Study of the Proximate Composition of Two Loaches Found in Manipur

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ABSTRACT *The aim of the present study was to evaluate the proximate composition of two(2)loaches found in Manipur. Proximate body composition analysis of the fishes include water , fat ,protein and ash.The fish species studied wereLepidocephalicthysirrorata andPangiopangia .The proximate body composition analysis was carried out with standard method. Out of the two fishes studied Lepidocephalicthysirrorata has highest value of moisture,protein and ash.The results of the fish body composition analysis revealed a strong similarity between the two species,except higher fat content inPangiopangia .It can be concluded that, the nutrient composition of the two fishes studied are found to be within the accepted range suggested by other researchers.*

Introduction

In recent years fish has become favorite foodstuff for the majority of the societies because of several health reason .Fish is safer and healthier to be consumed when compared with goat, buffalo, mutton and chicken meat. Compare to other sources of protein, fish are well known to be excellent sources of protein which can be seen from amino acid composition and protein digestibility(Louka et al .,2004).Fish is also known to be of the cheapest source of animal protein and other essential nutrients , required in human diet (Sadiku and Oladimeji,1991). The fishes offered as dietary supplement to the farming pigs has considerably increased their weight and meat yield (Ojewola and Annah , 2006).The consumption of fish and fish product is recommended as a means of preventing cardiovascular and other diseases and has greatly increased over recent decades in many European countries (Cahu et al., 2004).

Proximate body composition is the analysis of water, fat, protein and ash content of fishes. Carbohydrate and non protein compounds are present in negligible amount and are usually ignored for routine analysis (Astawan et al .,2004). The value vary considerably within and between species , size , sexual condition, breeding season and physical activity .Protein content, which is an important component tends to vary little in healthy fishes (Hui and Y.H,2001).

There are many reports on biochemical and nutritional aspect on fishes. However there is no report so far on these loaches of Manipur. In the present study, proximate composition of these two loaches of Manipur are reported. So, the aim of this study is to evaluate the proximate composition of these two loaches from Manipur.

MATERIAL AND METHODS

Fresh fishes were collected from the market and transported to the laboratory .The length and body weight were measured to the nearest centimeter and gram for L.irrorata (3.9-4.2 cm and 0.40-0.46gm) and for P. pangia (5.8-6.4cm and 0.69-0.71gm).The whole body of the fishes were ovendried and the fish powdered was used for determination of proximate composition.

Proximate composition : Proximate composition of the fishes was determined using AOAC methods (AOAC,1990). Moisture content was measured by weighing difference before and after oven drying at $70\text{-}80^0c$ until constant weight is obtained .Protein content was determined by Lowry's et al., method.(1951).Ash content was measured by following the method of ISI (1982).Fat content was estimated by the method of Folch et al.,(1959).All the analysis were done in triplicate.

Statistical analysis: All the data were analyzed by one way ANOVA analysis using SPSS 16 for windows, Duncan's multiple range test was used to resolved differences among treatment means. A value of $P<0.05$ was used to indicate significant difference.

Table no.1 : Proximate composition of the fish samples:

Fish Species	Moisture%	Protein%	Fat%	Ash %
Lepidocephal-icthys irrorata	82.96 ± 0.036^c	5.43 ± 0.202^a	10.83 ± 0.153^b	10.66 ± 0.292^b
Pangio pangia	81.82 ± 0.160^d	5.23 ± 0.226^a	20.33 ± 0.064^c	10.33 ± 0.104^b

The percent value is the mean of 3 replicates (mean±SD) within a column with different letters which are significantly different (p<0.05).

Result and discussion

Mean percentage of moisture, protein, fat and ash content of the fishes are given in Table no.1. The varied value of their whole body were analyzed and recorded .The fish sample analyzed presented highest to lowest amounts of moisture,total protein ,ash in the order L.irrorata>P.pangia ;highest to lowest amount of total lipid in the order of P.pangia>L.irrorata .The chemical composition of fish varies greatly from one individual to another depending on age ,sex ,environment and season with levels ranging from protein 16-21%,lipids 0.1-25%, ash 0.4-1.5%, moisture 60-81% with extreme of 96% having been reported.(Muraleedharan,V.,et al 1996).The fishes were collected during Pre monsoon period and the size selected presented within the range of adult. Both the fishes fall under high fat category(Ackman,1989).However the prin-

ciple composition of fish ranges for protein 16-21% ,fat 0.2-5%,water 66-81% (Love,1970).The low value of protein in both the species analysed could be due to the analysis of the whole body rather than the muscle. The ash content gives a measure of the total mineral content in the animals (Nair and Mathew,2001).The high ash content in both the species indicates that the two species are found in a mineral rich environment as well as the capability of assimilation and storage of minerals.

Conclusion:

The result of the fish body composition analysis revealed a strong similarity between the two species, other than higher fat content in Pangio pangia (Table no.1). The preparation of the species are consider traditionally as one of the best among the small size fishes of Manipur. The nutrient composition of the fishes reflect the high human nutritional value.

REFERENCE 1.Sadiku SOE, Oladimeji AA (1991). Relationship of proximate composition of Latesniloticus (L), synodontisschall. Res. Commun.,3: 29-40. | 2.Louka,N.,F.Juhel,V.Fazilleau and P.Loonis,2004.A novel colorimetry analysis used to compared different drying fish processes. Food Control,15:327-334. | 3.Folch J, Lees M, Sloane-Stanley GH (1959). A simple method for the isolation and purification of total lipids from animal tissues. J. Biol. Chem., 226: 497-509. | | | 4.Lowry.O.H.,N.J.Rosebrough,A.L.Farr and R.J.Randall,1951.Protein measurement with the phenol reagent.J.Biol.Chem.,193:265-275 | | 5.Ojewola, G.S. and S.I. Annah ,2006.Nutritive and economic value of Danish fish meal cray fish dust meal and shrimp waste meal inclusion in broiler diet. Int.J.Poult.Sci.,5:390-394. | | 6.AOAC., 1990. Official analysis methods of AOAC international (16th ed.).USA:AOAC. | 7.Astawan ,M., 2004.Ikan yang sedapdanbergizi.Solo : Tigaserangkai. M. Calicioglu, J.N. Sofos, J.Samelis,P.A.Kendall and G.c.Smith,2003.Effect of acid adaptation on in activation of Salmonella during drying and storage of beef jerky treated with marinades.Intl. J.Food Microbio.,89:51-65. | 8.Hui,Y.H.,2001.Meat Science and Aplication CRC press,pp:29-47. | 9.Cahu,C.,P.Salen and M. De Lorgeril,2004.Farmed and wild fish in the prevention of cardiovascular diseases :Assessing possible differences in lipid nutritional values.nutr.Metab.Cardiovasc.Dis.,14:34-41. | 10.Indian standard Institution,1982:Handbook of food analysis .Vol.6.ISI.,New Delhi.pp.60-64. | 11. Nair PGV, Mathew S. Biochemical compositionof fish and shell fish, Central Institute of FisheriesTechnology, Cochin-682029 ICAR: 2001. | | 12.Ackman,R,G.,1989.Nutritional composition of fats in sea foods.Prog.Food Nutr.Sci.,13:161-289. | 13.Love,R.M.,1970.The Chemical biology of fishes: with a key to the Chemical Literature.Academics Press Inc.,London.U.K.,Pages;547. |