Phylogenetic relationships and biogeographic diversification of shallow water octopuses

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With more than 200 species, octopus constitute an important fishery resource in the world.The close similarity in morphological features, life strategies and behaviour has hampered taxonomic and phylogenetic studies. In this study, mitochondrial COI and 16S gene sequences of 67 specimens belonging to 54 species from previous studies were analysed. The phylogenetic analyses suggest that the genus Octopus is polyphyletic and that the species *O. conispadiceus* and *O. hongkongensis* might belong to another genus. Biogeographical analyses proposed that the most recent common ancestor of octopus lived in the Pacific Ocean about 42 mya. This ancestor gave rise to lineages between 39 - 24 mya that underwent diversification due to various vicariance and dispersal events (up to 3 mya), resulting in the present-day distribution of octopuses. The most recent diversification between *O. tetricus* and *O. vulgaris* took place between 6 – 3 mya. This study indicated that there is a need for a taxonomic revision to resolve the classification in the genus Octopus.

Keywords: Octopus; Taxonomy; Phylogeny; Diversification; Ancestor