Spatial variation and species diversity of leaping blenny fish (family: Blenniidae) in Southern Coastal region of Sri Lanka

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Leaping Blenny fish are an amphibious group of fish that breathes air without water and live in rocky shore areas. They belong to the family Blenniidae, which includes 345 fish species. There are nearly 35 identified species of leaping blennies in Sri Lanka. Spatial variation of leaping blennies is highly varied with the different habitats and substrates along coastal waters. The present study aimed to identify the spatial variation and species diversity of leaping blenny fish in the Southern Coast of Sri Lanka by using molecular tools. Four distant sites were selected from Ambalangoda to Tangalle, Ambalangoda (6° 14′ 07′ N 80° 3′ 12′ E), Pigeon Island-Matara (5° 57′ N 80° 32′ E), Unawatuna (6° 01′ 6′ N 80° 15′ 9′ E) and Tangalle (6° 01′ N 8 0° 47′ E). 15 individual fish samples were collected from each site from December 2019 to February 2020 and muscle tissue samples were preserved for DNA extraction. DNA of the tissue samples was extracted and the mitochondrial cytochrome c oxidase I gene was amplified and sequenced. The sequences were matched with the universal database at NCBI for species identification. The genetic relationships among sequences were analysed using Neighbour-Joining method using MEGA X software. As a result of this study, four blenny fish species were identified, *Alticus monochrus*, *Alticus saliens*, *Entomacrodus striatus* and *Entomacrodus vermiculatus*. Among identified species, *Alticus monochrus* was the most abundant blenny fish species in the Southern coastal area and was found in all four studied sites. The least abundant blenny fish species was *A. saliens*, and it was found only in Unawatuna. Species which can be identified as site-specific species are *A. saliens, E. striatus* and *E. vermiculatus*. Their average size was approximately 13.5±0.5 cm. All species were identified with more than 92% similarity. Morphometric characters are dependent on environmental conditions and factors such as their growth rate and age. The results of the study show that species identification using molecular techniques is important when morphological identification is questionable. Therefore, morphology together with molecular tools can be used to describe the species richness in poorly studied marine fish groups in Sri Lankan waters. The leaping blenny fish that were sampled formed 2 clades within the phylogenetic tree. *A. monochrus* was found in both clades. *E. vermiculatus*, *E. striatus* and *A. saliens* were restricted to only one clade. This provides evidence that *A. monochrus* shows more spatial variation than the other species. However, more sampling is required to verify these findings.

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