

Study of Genetic Diversity of mudskipper (*Periophthalmus waltoni*) using RAPD markers in the Persian Gulf

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Abstract:

We collected 69 samples of Mudskipper from dominant species *periophthalmus waltoni* for genetic study from Hendijan, Khore Zangi and Delvar. A specimen of fin was fixed in Ethanol alcohol (96%) and moved to Biotechnology lab in center study of Persian Gulf in Bushehr. Total genomic DNA was extracted by proteinase-K digestion, phenol: chloroform: isoamyl alcohol extraction and ethanol precipitation. The quality and quantity of DNA was assessed using 1% agarose gel electrophoresis and spectrophotometric method. Polymerase chain reactions (PCR) were conducted on the target DNA using 6 primers RAPD. PCR products were separated by electrophoresis on polyacrylamid gels (8%) that were stained using silver nitrate. Allele frequency, the effective and real allele, expected and observed heterozygosis, genetic diversity, Shannon Information index, G_{st} and gene based on analysis of molecular variance (AMOVA) were calculated using the GENALEX and Pop Gene software. The average of Shannon index for Hendijan, Khore zangi and Delvar was respectively 0.3887, 0.2860 and 0.3509. Highest of G_{st} observed between Hendijan and Khore zangi (0.260) and lowest between Khore zangi and Delvar (0.195). Highest of gene flow (Nm) was observed between Delvar and Khore zangi (1.033) and lowest between Hendijan and Khore zangi (0.687). Highest of Genetic identity observed between Delvar and Khore zangi (0.924) but lowest was between Hendijan and Khore zangi community (0.833). Eventually this study show that three community of our research are separate and belong to two clusters.

Keywords: Mudskipper, *Periophthalmus waltoni*, RAPD-PCR, Persian Gulf, Genetic Distance and Identify.