

between shells and crabs as per their availability and size preference of gastropod shells. Specimens were collected from different mangrove and Halophyte associated muddy areas during August 2016 to December 2017 from 6 sites (Korangi Creek, Russian beach, Keti Bunder, Sonari beach, Bhanbhore creek and Sonmiani bay). The 25 species of gastropod shells were recorded from which the two gastropod species *Telescopium telescopium* (36.6%) and *Thais carinifera* (30.11%) showed the highest preference however; the 12 shell species were found only approximately only 1% preference.

ANALYSIS OF PHYLOGENETIC RELATIONSHIP OF MACROPHTHALMID CRAB WITH GRAPSOID AND OCYPODOID CRABS BASED ON MITROCHONDRIAL DNA (COI) MARKER

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Crabs of genus *Macrophthalmus* play an important role as detritivore feeders and burrow constructor in intertidal as well as subtidal marine coastal habitats. They are the most typical inhabitant of sandy muddy substrate along IWP region, having great morphological diversity. In *Previous studies*, the *Macrophthalmid* crabs were placed together with *Grapsid* and *Ocypodid* in the Catometopa but in the recent classification of Brachyura these crabs placed separately with fiddler and sand bubble crabs within superfamily Ocypodoidea (subsection thoracotremata) whereas *grapsid* placed separately within superfamily Grapsoidea. Present study is conducted to elucidate the phylogenetic position of crabs of genus *Macrophthalmus* from Pakistan based on mtDNA (COI) marker. The results based on neighbour joining (NJ) and maximum parsimony (MP) methods; showed close phylogenetic affinities of the *Macrophthalmid* with *Grapsoid* crab than the other crabs of same super family including *Dotillid* and fiddler crabs.

SPECIES RE-DESCRIPTION OF GENUS OCYPODE (FAMILY: OCYPODIDAE) THROUGH BIOCHEMICAL AND GENETIC ANALYSIS ALONG THE COAST OF PAKISTAN

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Ghost crabs are commonly found along the coastal belt of Pakistan. The review of literature revealed that no previous research has been done based on biochemical and molecular work except few preliminary taxonomic studies on genus *Ocypode*. Biochemical analysis carried out by using five isozyme markers Carbonate Dehydratase (CD), Catalase (CAT), Amylase (AMY), Peroxidase (PXD) and Octanol (Oct) and two general proteins by using different stain (Coomassie brilliant blue and Amido black). Among these markers CD found as a distinguishing marker to discriminate the species with significant difference ($P=0.00$) which deviate the HW-equilibrium. Higher level of genetic differentiation ($F_{ST}=53.3\%$) found between two species indicating species are quite distinct from each. On molecular basis, combined data set shows that the three species (including one new species) form two highly supportive monophyletic clades with 100 bootstrap values when applied through ML, MP and BI. Genetic distance also showed higher level of variation between three species (5.5%). *Ocypode rotundata* showed higher level of intra-specific variation in isozyme (37% polymorphic loci) and molecular data (genetic distance = 0.7%). The three species have been confirmed by the use of four mitochondrial DNA Markers and three nuclear DNA markers. The ongoing further analysis for crabs of different localities and usage of different molecular markers includes (ITS-1 and ITS-2) likely resolve and discriminate the further more species of this genus.

PROCEEDINGS
OF
PAKISTAN CONGRESS OF ZOOLOGY

Volume 38, 2018

*All research articles in this Proceedings were refereed
by experts in respective disciplines*



THIRTY EIGHTH PAKISTAN CONGRESS OF ZOOLOGY

held under auspices of

THE ZOOLOGICAL SOCIETY OF PAKISTAN

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