Genetic variation and structure of *Alburnoides Nicolausi* (Bogutskaya and Coad, 2009) in the Joushan and Houzian rivers (Lorestan Province)

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Received date: 2020.10.11
Reception date: 2020.11.05

Abstract

Alburnoides nicolausi is one of the freshwater, benthopelagic species with high ecological importance. This fish is native to Iran and found in the basin Tigris. Considering the lack of information on population genetics of *A. nicolausi*, the genetic diversity and structure of this valuable species was studied in the present research. For this, *A. nicolausi* samples were collected from Joushan and Houzian rivers, Lorestan Province, during the winter 2018 and assessed by STRs. The results indicated that *A. nicolausi* has a proper level of allelic diversity (the allelic mean: 8.16) and heterozygosity (the average observed heterozygosity: 0.958) in the studied regions. In comparing populations, no significant difference in allelic diversity and heterozygosity was observed between the samples (P>0.05). In studying the Hardy-Weinberg equilibrium, there was a significant deviation from the equilibrium in two cases which were in the equilibrium after sequential Bonferoni correction. Results from the analysis of molecular variance also indicated that the main part of the observed diversity was within populations. The FST and Rst values, as the indices of the genetic differentiation, were 0.062 and 0.086, respectively. In this regard, the effective migration index between the studied samples was at a relatively low level. From a total of 68 observed alleles, a considerable number of private alleles were in the populations (17 and 21 alleles for Joushan and Hozian, respectively). Altogether, it seems that *A. nicolausi* has a proper level of genetic diversity and the studied populations are probably separated from each other. The data from the present study could be efficient to establish the programs for management and conservation of the native freshwater stocks.

Keywords: Freshwater, Allelic diversity, Population, Tigris Basin, Heterozygosity.