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Abbreviations and Symbols

Abbreviations		Full
%	:	Percentage
ANOVA	:	Analysis of Variance
Cm	:	Centimeter
SPSS	:	Statistical package for social science
GDP	:	Gross Domestic Product
DoF	:	Department of Fisheries
FAO	:	Food and Agriculture Organization of the United Nations
M_e	:	Median
°	:	Degree
PCA	:	Principal Component Analysis
PC	:	Principal Component
DFA	:	Discriminant Function Analysis
DF	:	Discriminant Function
KMO	:	Kaiser–Meyer–Olkin
CA	:	Cluster analysis
sp.	:	Species
>	:	Greater than
<	:	Smaller than
Ppt	:	Parts per thousand

ABSTRACT

Unique morphological characters enable better identifications, ensure enhanced perpetuations of resources and management strategies. The landmark-based morphometric and meristic variations in two congeneric hilsa fishes *Tenualosa ilisha* and *Tenualosa toli* were investigated to assess the population status and shape variation within and between the species from three different regions (coastal, riverine and marine) of Bangladeshi waterbodies. All data were adjusted and univariate ANOVA, discriminant function analysis (DFA) and principal component analysis (PCA) showed significant differences in eight morphometric measurements and eight truss network measurements among the three stocks of *Tenualosa ilisha*. For morphometric and landmark measurements, the first discriminant functions (DF) accounted for 89.8% & 87.4% and the second DF resolved 10.2% and 12.6%, respectively of the among group variability and together they explained 100% of the total among group variability. Scattered plotting from PCA and dendrogram from cluster analysis revealed that, the river habitants were morphologically different from the coastal and marine populations. This experiment also demonstrated the variability between *Tenualosa ilisha* and *Tenualosa toli* following univariate ANOVA, DFA and PCA. Twelve of fifteen morphometric measurements and thirteen of fourteen truss network measurements showed significant differences between species with significant variation in meristic characters. PCA revealed 89.23% and 88.29% in case of morphometric and truss measurement respectively confirming high degree of variations between the two species. Overall, our results based on morphometrics with truss measurements together provide useful information about the morphological differentiation which will be helpful for sustainable exploration and effective management for these two species.

Key words: Congeneric hilsa fishes, Truss network measurements, Morphometric measurements, Dendrogram