Morphometric Analysis of *Mystus seenghala* from Narmada River

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Abstract:

The morphometric and meristic analysis of fish is Pre requisite for the identification of the fish species of same genus. In present study the cat fish *Mystus seenghala* is taken. Fifteen samples of the fish for the study of eleven morphometric parameters *Mystus seenghala*. The sample were collected from Narmada River the correlation of different parameter is studied with reference to the total length of fish. The linear regression analysis is done. There is a proportional positive increase in morphometric characters when the length of fish is increased. The variation in the morphometric and meristic analysis indicates the impact of the surrounding environment on the growth of the fish and its adapdation capability in variable habitat.

Key words : Morphometry, *Mystus seenghala*, meristic analysis

Introduction

Mystus seenghala commonly called as *Seprata seenghala* (1,2) is an important fish belongs to the Bagridae family of Siluriformes. It's an important food fish found in the south Asia. The high occurrence of this fish throughout the different ecological and environmental habitat and its high rate of consumbtion make this fish ideal for the studies. The Bagridae family of Siluriformes order is one of the most diverse groups of organism, as more than 300 fish species comes under this family. The remarkable features of fishes belongs to Bagridae family are moderately elongated body, head depressed, four pairs of barbels. Mystus spp. is one of the most easily available Bagrids in Central India. The environmental and ecological condition of different locations varies and it directly effects the development of organism.

This changes the morphometris of the fish species. For the identification of the fish species and its classification into particular taxa, Morphometry is an important tool (3). It makes identification taxonomically significant. Morphometric characters are the qualitative measurement and Meristic characters are the quantitative measurement (4).

The interaction of environment selection and heredity on the morphometry of the fish species of different population are very important for the study of diversity. There are several morphometry characters that reflect phenotypic variation including body length and width, length of other body parts which in turn help in population identification and diversity studies(5). The present work is based on the comparison of fifteen fish species collected from Narmada river. The location chosen specifically to study the effect of habitat on the morphometric and meristic charcterstics of the fish *Mystus seenghala*.

Materials and Methods

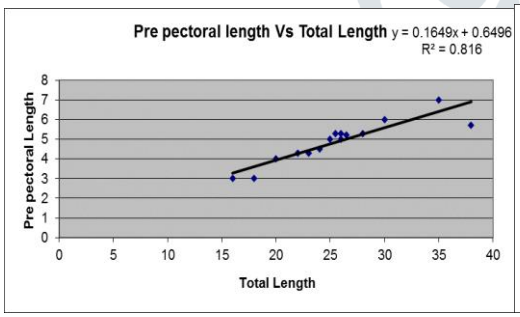
A total of 15 Fish samples of *Mystus seenghala* are collected from the banks of Narmada river at Budhni Ghat, Hoshangabad and brought to the laboratory for the Morphometric and Meristic analysis. The fish specimen samples are preserved in 10% formalin solution in glass jars. The identification of meristic and morphometric characters are done by taking help from standard books (6). The morphometric and meristic characters are measured through vernier caliper and standard scale.

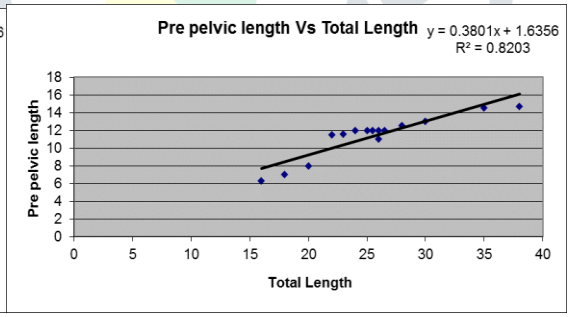
Methods Of Data Analysis –

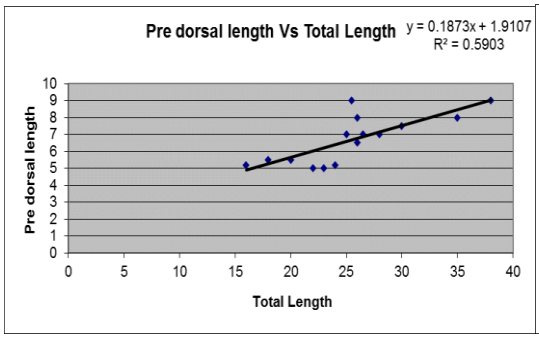
The morphometric characters of the different fish samples from the locations were collected from the raw data. The speciment size where measured and grouped into the range, Computed and analyzed using, means, standard Deviation, percentage, Linear Regression, correlation coefficient (7,8,9)

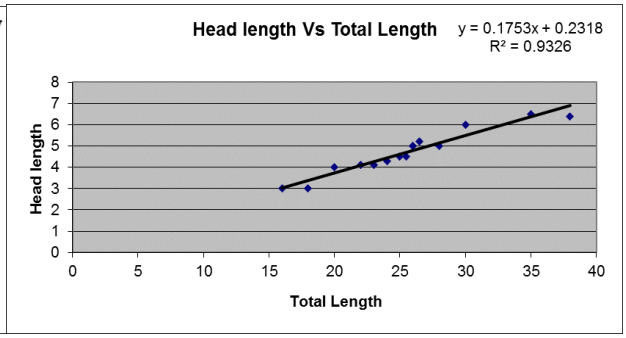
Table : 1 Morphometric analysis of *Mystus seenghala*

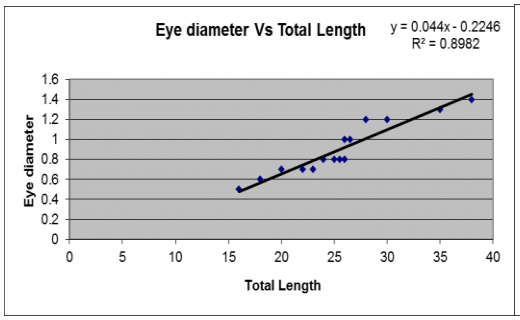
S.No	Morphometric characters	Range	Mean	Standard Deviation	Correlation(r)	Regression (Y= a + bX)
1	Total length	16.0 - 38.0	25.53	5.81		
2	Fork Length	12.0 - 35.0	21.37	5.98	0.9908	y = - 4.6848 + 1.0203x
3	Standard length	10.5 - 31	19.32	5.50	0.9838	y = - 4.4862 + 0.9324x
4	head length	3.0 - 6.5	4.71	1.05	0.9657	y = 0.2318 + 0.1753x
5	Eye diameter	0.5 - 1.4	0.90	0.27	0.9477	y = - 0.2246 + 0.044x
6	Body depth	2.0 - 4.3	2.94	0.76	0.9158	y = - 0.103 + 0.1192x
7	Pre dorsal length	5.0 - 9.0	6.69	1.42	0.7682	y = 1.9107 + 0.1873x
8	Pre adipose length	7.0 - 22.0	13.87	4.02	0.9907	y = - 3.6419 + 0.6857x
9	Pre anal length	10.0 - 24.0	15.49	4.15	0.9807	y = - 2.3944 + 0.7003x
10	Pre pelvic length	6.3 - 14.7	11.34	2.44	0.9057	y = 1.6356 + 0.3801x
11	Pre pectoral length	3.0 - 7.0	4.86	1.06	0.9033	y = 0.6496 + 0.1649x

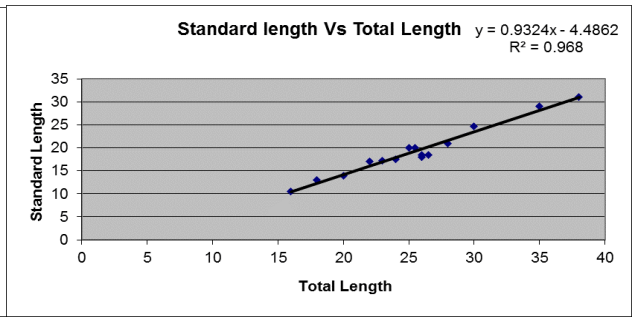


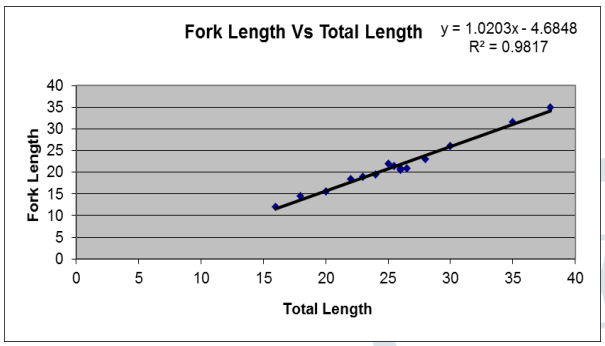


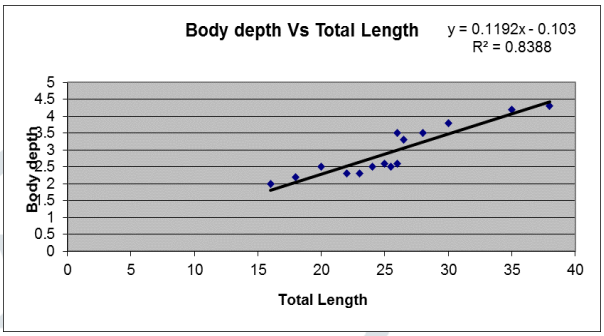


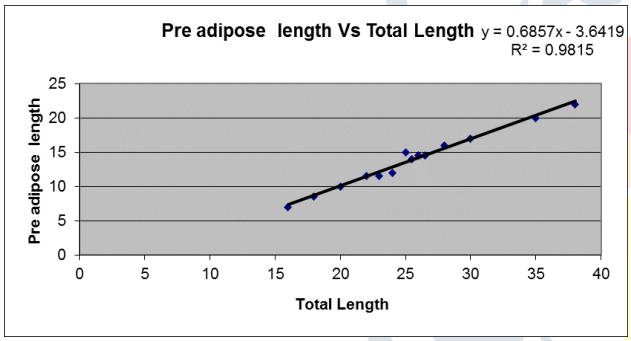


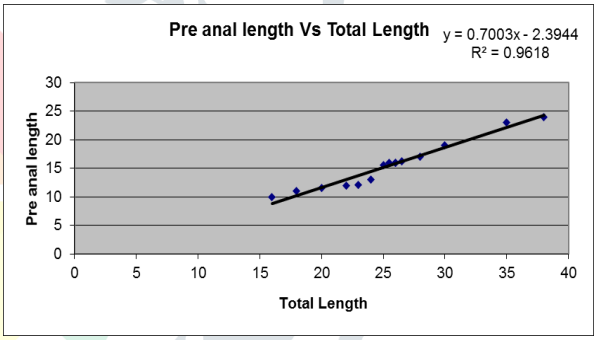












Result and discussion

In the present study the morphometric measurements of *Mystus seenghala* from one location studied which shows some variation. Data of *Mystus seenghala* on eye diameter (0.5 - 1.4 cm), head length (3 - 6.5 cm), standard length (10.5 - 31cm), Body depth (2 - 4.5cm),Total length (16 - 38cm), and pre pectoral length (3 – 7cm), pre dorsal length (5 - 9cm), pre adipose length (7 - 22cm) pre pelvic length (6.3 -14.7 cm) pre anal length (10 - 24cm). (Table I). The total length measurement were 1.5 - 1.22 times the standard length, and 5.34 - 5.84 times the head length, 5.34 - 5.42 times the pectoral length, 8 - 8.83 times the Body depth, 3.2 - 4.2 times the pre dorsal length 2.28 – 1.72 times the pre adipose length, 1.6- 1.58 times the pre anal length and 2.53 – 3.58 times pre pelvic length. The correlation analysis shows that there is a positive correlation between the diifernt morphometric parameter with the reference length (Total length). There is highest correlation (0.9908) when the fork length is correlated with total length

and lowest correlation (0.7682) is when the pre dorsal length is correlated with total length (table1). The linear regression equation with variable parameters Y on the total length X show positive allometry with many parameters and few gaves negative allometry.

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