



Research Article

## MOLLUSCAN DIVERSITY IN KEEZHATHOTTAM OF THANJAVUR DISTRICT, TAMIL NADU, INDIA WITH SPECIAL REFERENCE TO GASTROPODS AND BIVALVES

\*<sup>1</sup>S. Raveendran, <sup>1</sup>O. Sathick, <sup>1</sup>K. Muthukumaravel, <sup>2</sup>R. Rajakumar and <sup>2</sup>S. Ramu

<sup>1</sup>Department of Zoology, Khadir Mohideen College, Adirampattinam-614701, Tamil Nadu, India

<sup>2</sup>Department of Zoology and Biotechnology, AVVM Sri Pushpam College, Poondi-613 503, Tamil Nadu, India

<sup>3</sup>Department of Zoology M.R. Govt. College, Mannargudi, Tamil Nadu, India

**Article History:** Received 17<sup>th</sup> June 2016; Revised 27<sup>th</sup> June 2016; Accepted 28<sup>th</sup> June 2016; Published 30<sup>th</sup> June, 2016

### ABSTRACT

The present study an attempt is made to know the distribution of molluscs particularly gastropods and bivalves at the coastal village Keezhathottam of Thanjavur District, Tamil Nadu. Gastropods and Bivalves were collected by hand picking. They were examined using various morphological characters for identification. There are 20 species of molluscs were recorded in the present study including the species diversity of 14 Gastropods species and 6 Bivalves species. The diversity of Gastropods compared with Bivalves shows the ratio of 70% of gastropods and 30% of bivalves.

**Keywords:** Molluscan diversity, Morphological characters, Gastropods, Bivalves.

### INTRODUCTION

Biodiversity is the totality of the variations of all forms of life across all levels of variations from ecosystem to species to gene (Hogarth 2001). Delong (1996) offered a more comprehensive definitions as biodiversity is an attribute of an area and specifically refers to the variety within and among living organisms assemblages of living organisms, biotic communities and biotic processes whether naturally occurring or modified by human.

The molluscs constitute a natural resource of sizable magnitude in many parts of the world. They are an age, old group represented among the early fossils, a group of great diversity in size, distribution, habitat and utility. The range of their distribution is as extensive in space as in time for it covers terrestrial, marine and freshwater habitats. They include members from the tiny estuarine gastropod *Bithynia* and small garden snails to the Giant clam *Tridacna* or the Giant squid *Architeuthis*. Their use as ornaments, utility articles and medicine has been widespread from ancient days. Through the recognition of their full potential, including their role as nutritious, even delectable, food is of relatively recent date, it is clear that

man has exploited the shell resources to varying extents ever since he started utilizing nature's gifts for his own personal or social needs.

Though many studies are available on the biodiversity of molluscan fauna they are mostly restricted to the tropical countries and some worth mentioning studies are of Gravely (1941) in Madras beach, Hornell (1951) in the coastal beaches, Satyamurthi (1956) in Krusadai Island (in Gulf of Mannar), Roonwel (1954) in Sunderbans, Ganapathi and Rao (1959) in Mahanati estuary, Radhakrishna and Janakiram (1975) in Machilipatnam mangrove swamps, Subba Rao *et al.* (1983) in Muriganga estuary, Kasinathan and Shanmugam (1985) in Pitchavarm mangroves and Fred Pinn (1990) in Pondicherry coast. Though several studies have been made on in the different ecological aspects, only a little attention has been made on the faunal composition of coastal villages of Tamil Nadu particularly in Thanjavur Districts this type of work is wanted. Hence, in the present study an attempt was made to know the distribution of molluscs particularly gastropods and bivalves at the coastal village Keezhathottam of Thanjavur District.

\*Corresponding author address: Associate Professor of Zoology, Khadir Mohideen College, Adirampattinam-614701, Tamil Nadu, India, Email: drsr\_kmc@rediffmail.com, Mobile: +91 9524932720

## MATERIALS AND METHODS

### Description of the study area

India, a peninsular, which has a total coastal length of 7719 kilometer spreading over, states with 3726 fisheries villages. Tamil Nadu a southeastern coastal state of India has the coastline of 1100 km crossing over 10 districts including 540 coastal villages. The study area Keezhathottam is located in Pattukkottai taluk, which is nearly 20 km away from Pattukkottai. The coastal villages possess a beautiful Agniar estuary and attractive Palk Bay.

### Collection of Mollusc Species

The Gastropods and Bivalves were collected by hand picking. The collected animals were washed with water and preserved in 5% neutralized formalin. Later the collected specimens were examined using various morphological characters for identification. Each species was identified up to the species level using field guide and standard books.

## RESULTS AND DISCUSSION

Along the 7719 km of coastline of India, the molluscan shellfish forms valuable fisheries, used either as food or source of lime, as decorative shells and in industrial purposes. Molluscs are one of the most abundant and diversified group of animals in the aquatic system. Molluscs are the most abundant and most varied animals in the ocean. They occupy nearly every ecological niche available to a heterotroph, from the grazing herbivores, such as the limpets and abalones, to the largest carnivores, such as the giant squid, which is 25cm long. There are perhaps 100000 species in the world, arranged in a complete grouping of subclasses, orders and families. 28 different species of bivalves and nearly 65 species of gastropods are of very great importance under these categories. In the all India fish landings, mollusks hardly occupy 1% status. Even this is mostly made up of Cephalopods. Among the mollusks the group gastropods and bivalves include a wide variety of animals categorized under many groups based on the shell morphology such as clams, cockles, mussels and oysters.

Though several studies have been made on the different ecological aspects, only a little attention has been made on the faunal composition of coastal villages of Tamilnadu. Among the seven molluscan classes, the class Bivalvia, Gastropoda and Cephalopoda are said to be containing almost all the economically important species out of which Gastropoda and Bivalve resources are described here in detail. In the present study the sample-collected area Keezhathottam provide an astonishing habitat for organisms from both aquatic and terrestrial. There are 20 species of molluscs were recorded in the present study including the species diversity of 14 Gastropods species and 6 Bivalves species which included clams, cockles and oysters (Table 1).

**Table 1.** Species Recorded from the coastal village Keezhathottam.

| S.No. | Gastropods                   | Bivalves                        |
|-------|------------------------------|---------------------------------|
| 1     | <i>Tonna galea</i>           | <i>Placenta placenta</i>        |
| 2     | <i>Turbinalla pyrum</i>      | <i>Circe scripta</i>            |
| 3     | <i>Murex tenuirostrum</i>    | <i>Sunetla maroe</i>            |
| 4     | <i>Hemifusus pugilinus</i>   | <i>Paphia textile</i>           |
| 5     | <i>Babylonia zeylonica</i>   | <i>Trachycardium cascaticum</i> |
| 6     | <i>Chicorens ramosus</i>     | <i>Anadara inequalvis</i>       |
| 7     | <i>Nautica didyma</i>        | -                               |
| 8     | <i>Oliva oliva</i>           | -                               |
| 9     | <i>Cerithidea cingulata</i>  | -                               |
| 10    | <i>Hemifusus cochlidium</i>  | -                               |
| 11    | <i>Turricula javana</i>      | -                               |
| 12    | <i>Thias bufo</i>            | -                               |
| 13    | <i>Marginella cangustata</i> | -                               |
| 14    | <i>Umbonium vestiarium</i>   | -                               |

Gastropods and bivalves are among the most fascinating groups of molluscs that for centuries have attracted hobbyists, businessmen, ecologists and scientists among others from around the globe. Gastropods and bivalves with high economic importance are widely cultivated. Bivalves as filter feeders can help purify silted marine waters. Bivalves include clams, oysters, cockles, mussels, scallops, and numerous other families that live in saltwater, as well as a number of families that live in freshwater. Bivalves have been an important source of food for humans at least since Roman times and empty shells found in middens at archaeological sites are evidence of earlier consumption. Oysters, scallops, clams, ark clams, mussels and cockles are the most commonly consumed kinds of bivalve, and are eaten cooked or raw. There were lots of broken coral colonies and patches of rubble. This condition could have been caused by anchors of fishing boats that seek shelter during the day and in times of bad weather.

## CONCLUSION

In conclusion the present study diversity of Gastropods compared with Bivalves shows the ratio of 70% of gastropods and 30% of bivalves.

## REFERENCES

- Delong, D.C., 1996. Defining biodiversity, Wildl. Soc. Bull., 24: 734 - 749.
- Fred Pinn, 1990. Sea snails of Pondicherry, Nehru Science Centre, Pondicherry, pp. 116.

- Ganapathi, P.N. and Rao, M.V.L., 1959. Incidence of marine borers in the mangroves of the Godavari estuary, *Curr. Sci.*, 28(8),332.
- Gravelly, F.H., 1941 Shells and other animals remains found on the Madras Beach. I. Groups other than snails etc. (Mollusca Gastropoda). *Bull. Madras Govt. Mus. N.S. Nat. Hist.*, 5(1), 1-112.
- Hogarth, P. J., 2001 Mangrove ecosystems, in: Levin, S.A. (ed.), *Encyclopedia of Biodiversity*, Vol. 3, Academic Press, San Diego, CA, pp. 853–870.
- Hornell, J., 1951. Indian Molluscs. *J. Bomb. Nat. Hist. Soc.*, 1-96.
- Kasinathan, R. and Shanmugam, A., 1985. Molluscan fauna of Pitchavaram mangroves, Tamil Nadu. In: *Proceedings of the National Symposium on Biology. Utilization and Conservation of mangroves*. Shivaji University, Kolhapur, India, 438-443.
- Radhakrishna, Y. and Janakiram, K., 1975. The mangrove mollusks of Godavari and Krishna estuaries. In: *Recent Researches in Estuarine Biology* (R. Natarajan, Ed.), Delhi, Hindustan Publishing Co, pp. 177-184.
- Roonwel, M.L., 1954. *Bactronophorus thoracites* (Gould) as a pest of living trees in Sunderbans, Bengal (Mollusca: Teredinidae). *Curr. Sci.*, 23, 301.
- Satyamurthi, S.T. 1956. The mollusca of Krusadai Island (in Gulf of Mannar) II Scaphopoda, Pelecypoda and Cephalopoda. *Bull. Madras Govt. Mus. New Ser. Nat. Hist. Sect.*, 1(2), 7, 202.
- Subba Rao, N.V., Dey, A. and Barua, S., 1983. Studies on the malaco-fauna of Muriganga estuary, Sunderbans, West Bengal. *Bull. Zool. Surv. India*, 5(1), 47-56.