



Variations of protein contents in the muscle of fish *Cirrhinus reba* (Hamilton, 1822) from Godavari river at Nanded region, Maharashtra, India

Shillewar KS and Totawar DV

Department of Fishery Science, N.E.S. Science College, Nanded 431605(M.S.)

Manuscript details:

Received: 02.04.2019
Accepted: 27.04.2019
Published: 25.06.2019

Editor: Dr. Arvind Chavhan

Cite this article as:

Shillewar KS and Totawar DV (2019) Variations of protein contents in the muscle of fish *Cirrhinus reba* (Hamilton, 1822) from Godavari river at Nanded region, Maharashtra, India, *Int. J. of Life Science*, Volume 7(2): 362-364.

Copyright: © Author, This is an open access article under the terms of the Creative Commons Attribution-Non-Commercial - No Derives License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

Available online on
<http://www.ijlsci.in>
ISSN: 2320-964X (Online)
ISSN: 2320-7817 (Print)

ABSTRACT

The seasonal variation in protein content of fresh water fish *Cirrhinus reba* from Godavari River at Nanded region, Maharashtra state were observed from January 2018 to December 2018. The obtained results showed that protein content was high in the month of July (16.9 ± 1.20), the lowest was high in the month of January 16.16 and December 15.63, then there was a slight increase in the protein content in the month of February, March, April, May and June which ranges 16.17, 16.70, 18.42, 18.62, 19.30 tissue respectively. Variation of protein content during different seasons of the year helps. Nutritionists & researchers who are striving to improve the nutritive value, processing & marketing of endangered fish species & in fishing industry.

Keywords- Protein, monthly variation, Seasonal variation, *Cirrhinus reba*

INTRODUCTION

Fish are known to be a very healthy food item. They are an excellent protein source & also contain various minerals & Vitamins necessary for good health. Scientist reported that societies with high fish intake have considerably lower rates of acute myocardial infarctions & other ischemic heart diseases. The present availability of protein is much below the minimum daily requirements and the livestock sector alone will not be able to meet the protein requirement of ever-increasing human population. Fish is an excellent & relatively cheaper protein source of high biological value. Fish protein contains all essential amino acids in the required proportion & hence have a high nutritional value, which contribute to their high biological value. Cereal protein is an excellent source of these amino acids. Fish also contains lysine, threonine, tryptophan, isoleucine, leucine, phenylalanine & valine amino acids. In diets based mainly on cereals, a supplement of fish can. Therefore, raise the biological value significantly. Fish is also rich in the non-protein amino acid taurine which has a unique role in neurotransmission.

Although several studies deal with proximate composition of biochemical component of many commercially important fishes, but no works has been carried out on *Cirrhinus reba* particularly from Nanded Region of Maharashtra state. Therefore, the present study was undertaken to show seasonal & monthly variation in the amount of total protein content in muscle of *Cirrhinus reba* determine the nutritional value & variations during the fishing season which is very important in recent years.

MATERIALS AND METHODS

Samples of *Cirrhinus reba* were collected from fish market at monthly intervals during the period of January 2018 to December 2018. They were immediately transpired to the laboratory of Fishery Science of N.E.S. Science College, Nanded. worked with cold tap water. Then total length total weight and sex were determined. Body Muscle samples (free from skin & scales) of each month were collected and homogenized in a homogenizer before the analysis of biochemical components. Weight of *Cirrhinus reba* varied from 30gm to 180gm and length varied from 20cm to 35cm.

Protein Estimation

Biuret Method:

This is the most widely urged method for protein estimation. It is carried out by using std. kit Erba. The peptide bonds of protein react with copper II ions in alkaline solution to form blue-violet complex (biuret reaction) Each copper ion complexed with 5 or 6 peptide bonds. Tartaric acid is added as a stabilizer whilst Iodide is used to prevent auto-reduction of the alkaline copper complex. The color is proportional to the protein concentration and is measured at 546nm (520-560nm).

RESULTS

The protein composition of *Cirrhinus reba* was determined over the period 1 year and obtained Result are present in table 1.

Protein Content varied from 15.63 to 19.30g/g tissue
The highest protein content was in month of June and the lowest protein content in the month of December.

Table 1: Monthly changes in protein content of *Cirrhinus reba* (g/g tissue)

Sr. No	Month	Protein content of <i>Cirrhinus reba</i> Muscles
1	Jan-2018	16.16
2	Feb-2018	16.17
3	Mar-2018	16.70
4	April-2018	18.42
5	May-2018	18.62
6	Jun-2018	19.30
7	July-2018	19.76
8	Aug-2018	18.68
9	Sept-2018	18.28
10	Oct-2018	16.80
11	Nov-2018	16.60
12	Dec-2018	15.63

In the month of Jun/July/Aug/Sep the protein content was 19.30,19.76,18.68,18.28 g/g in the month of respectively.

A decreased in the protein content in the month of December was Recorded (table 1).

Seasonal variation shows the highest value of protein percentage in Summer season, the lowest protein percentage was recorded in Winter season (table 1)
The decreased in the protein content is same be due to spawning season month.

CONCLUSION

The result suggested that the protein content of fish greatly varies during the different season. It may be due to the physiological condition and Environmental condition that is spawning breeding, migration & heavy feeding.

This study provides valuable information on variations in protein content of fish species studied in order to take necessary precaution in processing from manufacturer point of view. Biochemical studies of fish tissue are of considerable interest for their specificity in relation to the food values of the fish and for the evaluation of their physiological needs at different periods of life. It is also necessary. Biochemical studies of fish tissue are of considerable interest for their specificity in relation to the food values of the fish and for the evaluation of their physiological needs at different periods of life.

REFERENCES:

- Bang HO and Dyerberg J (1980) Lipid metabolism and ischemic heart disease in Greenland Eskimos. In: *Advances in Nutrition Research* (edited by H.H.Draper).pp:1-22.New York,NY:Plenum Press.
- Blanchet C, Dewailly E, Ayotte P, Bruneau S, Receveur O and Holub BJ (2000) Contribution of Selected traditional and market foods to the diet of Nunavik Inuit women. *Can. J.Diet Pract. Res.*,61:50-59.
- Chaudhry AS (2008) Forage based animal production systems and sustainability: an invited paper.Revista Brasileira de Zootecnia, 37: 78-84. *The Canadian Journal of Dietetic Practice and Research* 61: 50-59.
- Kullander SO, Fang F, Delling B and Ahlander (1999) The fishes of the Kashmir Valley.99-167 In Nyman L. (ed), *River Jhelum, Kashmir Valley. Impacts on the aquatic environment* Swedmar, Gothenburg.
- Terashima A (1984) Three new species of the Cyprinid genus *Schizothorax* from Lake Rara Northwestern Nepal. *Japanese Journal of Ichthyology*. 31(2): 122-134.
- Waseem MP (2007) Issues, growth and instability of inland fish production in Sindh (Pakistan) spatialtemporal analysis. *Pakistan Economic and Social Review*, 45(2): 203-230.
- Weigelt C (1891) *The Abfaller marine fisheries, experimental studies on the nature, quantity processing and utilization.*(Special Supplement to the messages of the sections F. coastal and offshore fishing.) Moeser, Berlin,pp:115.