

Molecular Phylogeny Study of the Sea Anemone Genus *Anemonia* (Actiniaria: Actiniidae) Based on Mitochondrial (COI) DNA Sequences in the Persian Gulf

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Abstract

Sea anemones (order: Actiniaria) are a subclass of Hexacorallia. They are very varied and are organisms with a simple skeletal polyp. The specie in this study was collected from Larak Island in the Persian Gulf. DNA was extracted from the sample and a part of mtDNA COI gene was amplified. Two pairs of primers were designed to amplify a final target of 600 bp using PCR method which the product was successively sequenced. The purpose of this study was the molecular identification of the Persian Gulf sea anemone. The nucleotide and protein sequences obtained from this anemone's COI gene were annotated in NCBI Gene Bank as *Anemonia* sp. PG, the PG standing for the Persian Gulf. Phylogenetic studies were performed to compare the partial sequences of COI genes of 16 sea anemones (order: Actiniaria) with the newly identified anemone (*Anemonia* sp. PG). Phylogenetic studies based on Neighbor-Joining analysis showed sister relations between *Anemonia* sp. PG species from Iran and *Anemonia* sp. Anem species but did not show monophyletic relationships between sea anemone families.

Keywords: *Sea anemone, Phylogenetic, Molecular identification, COI, Persian Gulf.*
