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Brachyuran Crab Diversity in Mangroves of Bhatye Region, Ratnagiri

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***Abstracts* – Ratnagiri, is located on the west coast of India, bound by the Arabian Sea. Bhatye Estuary is characterized by thickets of mangroves present at the deltaic region where the river Kajli meets the Arabian Sea. The study revealed presence of nine brachyuran crab species like – *Charybdis callianassa, Charybdis orientalis*, *Gelasimus marionis*, *Macropthalmus* species, *Matutaplanipes*, *Metopograpsus* species, *Neptunus pelagicus, Scylla serrata* and *Sesarma quadrata.* The crab species like *Gelasimus marionis, Neptunus pelagicus,* and *Scylla serrata* were found to be dominant in the mangrove vegetation and the exposed mudflats served as an excellent feeding ground for these species. It was observed that, the crabs depend directly on mangrove areas for survival, by feeding on leaves and litter. The digging behaviour especially in mangrove vegetation by the crabs enhances aeration and facilitates drainage of mangrove soils.**

***Keywords* – Brachyuran Crabs, Mangroves, Intertidal Zone, Subtidal Zone.**

I. INTRODUCTION

Marine ecosystem is most diverse ecosystem in the world and special attention and information is required to understand its processes and function because it provides shelter to diverse and unique floral and faunal community. Crustaceans are the important part of macro benthic fauna as especially the infra order Brachyura. Brachyura harbors rich diversity and total 5000 species belonging to 700 genera have been identified worldwide (1).

Ratnagiri, is located on the west coast of India, bound by the Arabian Sea and Bhatye Estuary happens to be one of the most important estuary along the coast and supports the commercial fishery of the coast. At Bhatye, river Kajali meets the Arabian Sea and forms an estuarine zone. Various mangrove species along with their associated flora form characteristic vegetation in Bhatye estuarine region. The estuary is characterized by thickets of mangroves present at the deltaic region where the river Kajli meets the Arabian Sea. The fishery economics of Ratnagiri largely depends on Bhatye Estuary and the favorable area for carrying out fishing activities is 530 ha. Hence this particular area is important from the biodiversity and economics point of view. The marine biodiversity of Ratnagiri region is studied well but the brachyuran crab fauna of the region is least studied. So to fulfill the lacunae regarding the information on brachyuran crab fauna of the area, present study was carried out.

II. MATERIALS AND METHODS

The study area, Ratnagiri is situated at 17^0North and 73^0East and having an area of about 50,209 sq miles. The coastline of Ratnagiri district is 250 miles long and marked with several islands, which is a result of drowned topography. Ratnagiri coast has been blessed with luxuriant, thick mangrove vegetation with patches of other associated flora and fauna. The important estuaries along the Ratnagiri coast include Bhatye estuary, Kalbadevi Creek, Jaitapur Creek, Bankot Creek, Sakharthar, Shirgaon etc. Bhatye estuary is situated at $73^0 15'$ East and $16^0 51'$ North near Ratnagiri and known for the mangroves on the mud flats and associated fauna.

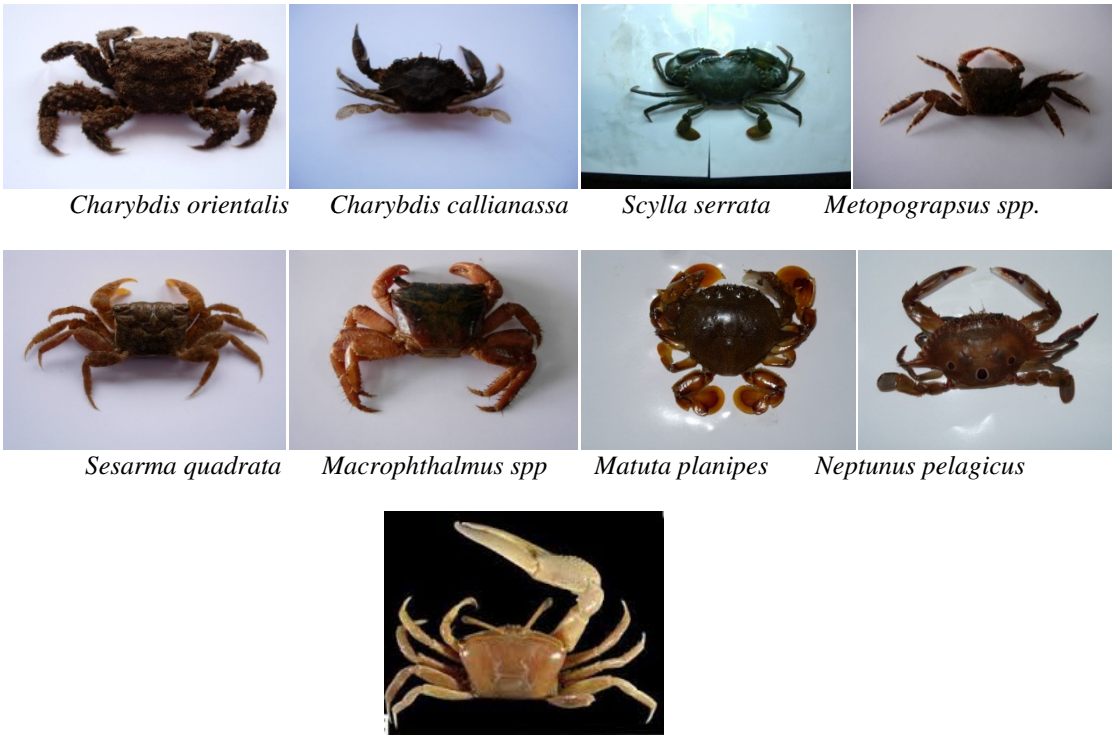
The present study was carried out in the Bhatye estuarine region. Sampling was done fortnightly covering intermediate phase of the tide to avoid tidal effect, if any. Diesel engine boat was used to reach different stations. All the study sites were searched randomly for crab collection. Crabs are generally easy to collect and most often hand picking is very effective especially in the intertidal and subtidal zones. The burrowing intertidal crabs were collected by digging or by pouring dilute formalin inside the burrow. Some crab species were collected inside the mangrove forest by using forceps. The crabs so collected were then preserved wet in 6-10% formalin neutralized with hexamine (100gm per 1000ml of formalin) (Khan, 2005). To avoid limb shedding, the crabs were first narcotized by adding few menthol crystals and then preserved for laboratory studies. For taxonomical investigation, the first pleopod or the third maxilliped was considered in addition to other characters and then referred to standard literature (2, 3, 4, 5, 6). For the further conformation about the identification of the species, all the specimens were examined and compared with the photos.

III. RESULTS AND DISCUSSION

The study revealed presence of nine brachyuran crab species like – *Charybdis callianassa, Charybdis orientalis*, *Gelasimus marionis*, *Macropthalmus* species, *Matuta planipes*, *Metopograpsus* species, *Neptunus pelagicus, Scylla serrata* and *Sesarma quadrata*(Fig. 1).

The crab species like *Gelasimus marionis, Neptunus pelagicus,* and *Scylla serrata* were found to be dominant in the mangrove vegetation and the exposed mudflats served as an excellent feeding grounds for these species. It was observed that, the crabs depend directly on mangrove areas for survival, by feeding on leaves and litter. The crabs have a significant role in detritus formation, nutrient recycling and dynamics of the ecosystem. The digging behaviour especially in mangrove vegetation by the crabs enhances aeration and facilitates drainage of mangrove soils. The mangrove forests have been studied well for the brachyuran crab diversity. Six species of brachyuran crab

were reported from Negombo estuary which is quite less compare to the present study (7). 100 different species of brachyuran crabs were reported from mangrove forest of Malaysia and Singapore (8). In India, the Pondicherry and Pichavaram mangroves were studied well for brachyuran crab diversity and total 15 and 23 species of brachyuran crabs were reported from these sites, respectively (9,10)



Charybdis orientalis *Charybdis callianassa* *Scylla serrata* *Metopograpsus spp.*

Sesarma quadrata *Macrophthalmus spp* *Matuta planipes* *Neptunus pelagicus*

Gelasimus marionis

Fig. 1

IV. Conclusion

The mangrove forests are considered as an important part of coastal ecosystems because of their high productivity and because they also provides shelter to different kinds of animal communities (11). Crabs play important role in the maintenance of mangrove ecosystems (12) and conserve nutrients for the growth of mangrove forest (13). Reduction into the crab abundance has direct relation with the heavy metal deposition in the sediment of mangrove ecosystem (14).

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