



**MORPHOLOGICAL APPROACH TO THE
IDENTIFICATION OF *Eleutheronema tetradactylum* IN
CHATTOGRAM COAST, BANGLADESH**

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Roll No.: 0119/18

Registration No.: 717

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**A thesis submitted in the partial fulfillment of the requirements for the degree of
Master of Science in Marine Bioresource Science**

**Department of Marine Bioresource Science
Faculty of Fisheries
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APRIL 2021

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This is to certify that we have examined the above Master's thesis and have found that is complete and satisfactory in all respects, and that all revisions required by the thesis examination committee have been made

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LIST OF ABBREVIATIONS

SL	Standard length
TL	Total length
FL	Fork Length
HL	Head Length
POL	Pre-orbital Length
PDL	Pre-dorsal fin length
PVL	Pre-Pelvic fin length
PPL	Pre-Pectoral fin length
PAL	Pre-anal length
KG	Kilogram
G	Gram
MG	Milligram
DOF	Department of fisheries
FAO	Food and agriculture organization
RAPD	Random amplification of polymorphic DNA
RFLP	Restriction fragment length polymorphism
BFDC	Bangladesh fisheries development corporation
PCA	Principle component analysis
MT	Metric ton
FY	Fishing year
KM	Kilometer
ID	Identification
MM	Millimeter

E	East
N	North
ST	Station
WT	Weight
ANOVA	Analysis of variance
%	Percent
DFA	Discriminant function analysis
CVASU	Chattogram veterinary and animal sciences university

ABSTRACT

Morphological characters are generally significant in the identification and scientific categorization of fishes. Unique morphological characters enable better identifications, ensure enhanced perpetuations of resources and management strategies. The morphometric and meristic variations in Fourfinger threadfin (*Eleutheronema tetradactylum*) was investigated to assess possible differences between separate unit stocks and monthly variation within the species throughout ten months from three different regions (Patenga, Kattoli and Cox's Bazar) of Chattogram coast, Bangladesh. Nine morphometric and six meristic characters were examined. Correlation showed a statistically significant linear relationship among morphometric characters. Regression explained, 51.1% to 98.2% variation in different morphometric characters with total length predicted by the linear relationship. Dendrogram from cluster analysis revealed that, the monthly morphometric measurements had changed significantly. Univariate ANOVA as well as Discriminant Function Analysis (DFA) pretended significant differences in only one (pre-pelvic length) morphometric measurements among the three stocks where all data were adjusted. For morphometric measurements, the first Discriminant Functions (DF) resolved 85.0% and the second DF accounted for 15.0% group variability and together they explained 100% of the total among group variability. The canonical discriminant functions in DFA marked that *E. tetradactylum* populations were similar from the fish samples of three different stations. Principle Component Analysis (PCA) asserted that the first three principal components (PC1, PC2 and PC3) had eigenvalues greater than 1 and explained 83.17% of the variation in the data where the first (PC1) principal components (nine morphometric measurements) accounted for 62.17%. The current study suggested that the utilization of morphometric characters to create dependable data for stock separation of *E. tetradactylum*. The discoveries of the study would fill in as primary information of stock management and enable efficient management strategies for the particular supplies of threadfin populaces to make its fishery sustainable and create suitable protection plans in the not-so-distant future.

Key words: Morphometric, Meristic, Threadfin, *Eleutheronema tetradactylum*, Variation, Chattogram.