

DIVERSITY OF MICROARTHROPODS AND THEIR ROLE IN THE PLANT LITTER DECOMPOSITION IN THE COASTAL TRACT OF EAST MIDNAPORE DISTRICT, WEST BENGAL, INDIA

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ABSTRACT

Soil microarthropods represent an important group of faunal components in any coastal mangroves/estuarine ecosystem. Midnapore coastal tract represents 27% (60km) of West Bengal coastal line. Out of two coastal districts of West Bengal, coastal tract of Midnapore (East) district is characterized by sand dunes, long shore currents, high salinity and less vegetational coverage in comparison to its counter part South 24 Parganas district supported by Sundarban Mangrove Ecosystem. This coast extends along the West Bank of Hooghly Estuary from New Digha at the extreme south point of Midnapore district and then curving around Jampur, Dadanpathrabhar, Khejurer and Nayachar Island. An attempt has been made in the present paper to document the distributional pattern of intertidal microarthropods of this short, sensitive, productive and eco-degrading coastal tract of West Bengal and also to study the role of microarthropods in the process of selected mangrove plant litter decomposition at a selected study site. A total of 7 major groups of soil microarthropods viz., Acarina, Collembola, Coleoptera, Diptera, Isopoda, Hymenoptera and other arthropods were found to be the inhabitants of different areas of coastal environment of Midnapore District(East). A total number of 51 species were found to belong under those groups of microarthropods. Maximum number was recorded from Nayachar Island (Number of Species 44) followed by Dadanpathrabhar (26 species) Khejurer (25 species) and Jampur (22 species). Comprehensive laboratory studies on the role of different microarthropods in the decomposition of a selected mangrove plant species, *Rhizophora mucronata* (L) revealed successional occurrences of different microarthropods in the different stages of decomposition. The changes of physico-chemical parameters were also studied viz., pH, Organic Carbon (%), Salinity (ppt), Total-N(ppm), Total-phosphorus(ppm) and Available-K (ppm) to relate such changes with the changing pattern of species composition and density fluctuation of microarthropods in the process of litter decomposition.

Keywords : Midnapore Coast, Microarthropods, Mangroves, and Decomposition.

INTRODUCTION

The mangrove-estuarine ecosystem represents one of the most productive ecosystems of the world because it combines two sub-systems-shallow water forest mangrove subsystem and estuarine aquatic subsystem linked together by virtue of one important physical process, the tidal cycle enjoying two high tides and two low tides in a

day. The shallow water forest sub-system exports energy and nutrient to deeper water of estuaries and other coastal areas in the form of mangrove plant's contributed detritus which are transported from the mangrove forest to adjoining open water bodies (Odum and Heald 1975). The living organisms viz., plankton, benthos and nekton move freely between the two fixed sub-systems producing, converting and transporting nutrient and energy, while

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