Genetic Diversity study of Hilsa shad (*Tenualosa ilisha* (Hamilton, 1822)) using AFLP markers in Persian Gulf

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Abstract

Hilsa shad (*Tenualosa ilisha*) is a marine pelagic species that migrates to the river to spawn. In order to investigate the diversity, differentiation and population structure of hilsa shad using the Amplified Fragment Length Polymorphism (AFLP) marker in the northern waters of the Persian Gulf from Abadan, Dilam and Bushehr regions, a total of 25 fish were sampled from the caudal fin tissue in June 2019 . Then the examined samples were fixed in 96% ethanol and transferred to the laboratory. After extracting DNA from tissues by phenol chloroform method, five MseI/EcorI primer combinations were used in genetic diversity analysis by AFLP method. Then genetic analysis was done using GeneAlex, Popgen and TFPGA software. The percentage of polymorphic bands was 11.99%. Average of nei's genetic diversity was 0.285±0.029, and average of shannon's index was 0.429. The results of AMOVA analysis indicated that 20% of the genetic variation contained within populations and 80%. Based on PCA component analysis and genetic distance dendrogram (UPGMA), it was determined that the degree of separation of populations was based on their geographical distance from each other. So that Abadan and Dilam samples have the lowest genetic distance and Bushehr and Abadan samples have the highest genetic distance. What can be estimated from the present study is that there are separate populations of this fish in the Persian Gulf.

Keywords: Genetic variation, Population, Hilsa shad, AFLP marker, Persian Gulf.