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"Solidarity in a competing world — fair use of resources"

Fish and Shrimp as Resources for Livelihood Development of Coastal Fishing Communities in Egypt: DNA Barcoding Application in Fisheries Management, Marine Biodiversity Assessment, Management and Conservation

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Abstract

The future of filling the gap in food and nutrition security in Egypt will rely mainly on coastal water for fishing and aquaculture. Mitochondrial cytochrome c oxidase subunit 1 (COI) gene was suggested as unique barcode region for animals. DNA barcoding has gained worldwide interest as an effective tool for species identification. More than two third of our planet is covered by oceans and this proofs that the future of food and nutrition security will come from the water (capture fisheries and aquaculture). This put responsibility on us to assess and conserve marine biodiversity as a challenging task for future generations. On the one hand, the rapidly increasing global population makes exploitation of marine resources for food and nutrition security an essential task. On the other hand, this puts pressure on the coastal environment and necessitates sustainable management and conservation efforts. The aim of this work is to use DNA barcoding as a useful molecular technique in the assessment of cryptic species and linking the different life cycle stages to the adult which is difficult to accomplish in the marine ecosystem. The second use in this work of DNA barcoding include authentication and safety assessment of seafood, wildlife forensics, conservation genetics and detection of invasive alien species in fisheries grounds in Egypt. Intensive work is going on collection of fish and shrimp samples from fishing grounds in Egypt. Almost 50 % of the commercial fish and shrimp catch has been identified using DNA barcoding. This work proofed that DNA barcoding can serve as an effective and accurate tool in marine fisheries biodiversity assessment, management and conservation.

Keywords: Biodiversity, DNA barcoding, Egypt, fish, fisheries, livelihood, marine ecosystems, shrimp

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