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Advances in Applied Science Research, 2012, 3 (3):1795-1798

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ISSN: 0976-8610
CODEN (USA): AASRFC

Distribution of molluscan fauna in the artificial mangroves of Pazhayar back water canal, Southeast Coast of India

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ABSTRACT

The distribution of molluscs has been studied at artificial mangroves of pazhayar back water canal. During the present survey, 11 species of molluscs were recorded. Among them 8 of gastropods, viz., Nerita crepidularia, Littorina scabra, L. undulata, L. melanostoma, Cerithidea cingulata, C. obtusa, Telescopium telescopium, Melampus ceylonicus, and 3 species of bivalves namely, Modiolus metcalfei, Crassostrea madrasensis and Saccostrea cucculata were observed.

Key Words: Distribution; Molluscan fauna; Mangrove; Pazhayar canal; India.

INTRODUCTION

Mangrove ecosystem are one of the most productive and biodiversity wetlands on earth. They are grow in tropical and subtropical latitudes along the land-sea interface, bays, estuaries, lagoons, backwaters, and in the rivers, reaching upstream up to the point where the water still remains saline [1]. The plant and animal comprising the mangrove ecosystem form the golden asset of coastal marine resources. Mangroves provide important habitat for conservation of biological diversity and provision of habitat, spawning grounds and nutrients for a variety of fish and shellfish. When the leaves and branches of a mangrove fall to the ground they provide a wide variety of aquatic animals such as molluscs, crabs and worms with a primary source of food. Mangrove roots, trunks and branches attract rich epifaunal communities, including sponges, hydroids, anemones, polychaetes, bryozoans and ascidians, apart from the molluscs, crustaceans [2, 3]. Indian mangroves are distributed with invertebrates, more than 500 species of insects and archnida, 229 species of crustacean, 212 species of mollusca, 50 species of nematodes, and 150 species of planktonic and benthic organisms [4]. In the present study was done on the assemblage of the molluscan fauna of the artificial made mangroves ecosystem situated at the pazhayar back water canal at southeast coast of India.

MATERIALS AND METHODS

Study Area: Mangrove molluscs were sampled between (June to July 2011) from pazhayar back water canal (Lat, 11^0 21' 14. 61' N; Long, 79^0 49' 28. 17' E) southeast coast of India (Fig. 1). It is free connected canal with mouth region at coleroon estuary. The two mangroves species of *Avicenia* sp and *Rhizophora* sp were planate for 0.5 hectare around the back water canal, after Tsunami.

Figure 1: showing the study area

Sample collection: The molluscan fauna of the extensive mangrove were collected by hand picking and the bivalve molluscs like mussels and oysters were collected by scrapping using thistle. The arboreal forms were collected from the roots, stems and other parts of the mangrove trees by hand picking [5]. Molluscs was brought to the laboratory and washed with tab water. They were identified based are morphological characters, sufficient taxonomic tools.

RESULTS

A check list of molluscan fauna recorded at the pazhayar mangroves

Phylum : Mollusca
Class : Gastropoda
Sub class : Prosobranchia
Order : Archaeogastropoda
Family : Neritidae
Genus : *Nerita* (Dostia)
Specis : *N. crepidularia*
Family : Littorinidae
Genus : *Littorina*
Species : *L.(Littorinopsis) scabra* (Linnaeus)
Species : *L. undulata* (Gray)
Species : *L. melanostoma* (Gray)
Family : Potamididae
Genus : *Cerithidea*
Species : *C. cingulata (G melin)*
Species : *C. obtuse Lamarck*
Genus : *Telescopium*
Species : *T. telescopium (Linnaeus)*
Sub class : Pulmonata
Order : Bassommatophora
Family : Ellobiidae
Genus : *Melampus ceylonicus* (Petit)

Class : Pelecypoda (bivalvia)
Order : Mytiloida
Family : Mytilidae
Genus : *Modiolus*
Species : *M. metcalfei* (Hanley)
Order : Ostreoida
Family : Ostreidae
Genus : *Crassostrea*
Species : *C. madrasensis* (Preston)
Genus : *Saccostrea*
Species : *S. cucculata* (Born)

In the present study, 11 species of molluscs were recorded in the Pazhayar back canal mangroves, which includes 8 species of gastropods namely, *Nerita crepidularia*, *Littorina scabra*, *L. undulata*, *L. melanostoma*, *Cerithidea cingulata*, *C. obtusa*, *Telescopium telescopium*, *Melampus ceylonicus*, and 3 species of bivalves namely, *Modiolus metcalfei*, *Crassostrea madrasensis*, *Saccostrea cucculata*.

DISCUSSION

Mangroves are providing rich faunal resources from macro faunal communities to microbial diversity. Molluscs can reach high biomass in mangroves ecosystem because of high primary production within the food web, as predators, herbivores, detritivores and filter feeders. The numerical abundance and biomass of molluscs can be equally impressive [5]. The numerous investigation of mangroves associated molluscs in the world wide, 39 species of gastropods in an Australian mangrove [6], 28 species in the Chinese mangrove[7], 23 mollusc species from the mangrove forest in Hong Kong [8], 29 species of bivalves from the mangrove root systems on the Atlantic coast of Colombia and Wood-boring bivalves are also common in the mangrove forest [9], 10 species of teredinids and 1 pholadid in several mangroves along the west coast and 44 species of Sematan mangrove forest of Malaysia [10, 11]. In general, numerous surveys of Indian mangrove molluscs were reported by [12- 20]. Gastropods are typically one of the dominant and most conspicuous macrofauna in mangrove systems, and occupy a wide range of ecological niches [21]. In *Melampus coffeus* is the only gastropod present in the mangroves of Guadeloupe [22]. The two pulmonate snails *Cassidula nucleus*, *Melampus ceylonicus* and *Pythia plicata* has been studied from Pichavaram mangroves [23, 24]. The feeding and larval settlement restriction on the other hand, species diversity differs strongly in different parts of the world. In the *Melampus coffeus* randomly distributed to muddy bottom of present study mangrove ecosystem. The *Nerita* (*Dostia*) *crepidularia* in vellar estuary mangroves, its having a variety of habitats mangroves plant on the stem, intertidal mudflat during the high tide time animals moving to plant stem after that during low tide time animals moving to mud flats [25]. In the region *Nerita* (*Dostia*) *crepidularia*, *Littorina* sp, *Cerithidea* sp, were observed to the mud banks, mud flats, mangrove forest, sandy muddy area swamps, prop-roots and pneumatophores. *Telescopium telescopium* were found in the mud flats of mangroves plants. The bivalves in favor of the more active and therefore more conspicuous mangrove, with chemo-symbiotic associations have also been reported [26-29].

CONCLUSION

In the present study, 11 species of molluscs were recorded in the Pazhayar back canal mangrove, which includes 8 species of gastropods and 3 species of bivalves. Gastropods are typically one of the most dominant groups in mangrove ecosystems than the bivalves. The assemblage of Oysters were to occur on the mud banks, mud flats, mangrove forest, sandy muddy area swamps, prop-roots and pneumatophores and mussel were found attached to wherever hard substratum is available such as prop-roots and pneumatophores and oyster beds.

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