

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

Reza Nahavandi^{1*}

Saeid Tamadoni Jahromi²

Forough Bayati³

1, 3. Animal Science Research
Institute of Iran, Agricultural
Research, Education and
Extension Organization
(AREEO), Karaj, Iran.

2. Persian Gulf and Oman Sea
Ecology Research Centre, Iranian
Fisheries Sciences Research
Institute, Agricultural Research
Education and Extension
Organization (AREEO), Bandar
Abbas, Iran.

*Corresponding author:

Rezanahavandi91@gmail.com

Received date: 2021-08-06

Reception date: 2021-12-06

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.