

## DISTRIBUTION OF OSTRACODA IN THE MULLIPALLAM CREEK, SOUTHEAST COAST OF INDIA: IMPLICATIONS ON MICROENVIRONMENT

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### Introduction

The practical value of marine as well as brackish water microfossils is greatly enhanced by their minute size, abundant occurrence, wide geographic distribution and sensitiveness in the sediments of all ages and in all most all environments. Thus, a relatively small sediment sample will obviously yield substantial data for the application of quantitative methods of analysis. Microfossils have been very well proved useful for ecologic/paleoecological and paleoclimatic applications.

Ostracods are one of the best documented groups within the whole of the animal kingdom, due to the most characteristic features of their bodies and a well calcified, tiny, bivalved carapace (comprising a left and right valve), dorsally hinged, which is laterally symmetrical and fossilizes easily. Ostracods are abundant and diverse group of tiny crustaceans with a long fossil record from Ordovician to Recent. They are known to inhabit a wide variety of aquatic environments including marine (from deep oceans to shallow seas), brackish water lagoons, estuaries/creeks, mangroves, freshwater streams, lakes, etc. and even terrestrial, and also dwell as parasites in the intestines of fishes. Puri (1966) stated that ostracods live in an environment in which the controlling factors are temperature, bottom topography, depth, salinity, pH, alkalinity, dissolved oxygen, food supply, substrate and sediment organic matter content. But the major controlling factors governing the ostracod distribution in estuarine and continental environments are salinity, water temperature and substrate (Yassini and Jones, 1995). These forms, which are mostly benthic, exhibit different distributional pattern broadly linked to sediment texture, depth and various physico-chemical characteristics of the environment in which they thrive. Thus, these fauna are showing their utility in delineating changes in the environment.

The study area under investigation is Mullipallam creek area (Lat. 10° 18' 13" to 10° 20' 71" N; and Long. 79°30'90" to 79°34'87" E) is located near Muthupet, belonging to Nagapattinam and Thiruvarur Districts of Tamil Nadu. The area of investigation is a marshy mangrove wetland located in the southernmost end of the Cauvery delta in the districts of Thiruvarur and Tanjavur along the coastal zone of Bay of Bengal and Palk Strait (Fig.1). It is a part of large coastal wetland complex called the "Great Vedaranyam Swamp". This area is drained by the distributaries of the Cauvery viz., Paminiyar, Koraiyar, Kandankurichanar, Kilathangiyar and Marakkakoraiyar. The important changes in shape and extent of the Muthupet-Mullipallam creek are the migrating confluence point of river Koraiyar towards north, development of mangrove vegetation, progradation and retrogradation of shoreline

and increasing salt pan activities. The mangrove wetlands act as a barrier against cyclones, tsunami, avoid coastal erosion and provide nursery grounds for a number of commercially-important fish, prawns, crabs and other microorganisms. A mangrove species *Avicennia marina* is the dominant in the creek followed by *Acanthus ilicifolius*, *Egiceras corniculatum*, *Excoecaria agallocha* and *Rhizophora mucronata*.

### Methodology

Twenty-four sediment samples were collected from the creek (Fig.1) during two seasons (viz., Pre monsoon (June, 2006) and Post monsoon (Jan, 2007)). The creek has a water depth range of 1.5 - 3.5 m. At each station, water sample was also collected during these periods. Sediment samples were collected from 24 stations, the first sample was collected near the Koriyar river and eighth samples was collected near the Palk Straits.

### Discussion and Conclusion

All the sediment samples were subjected to standard micropaleontological techniques and ostracoda fauna were recovered. Ostracod studies from the sediments collected from Mullipallam creek sediments have led to the recognition of 35 ostracod taxa belonging to 24 genera, 18 families, 2 superfamilies and 2 suborders of the order Podocopida (Hussain and Kalaiyarasi, 2010). *Neomonoceratina iniqua* is recorded in all the sediment samples studied. It outnumbered the entire ostracod population and represented by > 90% of the total population in few samples. *Hemicytheridea paiki* is represented second to *N. iniqua* in the study area. The classification proposed by Hartmann and Puri (1974) is followed. Some ostracod species characteristic of brackish water such as *Hemicytheridea* and *Neosinocythere dekrooni* occur in the creek. The occurrence of *Cytherelloidea leroyi*, *Keijella reticulata* and *Neocytheretta murilineata*, may be due to the tidal influence. All the species are well preserved. In general, the recorded ostracod assemblage is strongly of tropical, shallow and brackish water habitat in nature.

### References

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