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Diversity of freshwater molluscs from Karanjali river, Karanjali, Nasik (India).

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Keywords

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Abstract

In present work the diversity spectrum of molluscs from Karanjali river, Karanjali, Nasik is carried out during the year 2015-2016. Seasonal data of freshwater molluscs were studied as gastropods and Bivalve molluscs from Karanjali river from four different sampling stations. Total eleven different species of molluscs were recorded from five different families. The sampling station ST-2 was showed rich diversity of bivalve molluscs whereas ST-3 showed rich diversity of gastropod molluscs. Among gastropods, *Melanoides (T) tuberculate* are rich in numbers whereas *Parrreysia corrugate* are abundant among bivalves in Karanjali river. The members of family Unionidae comprises maximum number of species of different molluscs whereas the family Lymnaeidae reported only one species i.e. *Lymnaea luteola* (L).

Introduction

Biodiversity is one of the important life supporting system on earth. Molluscs are mostly microbenthic organisms. They also found attached with floating vegetation in the fresh water bodies. The faunastic survey of molluscs in any ecosystem provides crucial information about ecology and food chain of the ecosystem. Molluscs are with attractive shells and are economically important to many different ways. The varieties of gastropods in India are studied by number of workers, Annandale (1919), Tonapi (1971), Magare (2007, 2012). Diversity of freshwater molluscs of Satpuda Mountains of Gujarat is carried out by Magare and Valvi (2013).

Kulkarni (1973) published an account of Land and Freshwater molluscs of Marathwada region. Many other workers make survey and diversity of molluscs from freshwater bodies of different geographical regions like Rajasthan; Ray and Mukherjee (1963) reported various snail species, Chubisia (1992) reported gastropods of both lotic and lentic ecosystems. These results prompted us to make survey of fauna of freshwater molluscs from Karanjali river, Karanjali (Peth), dist - Nasik. Freshwater molluscs are known to play significant role in the public and veterinary health and therefore needs to explore their diversity.

Materials and Methods

Study area: Study of molluscan fauna was carried out from Karanjali river during June 2015 to May 2016. The study comprised four sampling stations (ST-1, ST-2, ST-3 & ST-4). The sampling stations, ST-2 and ST-3 are close to the Karanjali place. The exact location of

Karanjali is approximately between latitude 20° and 25° N & longitudes 73° and 58° E.

Sample collection: The collection of freshwater molluscs was made from four sampling stations of study area. The shelled specimens were collected manually by hand picking, using gloves to prevent any infection of parasites. From each site the molluscs were captured from a 04 meter transact from each site. The collected specimens were recorded and separately counted sampling station wise and species wise. The mean of total samples was calculated from the data. Total 509 different samples of molluscs were collected, observed, identified and again released them to their habitat. Only shells found in river were retained for further study.

Results

In present study diversity of molluscs and seasonal availability of molluscs in Karanjali river, Karanjali (Peth), dist.- Nasik is represented by eleven different species of molluscs. [Table-1]. Among the total of 509 molluscs collected from four different sampling statins, five different species of gastropods are recorded and six species from pelecypods (bivalves). The gastropods species are classed under three families *viz*, Lymnaeidae, Pilidae and Thiaridae whereas Peleycpods (Bivalves) are comprised under two families i.e. Unionidae and Corbiculidae.

Table.1: Species inventory of freshwater molluscs from Karanjali river.

Sr. No.	Molluscan Species	Family	Samples studied	Occurrence of molluscan species.			
				ST-1	ST-2	ST-3	ST-4
1.	*Lymnaea luteola* (L)	Lymnaeidae	40	X	X	√	X
2.	*Pila(Turbinicola) saxea* (Reeve)	Pilidae	68	X	X	√	√
3.	*Pila globosa* (Swainson)	Pilidae	09	X	X	√	√
4.	*Melanoides (T) tuberculata* (Mueller 1774)	Thiaridae	88	√	X	√	√
5.	*Thiara linneata* (Grey)	Thiaridae	64	X	√	√	√
6.	*Parreysia corrugata*	Uninoidae	21	√	√	√	X
7.	*Parreysia favidens*	Uninoidae	14	X	√	X	X
8.	*Parreysia khadkvaslensis*	Uninoidae	08	X	X	√	X
9.	*Lamellidens marginalis* (L)	Uninoidae	78	X	√	X	X
10.	*Corbicula striatella*	Corbiculidae	76	√	√	X	X
11.	*Corbicula anandalei.*	Corbiculidae	43	√	√	X	X

Symbols used:√ =Yes, X = No.

Among the population structure of freshwater molluscs, the maximum diversity was found in family Unionidae and minimum was from Lymnaeidae. Even though the family members of Unionidae are more but about population the members of family Thiaridae are dominant. They found tremendously in all four sites of collection i.e. sampling stations ST-1 to ST-4. The dominance of Molluscan species was recorded from ST-2 and ST-3 in which maximum species were observed. The sampling stations ST-1 and ST-4 showed minimum species and number of molluscs, might be due to interference of human activities.

The identification of species of molluscs was confirmed from the identified samples and report of Zoological Survey of India, Kolkata and Akurdi, Pune and reputed references. The freshwater molluscs identified from ST-1 are, *Parreysia corrugata, Corbicula striatella, Corbicula anandalei and Melanoides (T) tuberculate.* From ST-2 about six different molluscs were observed are, *Lamellidens marginalis, Parrysia corrugata, Parreysia favidens, Corbicula striatella, Corbicula anandalei and Thiara linneata.* ST-3 is represented by maximum number (07) of species of molluscs i.e. *Thiara linneata, Melanoides (T) tuberculata, Pila globose, Pila (T) saxea, Lymnaea luteola, Parreysia corrugate* and *Parrysia khadkvaslensis* whereas ST-4 shows minimum number of molluscan species (03) i.e. *Pila globosa, Pila (T) saxea* and *Melanboides (T) tuberculata*. [Fig-1]

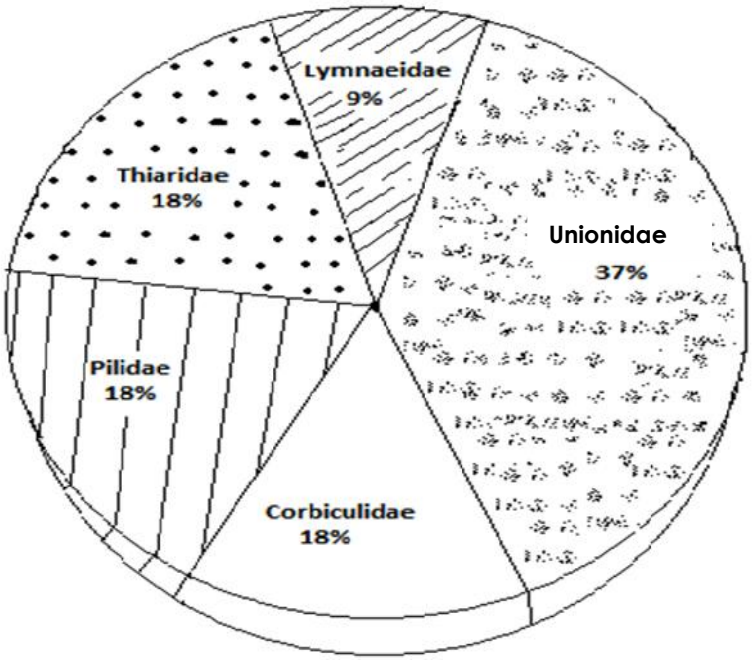

Fig 1: Familywise percentage of species identified.

Discussion

Nasik is an allied zone of Maharashtra, close to Western Ghats, which is an important global hotspot of biodiversity. In present times the growing population causes overexploitation of natural resources, directly or indirectly and also causes destruction of natural habitat. In present investigation it appeared that there are eleven species of molluscs found in Karanjali river of peth, Nasik. The abundance of molluscan species at four different sampling stations was quantified. The abundance of freshwater molluscs was more in ST-3 than other sampling stations. Three bivalve species and one gastropod species were found in ST-1, 05 Bivalves and one gastropods were reported from ST-2, 02 bivalves and 05 gastropod snails were reported from ST-3 and ST-4 shoed only three gastropod snails. The mean density of molluscs recorded in four different sites was different i.e. maximum of 32 in ST-2, very low, 18 in ST-4 and in ST-1, molluscan density was 23.5 and 24.14 in ST-3.

Among 11 different molluscs *Lymnaea luteola* and *Parreysia khandakvaslensis* were found only in ST-3 whereas *Lamellidens marginalis* and *Parreysia favidens* were recorded only in ST-2 and other molluscs were found in more than one different sampling stations. Bivalve population was abundant in ST-2 whereas gastropods were maximum in ST-3. In ST-4 only gastropods were reported i.e. *Pila globose, Pila (T) saxea* and *Melanoides (T) tuberculate. Melanoides(T) tuberculata* and *Parreysia corrugata* are the two molluscan species found in maximum sampling stations in Karanjali river. Availability of water and its favorable level in an ecosystem plays key role in survival and breeding of molluscs. Of the eleven species collected in present work, about five species are also reported in Satpuda mountain area of Nandurbar district. (Magare, 2007)

Molluscs in Karanjali river shows sandy, muddy and grassy or vegetation grown habitats of molluscs. Varieties of molluscs can tolerate different habitats (Okland, 1982). They need favorable rainfall and temperature for breeding and survival.

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