

## STUDIES ON MOLLUSCAN DIVERSITY IN MANDVI BELT OF VENGURLA, SINDHUDURG

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### Abstract

*Mandvi belt of Vengurla is rich in the diversity of mangroves that provide a healthy environment for molluscan shells. Diversity and abundance of molluscs are considered as an indicator of health of mangrove ecosystem. They are considered as bioindicators. Mollusca is the second largest phylum of invertebrates specialized for soft bodied animals. They show great variation in a habitat like marine, estuarine, fresh water and terrestrial environment. Molluscs play a major role in the function and productivity of coastal mangrove areas. The present preliminary study in the Mandvi belt of Vengurla includes 10 gastropods and 6 bivalves' species. The observations were recorded from June 2020 to May 2021.*

**Key words:** - Molluscs, Gastropods, Bivalves, Mandvi belt, Vengurla, Sindhudurg.

### Introduction

Mangroves are the trees having a maximum height that grow along the coastal region. Mangrove ecosystem provides a large number of ecological services such as improvement in water quality by filtering and assimilating pollutants, stabilize and improve the soil and protect the shoreline from erosion, maintain biodiversity and capture carbon dioxide. (Ronnback. 1999; Kathiresan and Raiendran 2005). The mangrove forests serve as a home place for diverse taxa associated with different habitats. Mangroves are salt tolerant plant inhabiting the tropical and subtropical estuarine region. They are ranked among

the most productive ecosystem of the Earth (Spalding, M. D. and C. D. Field 1997). Mangroves are one of the biologically diverse ecosystems in the world, rich in organic matter and nutrients and supports very large biomass of flora and fauna. Robin and Bazelevic, (1966).

This ecosystem is a home for many micro and macroinvertebrates. Together with decapod crustaceans molluscs are the well-represented taxon of marine origin of mangrove forest. (Plaziat 1984, Kathiresan and Bingham 2001). The Indian mangroves cover about 4827 km<sup>2</sup>, with about 57% of them along the east coast, 23% along the west coast and 20% in Andaman and Nicobar islands. Venkataraman, and. Wafar, (2005).

Mollusca is one of the dominant invertebrate groups in the mangrove community and are thought to play an important ecological role in the structure and function of the mangrove ecosystem. (Nagelkerken *et al.*, 2008; Printrakoon *et al.*, 2008). Molluscs play an important role in food web leading to fish population and they act as an edible source for coastal population. Likewise, they are utilized for ornamental trade, pharmacological products and in the manufacturing of lime and cement. Jaiswar, and Kulkarni, (2005).

Bivalve and Gastropod are the main class of molluscs in the mangrove ecosystem.

Gastropods and Bivalves are dominant in the mangrove ecosystem. They are widely distributed in mangrove ecosystem. The availability of molluscan shells in mangrove indicates good health of mangrove ecosystem. They are considered as bioindicators. Mangrove forest are subjected to very heavy degradation in spite of its high values. Many factors human interference, sea-level rise etc. are contributed to the degradation of the mangrove ecosystem. Therefore this loss of mangrove habitat has led to the extinction of many biological communities. This study aims to identify the diversity of molluscs in Mandvi belt of vengurla, as this study will help in studying the health of the Mangrove ecosystem of the coastal habitats.

The present study explores the diversity of Bivalves and Gastropods molluscs from mangrove ecosystem from the selected area of Vengurla taluka of Sindhudurg district. Sindhudurg district is rich in mangrove diversity and their ecosystem, so it is important to investigate the mangrove and their ecosystem.

### Observation

Table 1. During the study period occurrence of Gastropod and Bivalve from the selected area of the Mandvi belt

Family	Species	Spot A	Spot B
Ostreidae	<i>Crossostrea</i>	+	-
Psammobiidae	<i>Sanguinolaria cruenta</i>	+	+
Mactridae	<i>Macra violeoea</i>	+	+
	<i>Spisula voyi</i>	-	+
Cardiidae	<i>Cardium</i> sp.	-	+
Veneridae	<i>Sunetta scripta</i>	+	+

### Gastropods

### Material and Methods

Vengurla is situated on the western coast of Maharashtra this research was conducted in Mangrove ecosystem of the Mandvi belt in Vengurla, Sindhudurg Maharashtra. Area under mangroves in Vengurla is 8.02 (ha). The study area selected was Mandvi belt in Vengurla, in this area two locations were selected, location1 and location 2. The latitude and Longitude of this area is 15<sup>0</sup>. 85' 36. 65" N and 73<sup>0</sup>. 61' 68. 89" E, respectively. The study was done in the period of June 2020 to February 2021. The collection was done by handpicking method. The equipment's used were digital camera Nikon D5 and GPS (Global Positioning System). The collection of samples of Gastropods and Bivalves was carried out at low tide. The animals were carried to laboratory and clean the fauling biomass and mud. Then the animals are preserved by using 70% alcohol and then fixation was done by using neutral formalin. The collected samples were identified using the standard literature i.e. the book of Indian shells by Apte, and other research papers based on Molluscan diversity.

Family	Species	Spot A	Spot B
Potamididae	<i>Telescopium telescopium</i>	+	+
	<i>Terebralia palustris</i>	-	+
	<i>Cerithidea cingulata</i>	-	+
Rostelloriidae	<i>Tibia insulaecchorab</i>	+	-
Turitellidae	<i>Turitella terebra cerea</i>	-	+
Naticidae	<i>Natica picta</i>	+	-
Littorinidae	<i>Littorina melanopsis</i>	+	-
Muricidae	<i>Murex ternispina</i>	+	-
	<i>Thais lacera</i>	-	+
Trochidae	<i>Umbonium sp.</i>	-	+

(‘+’ Occurrence of species; ‘-’ no appearance of species)

### Result and Discussion

The study was undertaken to investigate the status of molluscan diversity in mandvi belt, vengurla of sindhudurg district Maharashtra. Total 16 species of molluscs were observed during the study, among this 10 species belonged to gastropods and 6 species were of bivalves. Table 1 shows, from gastropoda 7 families were dominant in the area, and Family Potamididae of gastropod showed maximum number of species followed by Family muricidae. From bilvalves 5 families showed dominancy in the area, from that Family Mactridae showed maximum number of species. Family Potamididae, Family Mactridae showed overall dominance.







Thakur S., Yeragi and Yeragi. (2012) observed that mangrove vegetation supports high density of every type of molluscan species.it is a good harvesting

place for variety of molluscan species. They also observed that decomposed material of plant litter is an important component of nutrient cycling in wetlands and it harbors a large numbers of diverse species. Molluscs have high primary production within the food web, as predators, herbivores, filter feeders and detritivores. Gastropods and bivalves are the indicators of healthy mangrove ecosystem.

According to Dewiyanti Jrma, Karina sofvatuddin (2012), the presence of gastropods and bivalves population in mangrove ecosystem plays a major role to evaluate their condition. The higher diversity of gastropods, compared to bivalves in mangroves, is attributed to the better tolerance capacity of gastropods to hard condition that in mangrove ecosystem. (Hogarth, 2015).

According to Pawar (2011) cutting of mangroves from Navi Mumbai region due to over exploitation, unsustainable demand and reclamation have resulted in destruction of marine life. Khade and Mane (2012) recorded 9 species of bivalves and 15 species of gastropods in sites of Raigad district of Maharashtra. Pawar (2012) 31 species of gastropods and 25 species of bivalves in Sundarbans were recorded by Dey (2006). Kulkarni and Mukadam (2015) recorded 4 species of gastropods and 8 species of bivalves in Bhayate Ratnagiri. 14 species of gastropods

and 7 species of bivalves were recorded in Kerala by RadhaKrishnan *et al.*, (2006). Susan *et al.*, (2012) found 9 species of gastropods in Lakshadweep. Jiang and Li (1995) recorded 30 species of gastropods and 24 species of bivalves in China. Khade and Mane (2012) observed 25 species of molluscs at Ratnagiri, Maharashtra of which 12 species belonged to bivalves and 13 species were of gastropods. 66 species of gastropods and 32 species of bivalves were observed by Das Roy (1989) in Andaman and Nicobar islands.

<b>Plate 1. Diversity of Bivalves Species</b>		
		
<i>Sanquinolaria cruenta</i>	<i>Sunetta scripta</i>	<i>Mactra violeoea</i>
		
<i>Spisula vovi</i>	<i>Cardium sp.</i>	<i>Crossostrea sp.</i>

**Plate 2.**



*Telescopium telescopium*



*Murex ternispina*



*Tibia insulaechorab*



*Terebralia palustris*



*Turitella terebra cerea*



*Cerithidea cinquilata*



*Natica picta*



*Littorina melanopsis*



*Thais lacera*



*Umbonium sp*

**Conclusion**

Mandvi belt of Vengurla is rich in the diversity of Mangroves. Mangroves are salt tolerant and have ability to prevent erosion. Mangroves form the breeding ground for many animals. The molluscs are bio-indicator of mangrove ecosystem.

During the study, six species of bivalves and ten species of gastropods.

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