DIVERSITY AND DNA BARCODING OF CORAL-ASSOCIATED FISHES OF SAINT MARTIN'S ISLAND FOR EFFECTIVE CONSERVATION OF MARINE LIFE.

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Abstract

Saint Marin's Island (SMI), is the only sedimentary continental island in Bangladesh. We have conducted an ichthyological survey to assess the reef-associated fish species on this island. In this survey, we have identified and recorded 141 species of reef-associated fishes of 56 Families under 20 Orders. Among them, 37 species of reef fishes were recorded for the first time in Bangladesh and one is discovered as a new species to the science during the current study. In this study, we also obtained 221 DNA sequences from 100 species of which 179 sequences (96 species) were obtained from the COI gene and 42 sequences (26 species) obtained from the 16S rRNA gene region. The COI sequences of those 96 species comprised 145 haplotypes with 337 polymorphic sites. The mean genetic distances within species, genera, and families were 0.34%, 12.26%, and 19.03%, respectively. In the case of 16S rRNA sequences, 42 sequences of 26 fish species comprised 31 haplotypes containing 241 polymorphic sites. The mean genetic divergence within species, genera and families was 0.94%, 4.72% and 12.43%, respectively. This study is a significant contribution to the fisheries statistics of this ecologically critical area (ECA) and Marine Protected Area (MPA) of Bangladesh as well as the northern Bay of Bengal which would facilitate the assessment of species catch composition and hence for strategizing management plans. It is also an important input to the DNA barcode library of reef fishes of the northern Bay of Bengal and to the marine fishes of Bangladesh as well as global DNA barcode entries in general.

Keywords: ichthyological survey, Saint Martin's island, mitochondrial DNA