

Investigation of genetic diversity and DNA barcoding of two species (*Rachycentron canadum*) and (*Parastromateus niger*) in the Persian Gulf

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Abstract

The aim of this research was to better understand the distribution patterns of parents, larvae and also to obtain barcode records for *Rachycentron canadum* and *Parastromateus niger* species according to the species reported from around the world. Sampling was done from two areas of Bandar Mahshahr in Khuzestan province and Bandar-Abbas in Hormozgan province and according to the main fishing points of the mentioned species. DNA extraction by phenol-chloroform method from swimming fins was successfully performed and a part of the mtDNA genome called cytochrome oxidase subunit I (COI) gene was successfully amplified using a primer pair and annealing temperature of 54 ° C and sequencing was performed and finally 560 reliable bp were selected for phylogenetic analysis. In this research, *Rachycentron canadum* species along with *Parastromateus niger* (with a genetic difference of 0.22 between these two species) were placed in two separate branches and the use of Southern meagre species as an out group with a genetic difference of 0.25% between this species and the two mentioned species were not unexpected. In relation to the species of *Parastromateus niger*, it is observed that this species is not much different from the reported samples from India and Malaysia in terms of genetically studied differences. Lack of diversity can be observed in *Rachycentron canadum* species, which due to the migratory nature of this species was expected to be able to create considerable haplotype diversity. However, the identification and existence of a separate haplotype of this species with a genetic difference of one percent with the samples of India, the United States and Saudi Arabia can be considered.

Keywords: *Rachycentron canadum*, *Parastromateus niger*, Persian Gulf, Barcoding.