium (Weatherly and Gill, 1987). Throughout the world, it is well accepted that fishes are good sources of animal protein and other elements for the maintenance of healthy body (Andrew, 2001). Apart from being a major source of metabolic energy and the main form of energy storage, lipids also supply essential fatty acids needed for the maintenance and integrity of cellular membranes, and serve as precursors of steroid and molting hormones. India is a major supplier of fish in the world. In 2006, the country exported over 6,00,000 metric tones of fish, to some 90 countries, earning over \$1.8 billion. Small fishes play a vital role in diet and economy of rural poor people in Bangladesh. Recent research has highlighted the importance of self-recruiting species in both natural and managed habitats to the livelihoods of the rural poor (Roos *et al.*, 1999). The aim is to determine the proximate composition, amino and biochemical of these two economic important fish species in Allahabad.

MATERIALS AND METHODS

The fish were collected from the fish-landing site. This site is very close Upper Benue River. The fish were cut, weighed and dried to constant weight by employing 70-80°C. The dried samples were ground with mortar and pestle into fine powder and stored in labeled polythene bags until required for analysis.

Proximate biochemical analysis

Determination of moisture content was done following the conventional procedure. Lipids were determined by the method of Bligh and Dyer (1959). Carbohydrates were estimated by Anthrone method. Ash content was determined by following the method of Jayaraman (1985). Protein content was determined by the micro Kjeldahl method. Cholesterol content was estimated by the method of Zltkis method. Mineral analysis was done after

Triple acid digestion according to the method described by Hassan and Umar (1996).

Statistical Analysis

Different procedure of statistical analysis with the procedure of randomized F-test was used to analyze the data.

RESULTS AND DISCUSSION

The mean percentage proximate composition (i.e. protein extract, ash, moisture content, cholesterol and dry matter) of the analyzed samples is shown in Table 1. The food values analyzed showed varied values of their presence in the body tissue of the fish analyzed; with the percentage dry matter. Moisture was found with high percentage in *Labeorohita*. Ash was estimated as 0.397% for *Labeorohita* and 0.079% for *Catlacatla* which was high in *Labeorohita*. Carbohydrate was leading in *Labeorohita*. Protein was estimated increment in *Labeorohita*. Fat was estimated as 0.187% for *Labeorohita* and 0.184% for *Catlacatla*. Phosphorus was alleviated in *Labeorohita*. Potassium was alleviated in *Labeorohita*. Cholesterol was estimated as 0.12% for *Labeorohita* and 0.11% for *Catlacatla*.

DISCUSSION

The culture of fish should be intensified to meet the fish need of the nation. The amount of total proximate composition obtained from various species and subspecies of fresh water fish was investigated by (Gopalan *et al.*, 1996 and Ugoala *et al.*, 2008). The reason for this variation is not clear at the moment. Boonyaratpalin *et al.* (1985) reported that fat content varies in fish with season, species and geographical region. These studies do confirm our observations on lipids but reasons for significant variations in protein contents still remains to be explained. Further these studies favorably fit with our observations on C. morulus but not with its counterparts where body contents remained uniform irrespective of the season of the year.

Variation in chemical composition and functional properties was observed for *Labeorohita* and *Catlacatla* fish species. The

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Table 1: Comparative proximate composition of Labeorohita and Catlacatla (on % dry matter basis)

Biochemical Constituents	Labeorohita	Catlacatla
Moisture	1.80	1.18
Ash	0.079	0.397
Carbohydrate	0.173	0.201
Protein	0.170	0.148
Fat	0.187	0.184
Phosphorus	7.86	1.42
Potassium	5.57	7.56
Cholesterol	0.11	0.12

N/B: Means with * remark are significantly different at 5% probability level ($P < 0.05$)

fish especially *Labeorohita* from the study area found to be a good source of protein and cholesterol. Therefore the data on biochemical composition of this study will form the basis for further research in this field of fish chemistry for the benefits of human beings.

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