

**“Proximate Composition and Total Amino Acid
content of two Small Indigenous Fish Species of
Manipur”**



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Introduction:

- Small Indigenous Fishes are those which fishes grow to a maximum size of 25 cm or 9.8 inched (Felts *et al.*, 1996).
- Many SIS are less than 10 cm in length and they are consumed as whole (Sakuntala, H.T. *et al.*, 1997).
- Providing an excellent sources of micronutrients like Ca, Fe, Zn and Vitamin A (Roos, N., et al. 2003,2006,2007).
- Plays a vital role in life and economy of vast majority of fishermen community and poor rural people (Mohon Kumar M. *et al.*, 2010).
- In Manipur any type of small or big fishes are consumed.
- Small Cobitid fishes viz *Synchrossus berdmorei* and *Lipidochephalus irrorata* endemic in this area are highly esteem among the peoples.
- In verge of extinction and urgent need for conservation and proper management to increase their productivity.



Materials and methods:

- **Sample collection:** *Glossogobius guirius* and *Hypsibarbus myitkyinae* were selected for the study and fishes are collected from various places of Manipur during the month of July and September. The collected fishes sample consists of five samples each was brought fresh in the laboratory and undergoes various analysed. The collection sites of the sample are shown in Table 1 and in fig 1 and fig 2.
- **Proximate Composition:** proximate composition were determined by using the method of AOAC, 2000.
- **Total Amino Acid:** Total amino acid were determined by the method describe by Moore, S. and Stein, W.H. (1948).
- **Statistical analysis:** Six samples were used for determination. The data were subjected to one way-ANOVA and the significance mean were compared by Duncan's multiple range tests using SPSS 16.0 and the data are presented as means \pm standard deviation.



Table 1: Shows the name of the species and their collection site.

Species	Local name	Collection site
<i>Glossogobius guires</i>	Nilon ngamu	Moirang Market
<i>Hypsibarbus myitkyinae</i>	Heikak nga	Moreh Market



Fig1: *Glossogobius giurius*



Fig 2: *Hypsibarbus myitkyinae*



Result:

Table 2: Table showing length weight of the fish species

Name of the species	Length (cm)	Weight (g)
<i>Glossogobius guires</i>	14.16±0.49	22.38±1.15
<i>Hypsibarbus myitkyinae</i>	12.15±0.80	22.87±1.38

Values are mean of three replicate.

Mean (\pm SD) followed the same letter are not significantly different ($P \leq 0.05$).



Table 3: Proximate composition and Total Amino Acid of two Small Indigenous Fishes

Species	Moisture %	Protein %	Lipid %	Ash %	Total Amino Acid mg/100g
<i>Glossogobius guires</i>	76.21±1.11	9.42±0.47	2.23±0.15	3.77±0.03	434.67±0.4
<i>Hypsibarbus myitkyinae</i>	74.12±1.78	14.16±0.57	5.00±0.62	3.49±0.13	487.00±0.2

Values are mean of three replicate.

Mean (\pm SD) followed the same letter are not significantly different ($P \leq 0.05$).



Table 4: Showing proximate composition in different small indigenous fish species of Bangladesh (Mazumder, M. S. A. *et al.* 2008)

Fish species	Moisture(%)	Protein(%)	Fat(%)	Ash(%)
<i>A. mola</i>	76.38± 2.52	18.46±1.86	4.10±0.98	1.64±0.54
<i>G. chapra</i>	75.07± 3.05	15.23±1.78	5.41±0.75	1.55±0.56
<i>P. chola</i>	74.43±3.56	14.08±2.01	3.05±0.45	1.19±0.29
<i>C. nama</i>	65.88±3.00	18.26±2.50	1.53±0.25	3.92±0.54
<i>P. atherinoides</i>	73.32±2.98	15.84±1.50	2.24±0.40	3.29±0.68
<i>A. coila</i>	78.62±3.98	16.99±1.75	3.53±0.58	1.98±0.65



Discussion:

- Moisture content of both the fishes are in acceptable level (50-80%).
- It could be due to stable water level in environment.
- Lower protein content of *Glossogobius giurius* might be due to collection of fish in spawning season.
- Protein content shows different content in fishes may be low potential of consumption or conversion of nutrients from diet into biological attributes (Adewaye and Omotosho, 1997).
- Due to poor storage and used of reserved fat during spawning season fishes shows low lipid content (Ackman *et al.*, 1989).
- The ash content is delineate with the mineral content and it was accepted that small fishes are good sources of minerals.
- Higher content of ash may be due to higher bone consistency and scally nature (Sarojnalini, Ch., *et al.*, 1994).



Conclusion:

From the above analysis *Hypsibarbus myitkyinae* shows more superior in the content of protein and lipid whereas both the fishes shows a good sources of ash. From the previous studies of Sarojnalini Ch. And Sarjubala W.(2013, 2014) small fishes have antioxidant properties, PUFA and Micro Minerals Thus small fishes are attribute for the good sources of micro nutrients which are benefits for health and protect from various disease regarding micro element deficiencies. Thus consumption of small fishes can uproot the micro elements deficiencies.



Acknowledgement

Author is grateful to my Supervisor, Ch. Sarojnalini for her support and guidance throughout the work and to Head of Department, Department of Life Sciences for providing Laboratory facilities and to my colleague and friends for their support.



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Thank You

