

# Molluscan Diversity in Lendi River, District Nanded, Maharashtra, India

\*Bimbisar D. Waghmare, A. N. Kulkarni

Department of Fishery Science, N.E.S. Science College, Nanded (M.S.) India

**Abstract:** *Lendi River is one of the tributary of river Manar, originates at Malkapur dist. Latur and joins to river Manar at Degloor, dist Nanded. Water of this Semi-perennial river is used to perform various activities such as industrial, irrigation, fisheries and human activities. A total of 15 molluscs species were recorded of which 9 species are Bivalvia and 6 species are Gastropoda. Class Bivalvia was reported by two orders, viz., Unionida and Veneroida and class Gastropoda had 1 order, viz., Mesogastropoda. The abundance of the molluscan fauna indicates the rich productivity.*

**Keywords:** Mollusc, Gastropoda, Bivalvia, Lendi, River, Nanded

## 1. Introduction

Molluscs, a group of most diverse and dominant benthic fauna in water bodies, perform a key role in the functioning of aquatic ecosystem. Molluscans are of great significance because they form the food of fishes and their productivity play an important link in the food chain. Molluscans communities are good indicators of localised conditions, indicating the water quality. The freshwater ecosystems in India harbour a rich diversity of molluscs, representing 212 species belonging to 21 families. Of these, 164 species were recorded from rivers and streams (Subba Rao, 1993). The presence of thriving population of molluscan indicates the land is not acidic; hardly molluscs survive beyond a pH of 5 (Boycott, 1934). Biological monitoring of rivers using macro invertebrate is accepted as a useful tool for the assessment of water quality (Hellawell, 1986).

Several investigations were undertaken on major benthic animal groups of freshwater system. Notable contributions to our knowledge of molluscan fauna have been made by several authors. Amanullah and Hameed (1996) studied molluscan diversity in Kaveri river system. A total 13 species of molluscs were recorded, of which 8 species were gastropods and 5 species of bivalves. The gastropod species were grouped under 5 different families (Viviparidae, Thiaridae, Pilidae, Lymnaeidae and Planorbidae) and the family Thiaridae was the most dominant group representing 50% of the total gastropod population. Five species of bivalve were classed under 2 different families namely Unionidae and Corbiculidae. Roy and Gupta (2010) worked on Molluscan Diversity in river Barak and its Tributaries in Assam. A total of 16 molluscan taxa belonging to 2 classes viz., Gastropoda and Bivalvia 4 orders, 5 families and 9 genera were recorded from 12 different sites on River Barak and its tributaries like Chiri, Sonai, Rukni, Ghagra and Katakhal. The snail, *Brotia costula episcopalis* (Lea), and the bivalve *Lamellidens marginalis* (Lamarck) were the most ubiquitous species in the river system. Dahegaonkar et.al., (2011) studied diversity of benthic macro invertebrates in two lotic ecosystem. Molluscan species showed their dominance by contributing six species from the Gastropods and two from Pelecypods.

Subramanian and Jaiswal (2012) worked on freshwater fauna of India. Indian wetlands are habitat for 287 species of molluscs. Species such as *Sulcospira hugelyi*, is common in streams of peninsular India. Kumar and Vyas (2012) revealed about distribution of molluscan community in the selected reach of river Narmada in central zone. A total of 19 species (13 gastropod and 6 bivalve species) were recorded during the study. Among gastropoda *Thiara tuberculata* (Muller) and *Tarebia granifera* (Lamarck) were most dominant species recorded. In bivalvia *Parreysia (Radiatula) occata* (Lea) and *Corbicula striatella* (Deshayes) were found nearly at all stations. Waghmare et.al., (2012) identified freshwater Molluscan diversity of Bhima river, near Pandharpur. Altogether 15 species of freshwater molluscs were identified viz. 7 species from Gastropoda and 8 species from Pelecypoda (Bivalvia) in this area. Suryawanshi et.al., (2012) studied biodiversity of molluscs from river Godavari, reservoir and pond and reported 24 species of fresh water molluscs. Maximum species were collected from Derla tank while minimum species were collected from Godavari river.

Lendi River flows in two district of Maharashtra, Latur and Nanded. It originates at village Malkapur in Taluka Udgir and Latur district. The total length of Lendi River from its origin to drain is 125 km. In Nanded District River Lendi starts near village Bamni in Mukhed taluka, and it covers total length in Nanded district is about 65 km. and a major project is under construction at Gonegaon. The aim of present research work revealed about distribution of molluscan community in the selected reach of River Lendi.

## 2. Material & Methods

**Study Area:** For the study of molluscan diversity in river Lendi three sampling stations (S-I Mukramabad, S-II Gonegaon & S-III Bahegaon road) were selected on the right bank of river Lendi, out of them two stations are in Mukhed taluka and one station is in Degloor taluka, district Nanded. Station-I: Mukramabad: This station is located at the height of 394 meter above M.S.L. in between the latitude 18° 28' & 44.33"N and longitude 77° 21' & 58.20"E. Depth was 2 to 15 feet and width was 110 meter. Station-II: Gonegaon: This station is located at the height of 384 meter above M.S.L. in between latitude 18° 31' & 13.63"N and longitude 77° 25' & 5.38"E. The depth

ranges from 2 to 9 feet and width is about 60 meter. Station is 6 to 7 km away from station-I. Station-III: Bahegaon Road (Degloor): This station is located at the height of 363 meter above M.S.L. in between latitude 18° 32' & 41.32"N and longitude 77° 33' & 28.07"E. The depth ranges from 5 to 20 feet and width is 160 meter. It is 10 km away from station-II.

**Collection, Preservation and Identification:** Molluscs were collected by hand picking method and preserved in 5% formalin for further study. Collected molluscs were washed, photographed with the help of digital camera and identified as per Tonapi (1980) and Subba Rao (1989).

### 3. Results & Discussion

A total of 15 (Fifteen) taxa were recorded from all sampling sites during the period of study from 2010-2012. The molluscan community was represented by two classes, viz., Bivalvia and Gastropoda of which 9 species are Bivalvia and 6 species are Gastropoda. Class Bivalvia was reported by two orders, viz., Unionida and Veneroida; two families; 3 genera; and 9 species. Class Gastropoda had 1 order, viz., Mesogastropoda; 4 families; and 5 genera with 6 species (Table No. 1 & Plate No. I).

A similar study was conducted on molluscan community of the Bharathapuzha River in Kerala and thirteen species of molluscs belonging to five orders, eight families and ten genera were reported (Bijukumar et.al., 2001). Farida (1988) recorded 59 species from Layari river. Among them, 31 species belong to class Gastropoda, 27 species belong to Bivalvia and the class Scaphopoda contains only one species. Amanullah and Hameed (1996) studied Kaveri river and reported 13 species of molluscs of which 8 species were gastropods and 5 species bivalves. The gastropod species were grouped under 5 different families (Viviparidae, Thiaridae, Pillidae, Lymnaeidae and Planorbidae) and family Thiaridae was the most dominant group representing 50% of the total gastropod population. Five species of bivalve molluscs were classed under 2 different families namely Unionidae and Corbiculidae.

Durga Prasad et.al., (2001) recorded 48 species of molluscs from Gasthani estuary of which 27 species were gastropods and 21 species were pelecypods. Dahegoankar et.al., (2011) studied mollusc from Wardha and Zarpal river and shown their dominance by contributing, six species from the Gastropods and two from Pelecypods. Suryawanshi et.al., (2012) studied biodiversity of molluscs from river Godavari, reservoir and pond, reported 24 species of fresh water molluscs. Maximum species were collected from Derla tank while minimum species were collected from Godavari river.

The abundance of the molluscan fauna indicates the rich productivity. The species inhabiting bottom of the river play an important role in converting organic matter together with the meiobenthos in to biomass which in turn is consumed by the fishes. Thus the molluscs help in the secondary productivity and form an important component in the food web of the river ecosystem.

Macro invertebrates of Lendi river rich in Molluscan diversity. Total 15 species of molluscs were identified from river & it indicates that productivity is rich. The species inhabiting at the bottom play an important role in converting organic matter together with the meiobenthos in to biomass which in turn is consumed by the fishes. Thus the molluscs help in the secondary productivity and form an important component in the food chain & web of the river ecosystem.

### 4. Acknowledgement

The authors are thankful to Principal, N.E.S. Science College, Nanded for providing laboratory & library facilities. The first author is thankful to UGC for financial support and encouragement through awarding Maulana Azad National Fellowship for Minority Candidates (2009).

### References

- [1] **Amanullah B. and P.S. Hameed (1996):** Studies on molluscan diversity in Kaveri river system (Tiruchirappalli, India) with special reference to vector snails of trematode parasites. *Current Science*, Vol. 71(6): 473-475p.
- [2] **Bijukumar A., S. Sushama and T. Biswas (2001):** Molluscs collected from the Bharathpuzha River, Kerala. *J. Inland Fish. Soc. India*; 33, 2, 68-69p.
- [3] **Boycott A.E. (1934):** The habits of land mollusca in Britain, *Journal of Ecology*; 22, 1-38p.
- [4] **Durga Prasad N.H.K., D.V. Rama Sarma and L.M. Rao (2001):** Molluscan fauna of Gosthani Estuary- A Systematic survey. *Journal of Aquatic Biology*, Vol. 16(1): 15-17p.
- [5] **Dahegoankar N.R., Telkhade P.M., Rohankar I.H. and Bhandarkar W.R. (2011):** Studies on diversity of benthic macro invertebrates in two lotic ecosystems near Chandrapur, Maharashtra, India. *Golden Research Thoughts*, Vol. 1(IV): 4p.
- [6] **Farida Begum (1988):** Study of Invertebrate Macrofauna of Layari River in Karachi with special reference to Molluscan Fauna. Ph.D. Thesis submitted to University of Karachi, 281p.
- [7] **Hellawell J.M. (1986):** Biological Indicator of Freshwater Pollution and Environment Management; Elsevier, London.
- [8] **Kumar A. and V. Vyas (2012):** Diversity of Molluscan communities in River Narmada, India. *Journal of Chemical, Biological and Physical Sciences*, Vol. 2(2): 1407-1412p.
- [9] **Roy S. and A. Gupta (2010):** Molluscan diversity in River Barak and its tributaries, Assam, India. *Assam University Journal of Science & Technology: Biological and Environmental Sciences*, Vol. 5(1): 109-113p.
- [10] **Subba Rao N.V. (1989):** Hand Book- Freshwater Molluscs of India. Published by ZSI, Calcutta. 165p.
- [11] **Subba Rao N.V. (1993):** In K.S. (ed.), Recent Advance in Freshwater Biology, Vol. II, Anmol Publication, New Delhi, India, 1993a, 187-201p.
- [12] **Subramanian K.A. and D. Jaiswal (2012):** Fauna of Ecosystem of India- Freshwater. Published by the Director, Zoological Survey of India, Kolkata, 1-28p.
- [13] **Suryawanshi A.V., C.S. Bhowate and A.N. Kulkarni (2012):** Freshwater Molluscs from Nanded, Maharashtra, India. *Bioinfolet*, Vol. 9(4B): 732-733p.
- [14] **Tonapi G.T. (1980):** Freshwater animals of India (An ecological approach). Oxford & IBH Publ. Co., New Delhi.
- [15] **Waghmare P.K., Rao K.R. and Shaikh T.A. (2012):** A correlation between freshwater molluscan diversity with Bhima river pollution near Pandharpur, Maharashtra, India. *Trends in Life Sciences Int. Peer-Reviewed journal*, Vol. 1(3): 38-42p.

**PLATE-I**



**Table 1:** Shows List of Molluscs identified at various stations of River Lendi

Sr. No.	Classification	Station-I	Station-II	Station-III
<b>I</b>	<b>Class-Bivalvia</b>			
<b>A</b>	<b>Order-Unionida</b>			
<b>I</b>	<b>Family-Unionidae</b>			
<b>A</b>	<b>Subfamily-Unionacea</b>			
1	<i>Lamellidens corrianus</i> (Lea)	+	+	+
2	<i>Lamellidens marginalis</i> (Lamarck)	+	+	+
<b>B</b>	<b>Subfamily-Parreysiinae</b>			
3	<i>Parreysia corrugate</i> (Mueller)	+	-	+
4	<i>Parreysia cylindrica</i> (Lea)	-	-	+
5	<i>Parreysia favidens</i> (Benson)	+	-	+
6	<i>Parreysia khadakvaslaensis</i>	-	-	+
7	<i>Parreysia shurtleffiana</i> (Lea)	-	+	-
<b>B</b>	<b>Order-Veneroida</b>			
<b>II</b>	<b>Family-Corbiculidae</b>			
8	<i>Corbicula peninsularis</i> (Prashad)	+	-	-
9	<i>Corbicula striatella</i> (Deshayes)	-	-	+
<b>II</b>	<b>Class-Gastropoda</b>			
<b>C</b>	<b>Order-Mesogastropoda</b>			
<b>III</b>	<b>Family-Bithyniidae</b>			
<b>C</b>	<b>Subfamily-Bithyniinae</b>			
10	<i>Gabbia orcula</i>	+	-	+
<b>IV</b>	<b>Family-Pilidae</b>			
11	<i>Pila globosa</i>	+	+	+
<b>V</b>	<b>Family-Viviparidae</b>			
<b>D</b>	<b>Subfamily-Bellamyinae</b>			
12	<i>Bellamyia bengalensis</i> (Lamarck)	+	-	+
<b>VI</b>	<b>Family-Thiaridae</b>			
<b>E</b>	<b>Subfamily-Thiarinae</b>			
13	<i>Thiara lineata</i> (Gray)	+	+	+
14	<i>Brotia costula</i> (Lea)	-	-	+
15	<i>Thiara tuberculata</i> (Mueller)	+	+	+