

عنوان مقاله:

Phylogeny of Oxudercines (Gobiidae: Oxudercinae) with emphasis on the position of Walton's mudskipper (*Periophthalmus waltoni* Koumans, 1941) and inter population study of this mudskipper using geometricmorphometrics

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خلاصه مقاله:

The family Gobiidae with more than 1700 known species, includes five subfamilies and is considered to be one of the largest families of Pisces. This taxa is a cosmopolitan one; hence, the phylogenetic relationships among subfamilies of gobiids have been noteworthy. Amplification and sequencing of mtCytb of 13 specimens of walton's mudskipper, *Periophthalmus waltoni*, made it possible to determine the phylogenetic position of this species in relation to other species and genera of the subfamily Oxudercinae, for the first time. Evaluation of Maximum likelihood tree and genetic distances has been proved that *P. waltoni* is closely related to *Periophthalmus barbarus* which is distributed in western coasts of Africa. It seems *P. waltoni* and *P. barbarus* are relict fauna of Tethys Sea. Based on morphological studies, the subfamily of Oxudercinae is composed of two tribes namely, *Periophthalmini* and *Oxudercini*; *Amblyopinae* is the closest sister taxon of Oxudercinae. Molecular dataset from Cytb and D-loop do not recognize two tribes within oxudercines, moreover; it has been proved that *Amblyopinae* is nested within Oxudercinae and none of them are monophyletic. It is notable that in several cases, the genetic distance between the two genera of two different tribes is lower than the genetic distance between two genera belonging to the same tribe. In our study, outgroup was selected from *Amblyopinae*, but genetic distances showed that *Amblyopinae* is nested within Oxudercinae and these two subfamilies are not sister taxa. More molecular studies on species of Oxudercinae and *Amblyopinae* will clarify taxonomic position of these two subfamilies and maybe result in their integration. *P. waltoni* was collected from four stations, including Gowater (n=41), Jask (n=35), Hele (n=46), and Mahshahr (n=37). Specimens from different stations were compared by Geometric Morphometric method (17 landmarks), using TPS series, MorphoJ, PAST and SPSS. Employing Geometric morphometrics, more than 90% of *P. waltoni* from different populations are classified correctly, however; no significant difference was found between sexes ($P > 0.05$). It is noteworthy that Gowater and Jask are located in Gulf of Oman and two other stations are located in the Persian Gulf, therefore; the morphological differences between different populations are likely to be significantly correlated with salinity and temperature readings of stations. In the very near future, molecular studies based on Cytb and D-loop genes will determine whether the morphological ... differences have genetic basis or physicochemical variables of the Persian Gulf and Gulf

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