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Comparative Analysis of Protein Estimation of Freshwater Fishes from Kopargaon Tahsil of Ahmednagar District

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ABSTRACT
Estimation of protein content in edible fishes is essential and thus a bio-monitoring study was carried to find out the rich protein content in commercially important available Fishes. Study of proximate composition in different fresh water fishes is important to know the nutritional status of fishes. In the present study biochemical composition like protein was estimated from this study. It was estimated that the species Salmosalar contains more protein content. The species that are experimented for protein concentration are Anguilliforms, Pampusargenteus, and Oreochromisnileticus. The Result emphasize The importance Of food value among the fishes of local fish market of Kopargaonbazartal Tal.kopargoan ,Dist. Ahmednagar (M.S) and it alarms the consumer a better awareness about the nutritive value of fishes in selection process of edibility and health concern. The results can be used as a baseline data for comparing the variation in protein content of fishes in future.
Key words: *-Salmo salar, Anguilliforms, Pampus argenteus, Oreochromis nileticus*

INTRODUCTION

As the growing human population and the effect of industrialization on the environment, the arrival of the blue revolution has become one of the biggest signs of hope for the future of food supplies. There has been simultaneous rise in fish consumption because of its benefits for health and nutrition moreover, fish is a valuable source of protein, vital minerals, vitamins and unsaturated fatty acids. Additionally, it is rich source of Omega 3 fatty acids (1). The world health organization (WHO) recommend the regular consumption of fish one to two portions a week. Researchers found that people that consume a lot of fish have much lower risks of acute myocardial infraction and other ischemic heart conditions. (2, 3)Fish and all sea food products have a rich nutritional value. They have more amount of protein, lipid and carbohydrates as well as much micronutrients (4).

Fish consumption has a number of nutritional and health benefits, while offering low calorie meals, it is also a reliable source of high quality proteins. Fish protein is readily digestible and contains well-balanced amino acids, which protects us from a variety of illnesses and disorders (5, 6). With an economic zone of over 2.02 million square kilometers and a long coastline of 8118 kilometers, India' fisheries sector serves as a source of livelihood for many people. (7). According to Chilma (8), fish is a really good source of protein containing 18-20% (Chilma). Most proteins are folded in to unique three-dimensional structure. The shape of protein which are generally in folded form is known as its native conformation. Although some proteins can fold without any help through the chemical properties of their amino acid, other require the aid of molecular chaperons to fold in to their native states. Biochemists divide it in to four distinct aspects of protein structure (9). Anguilliforms, a grouping of around 800 species that includes eight suborder, 19 families and 111 genera. Anguilliforms can be found in saltwater and freshwater, with the bulk of species being found in the ocean. It is an excellent source of protein and Omega -3 fatty acids, which Protects our heart, maintain strong bones, lower cholesterol, improve blood pressure and minimize the risk of diabetes and arthritis. Pampus argenteus often called as silver pomfret or white pomfret is a species of butterfish that commonly found in throughout South asia and Indian oceans .Generally all pomfrets varieties are high in good fat proteins add vitamins like A,D and B 12. One of the most popular fish in India known rawas, also referred as Indian salmon. This fish is readily accessible fish that has vital amino acids that supports growth and preserve muscle building, and encourages weight loss.

MATERIAL AND METHODS
Sample Collection
In the present study four commercially important fish species *Anguilliformes*, *Pampusargenteus*, *Oreochromis niliticus*, and *Salmosalar* were analyzed for their protein content. To know nutritional status of this fishes we analyzed them. For estimation of protein sample of fishes were collected from local fish market of kopargaonbazartal, Tal.koprgoan, Dist-Ahmadnagar (M.S). Samples were kept in plastic bags and transported in an insulated ice box to the laboratory one at a time. Fish muscle tissue were homogenized for chemical analysis all the samples were analyzed in triplicates.

Protein Estimation
Protein was estimated by the following method (10). Freshly weighed (100mg) tissue of concern organ, homogenized in a saline medium and centrifuged. The supernatant was taken for the further studies. The total protein content was estimated by Lowery's method with slight modification in concentration of chemicals and samples are used.

RESULT AND DISCUSSION
Table no. 1. Protein content (Mean±SD) in Different Species of Fishes with Standard Comparison

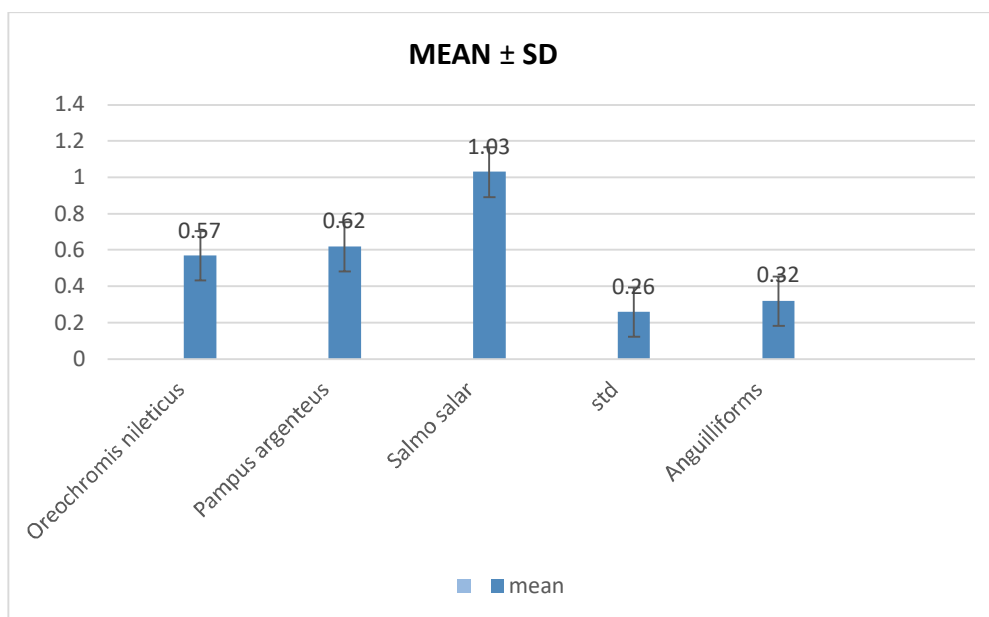| Sample name	Mean	±SD
Oreochromis niliticus	0.57	0.28
Pampusargenteus	0.62	0.31
Salmo salar	1.03	0.49
Standard	0.26	0.13
Anguilliforms	0.32	0.16

Fig. 1: Graphical Representation of Mean Value of Fish Sample

In the present study of protein estimation of fishes that including the preparation of perfect concentration of chemicals standard solution with all the precaution ,references and guidance during the study time. The whole procedures were conducted properly to find out the actual results of the specimen .These were summarized in the table below. The optical density (OD) of all fishes were summarized mean and standard deviation of all these optical data's were summerised in the table no 1 (statistical analytical part).

The study was carried out to find the results about protein content of different fishes and estimate which fish has highest and which is lowest protein content.

The total protein content found to be in *Salmo salar* was (1.03 ± 0.49) ,*Pampusargenteus* was (0.62 ± 0.31) , *Oreochromisniliticus* was (0.57 ± 0.28) , and lowest in *Anguilliforms* (0.26 ± 0.13). The protein content was to be highest in *Salmosalar*(1.03±0.49) and lowest in *Anguilliforms*(0.32±0.16). So the nutritional

value of *Salmosalar*is very high as it was high protein content as compared to the other taken fish samples.

High protein food can help to reach at fitness goals. Protein is much required for healthy body. Serum proteins are divided into two groups, albumin and globulin. Protein acts as a transporter of hormones, vitamins, minerals, lipid and other materials. In addition to proteins help to balance the osmotic pressure of blood tissue.

CONCLUSION

These results indicate that fish consumption has a positive effect on human health due to the biochemical composition like lipid, carbohydrate ,and protein .Many of the mechanisms are not fully explored and more research is still needed to completely understand the effect of fish protein. It is concluded that the excellent and healthier part is the fish muscle to fulfil the protein deficiency in human body.

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