



Molluscan Diversity in Hattikuni Reservoir, Yadgir District, Karnataka, India

Siddaram L^{1*} and Ramakrishna Reddy B^{1 & 2}

¹ Department of PG Studies in Zoology, Sharnbasva University Kalaburagi - 585 103

² Department of Zoology, Sharnbasveshwar College of Science, Kalaburagi - 585 103

Email: poojari.glb@gmail.com

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ABSTRACT

The present study deals with the diversity of molluscs in Hattikuni reservoir, Yadgir District of Karnataka. This study was undertaken for a period of two years from February 2014 to January 2016. Eleven species of molluscs identified in the reservoir of which 9 are gastropods and two belong to bivalves. Among the gastropods, *Melania (Palitia) scabra*, *Melania scabra*, *Melania scabra* var *elegans*, *Melania tuberculata*, *Faunus ater*, *Lymnaea luteola*, *Lymnaea acuminata*, *Planorbis exustus*, *Bellamya bengalensis* and among bivalves *Parreysia corrugate* and *Lamellidens corrianus* species were dominant in the reservoir. The molluscan community could be used as good bio-indicator for ecologically diverse freshwater habitat.

Keywords: Hattikuni Reservoir, Molluscs, Gastropoda, Bivalve.

INTRODUCTION

Biodiversity is one of the important life supporting systems on earth. Molluscs are mostly microbenthic organisms. They are also found attached with floating vegetation in the fresh water bodies. The fresh water molluscs constitute an important part of the fresh water ecosystem. Molluscs are the second largest group of living aquatic organisms. Molluscs play a critical role in maintaining the aquatic ecosystem by recycling nutrients and energy pyramids by surviving as nutrition for certain aquatic organisms (Jawale *et al.*, 2009). Several genera of gastropods and bivalves are found in the fresh water ponds and reservoirs (Parikh and Mankodi, 2009).

The faunistic 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 studies on molluscs in India and throughout the world are hindered by the lack of the up to date systemic and faunal check list. The taxonomic study of Indian fresh water molluscs has been done by Zoological Survey of India (ZSI), (Subba Rao, 1989). The varieties of

gastropods in India are studied by number of workers, Annandale (1919), Tonapi (1971).. The main objective of this study is to document the molluscan diversity of the fresh water reservoir of Yadgir district, Karnataka. The identification, taxonomic account and distribution details will serve the purpose of comprehensive data base of such molluscans found in the fresh water reservoir.

MATERIALS AND METHODS

Study area:

Hattikuni is the Village in Yadgir District of Karnataka State. It is located 10 km away from the Yadgir District. Hattikuni Reservoir is a perennial fresh water body located 01 km away from Hattikuni village. It lies between Longitude and Latitudes of 16°52'50" North

and 77°10'21" East respectively. Its water spread area is 2145 hectares.

Sampling Method and Collection of Molluscan fauna:

Molluscans, both benthic and peripheral forms, were collected from the reservoir with the help of dipnet or dredges and live ones and shells were collected by hand. The live ones were cleaned and preserved carefully in 4% formalin and the collected shells were thoroughly washed with methyl alcohol and water before they were subjected to identification. The molluscans were separated and enumerated group wise. Identification was done up to family level and species level, if possible, using the key guides of Harold and Guralnick [10], Frest and Johannes [7] and Thompson [18].



Fig. 1. a. Satellite map showing Hattikuni reservoir b. & c. Collection of Molluscans from natural habitat at Hattikuni reservoir.

RESULTS AND DISCUSSIONS

The present study enlisted 11 species from all sampling sites belonging to 07 genera, under 04 families, of which 09 species was represented by Gastropoda and 2 species from Bivalve. The Gastropoda was represented by three orders, viz., Mesogastropoda, Hygrophil and Architaeninglossa 3 families; 7 genera and 9 species. Bivalvia had only one order i.e Eulamellbranchiata one families two genera and two species. Kumar and Vyas recorded 19 species of molluscan fauna represented by 4 order, 10 families and 12 genera from selected reach of River Narmada. Sharma *et al.*, studied molluscan from Morand River-a tributary of Ganjal River in Narmada basin a total of 10 species of molluscan were reported of which 5 species were gastropoda and 5 species bivalve. In the present study, *Lymnea luteola*, *L. acuminata*, *Melania (Palitia scabra)* and *Melania scabra var elegans* were the more

dominant species in the reservoir. *Melania scabra*, *Melania tuberculata* and *Bellamya bengalensis* were the second dominant species were widely distributed in the reservoir. The total gastropoda population was more during the study period. *Faunus ater* and *Planorbis exustus* species are found moderately in the reservoir. Molluscans were found throughout the year indicating their tolerance to varied environmental conditions. Abundance of gastropods might be due to dense vegetation and shallow zone coupled with plenty of dissolved oxygen optimum range of pH and alkalinity. Bivalves representing two genera were found throughout the study period. *Parreysia corrugate* and *Lamellidens corrianus* and were the dominant species of bivalves in the reservoir. The bivalve population restricted to shallow zones of the reservoir where macrophytic vegetation was dense. This could be attributed to availability of food and substratum for attachment.

Table.1. Molluscan species with classification from Haatikuni Reservoir Yadgir District, Karnataka.

Sl. No	Phylum	Class	Order	Family	Species
1	Mollusca	Gastropoda	Mesogastropoda	Melanidae	<i>Melania (Palitia scabra)</i>
2					<i>Melania scabra var elegans</i>
3					<i>Melania scabra</i>
4					<i>Melania tuberculata</i>
5					<i>Faunus ater</i>
6					<i>Planorbis exustus</i>
7			Hygrophila	Lymnaeidae	<i>Lymnaea luteola</i>
8					<i>Lymnaea acuminata</i>
9			Architaeninglossa	Viviaridae	<i>Bellamya bengalensis</i>
10		Bivalvia	Eulamellbranchiata	Unionidae	<i>Parreysia corrugate</i>
11					<i>Lamellidens corrianus</i>

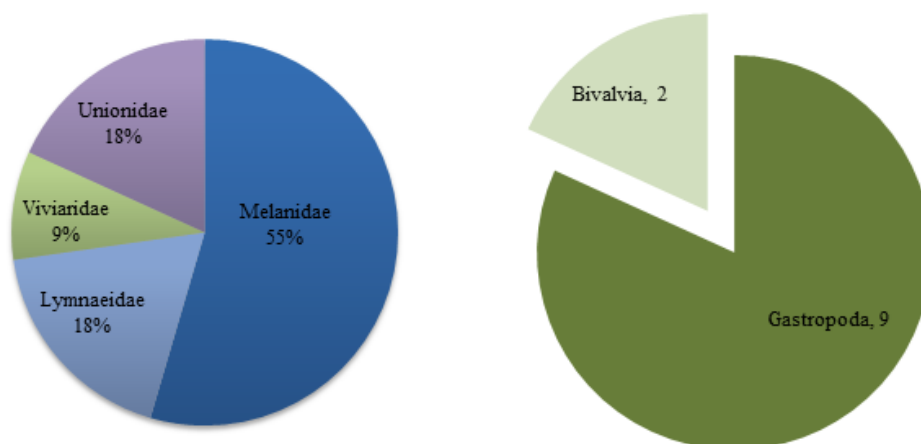


Fig.2. Percentage Composition of Molluscan diversity in the Hattikuni Reservoir, Yadgir District, Karnataka **a.** Family wise and **b.** Class wise.

CONCLUSION

The freshwater molluscs play a massive role in nature and help in assessment of ecological status of the water bodies. Being herbivores, they form the lower strata of aquatic trophic linkages and perform many other ecological activities. Hence, studies pertaining to their diversity, distribution and ecology become imperative. The noteworthy information was extracted from the study which revealed higher dominance of Gastropoda then Bivalvia. These species can be considered as bioindicators of pollution and ecosystem health. A progressive increase in their number with increasing pollution load indicates that they possess great tolerance against the contaminants present in water and flourish well in their presence. Findings of the present work could be useful for better management and conservation of molluscan fauna from this region.

Conflict of Interest

The author declares that there is no conflict of interest.

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