

عنوان مقاله:

Research Article: Analysis of the genetic structure of the Persian sturgeon (*Acipenser persicus*) populations: Comparison of control region sequencing and PCR-RFLP analysis of mitochondrial DNA

محل انتشار:

مجله علوم شیلات ایران، دوره 19، شماره 6 (سال: 1399)

تعداد صفحات اصل مقاله: 20

نویسندگان:

S. Nazari - *Shahid Motahary Cold-water Fishes Genetic and Breeding Research Center, Iranian Fisheries Sciences Research Institute, Agricultural Research, Education and Extension Organization (AREEO), Yasouj, Iran*

M. Pourkazemi - *Iranian Fisheries Sciences Research Institute (IFSRI), Agricultural Research, Education and Extension Organization (AREEO), Tehran, Iran*

M. Khoshkholgh - *Department of Fisheries, School of Natural Resources, University of Guilan, P.O. Box 1144 Sowmehsara, Iran*

خلاصه مقاله:

The genetic variation and population structure of the Persian sturgeon, *Acipenser persicus* (Borodin, 1897) was investigated by means of polymerase chain reaction (PCR) restriction fragment length polymorphism (RFLP) analysis of the nucleotide dehydrogenase subunit δ (ND δ) of mitochondrial DNA (mtDNA). We compared these data with our previous study based on mtDNA control region sequences. A total of 225 individuals were collected from 23 sample sites in the south and 4 locations in Turkmenistan, Azerbaijan, Russian Federation and Kazakhstan covering the three main geographic regions including south, middle and north part of the Caspian Sea. The PCR products were digested with 25 restriction enzymes and five enzymes revealed polymorphism patterns (Rsa I, Hinf I, HaeIII, Mbo I and Cfr131). Thirty two composite haplotypes were revealed with the number of haplotypes in each population sample ranging from 6 to 13. Two regional (Sefidroud River and Russia) groups were clearly identified by cluster and molecular variance model (AMOVA) analyses. Each of these groups showed dominant haplotypes that were little in populations from the other geographic areas. The mean haplotype diversity (h) and nucleotide diversity (π) were 0.761 ± 0.046 and 0.0083332 ± 0.00421 , respectively. Based on heterogeneity test and Monte-Carlo with 1000 replicates, significant differences were showed for haplotype frequencies of the Persian sturgeon populations ($p < 0.001$). The obtained results and also F_{ST} based on kimura-2 parameters method showed that haplotype distribution in different location were significant ($p < 0.001$). Results of this study determined independent populations of Persian sturgeon and will have noticeable implications for sturgeon conservation genetics in general.

کلمات کلیدی:

Acipenser persicus, Mitochondrial DNA, PCR-RFLP, Caspian Sea

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