

Genetic characteristics of different populations of *Litopenaeus vannamei* in hatchery centers of Bushehr province

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Abstract

The aim of this study was identifying different populations and determining the genetic characteristics of three different sub-adult stocks of *Litopenaeus vannamei* in hatchery of Iran Shrimp Research Center by microsatellites DNA markers in Bushehr province during from October to November 2019. Up to 50 individuals were sampled per stock, with equal contribution by sex. The tissue preserved in 95% ethanol prior to DNA extraction and genotyping. Total genomic DNA was extracted from each sample, then using 9 microsatellite loci were determined genetic characteristics including genetic diversity, frequency of alleles, inbreeding coefficient, genetic distance, genetic similarity and genetic differentiation. The results showed that the observed heterozygosity range in the three stocks, Hybrid, High Health and Molokai was in the range of 0.11-0.70, 0.16-0.85 and 0.90-0.21, respectively, despite the less genetic diversity of the Hybrid and high health stocks compared to the Molokai reserve, no significant differences were observed. Although the frequency of alleles was in the range of 2-9 in three stocks, but the amount of specific alleles for Hybrid, high health and Molokai were 0.37 ± 0.18 , 0.75 ± 0.36 and 0, respectively. Also, the inbreeding coefficient obtained in Molokai, High health and Hybrid stocks was 0.14, 0.31 and 0.41, respectively. Therefore, due to the low genetic differentiation and high genetic similarity of Molokai and Hybrid stocks (0.117 and 0.135) as well as a high genetic distance between them and Health stocks (0.615), were established with the aim of increasing genetic diversity, Molokai and Hybrid stocks as the first population and High health stocks as the second population were introduced.

Keyword: *Litopenaeus vannamei*, Microsatellite, Genetic characteristics, population, Boushehr.