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# SEASONAL VARIATION OF HEMIPTERA COMMUNITY OF A TAPI RIVER AND RAIN POOLS IN AMARAVATI RIVER SHINDKHEDA TALHSHIL, DHULE DISTRICT, MAHARASHTRA, INDIA

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**ABSTRACT**

The study records eight families genera and species of hemipteran insect community. A seasonal study of aquatic Hemiptera was conducted in rain pool of Amaravati river and Tapi river ecosystem of Shindkheda Talshil, dhule Dist, Maharashtra, India. The density of hemipterans was much higher in rain pools of than that in river. The study revealed contrasting patter of population growth in the two ecosystems.

**Key words**: Hemiptera, diversity, density, Amravati river, Tapi river.

## INTRODUCTION

Aquatic Hemiptera holds an important place in the ecology of freshwater ecosystem. They are important food for many organisms, including fish, amphibians, waterfowl and other animals .They generally have an intermediate place in the food chain, for apart from being eaten, are often important predators too.

Aquatic hemiptera holds an important place in the ecology of fresh water ecosystem. They generaly have an intermediate place in the food chain because they serve as prey and predator as well (Hazarika & Goswami, 2010). The order Hemiptera are important as fish control, bioindicators and biocontrol agents. In certain cultures these insects are also consumed as food. The Hemipterans are also very important from the agricultural point view. The predacious bugs reduce the number of agricultural pests and are used in biological control (Das & Gupta, 2010).

Studies on aquatic hemipteran in Tapi river and rain pools in Amaravati river is the first work, no other records were found related to these areas. Larger areas of agricultural field is present on the bank of Tapi and Amaravati river from that much amount of pesticides flow in river during rainy season. As pollution status of water bodies are expressed as biological and physico-chemical parameters (Lenat et al. 1980), the results of this study can be of use for successful management of these water bodies. In this paper an attempt has been made to inventories and compares the diversity of Hemipteran insect community in these areas with reference to environmental variables.

## MATERIAL AND METHODS:

Circular nets made of finely meshed polyester mosquito curtain cloths were used to collect the floating and swimming insects from the littoral zone of the study habitat. The present study has been carried out for the period of one year July 2019-June 2020. During this time , observations are made on two days of every week in morning and evening hours. The pictures are taken by digital camera **Sony cybershot DSC-W65016.** Identification was carried out by the

- literaturehttps://indiabiodiversity.org/species/show/276024,
- acquatic insects 2.pmd (ernet.in)
- K.A.Subramanian and K.G.Sivaramakrishnan (2007)Aquatic Insects Of India -A Field Guide.

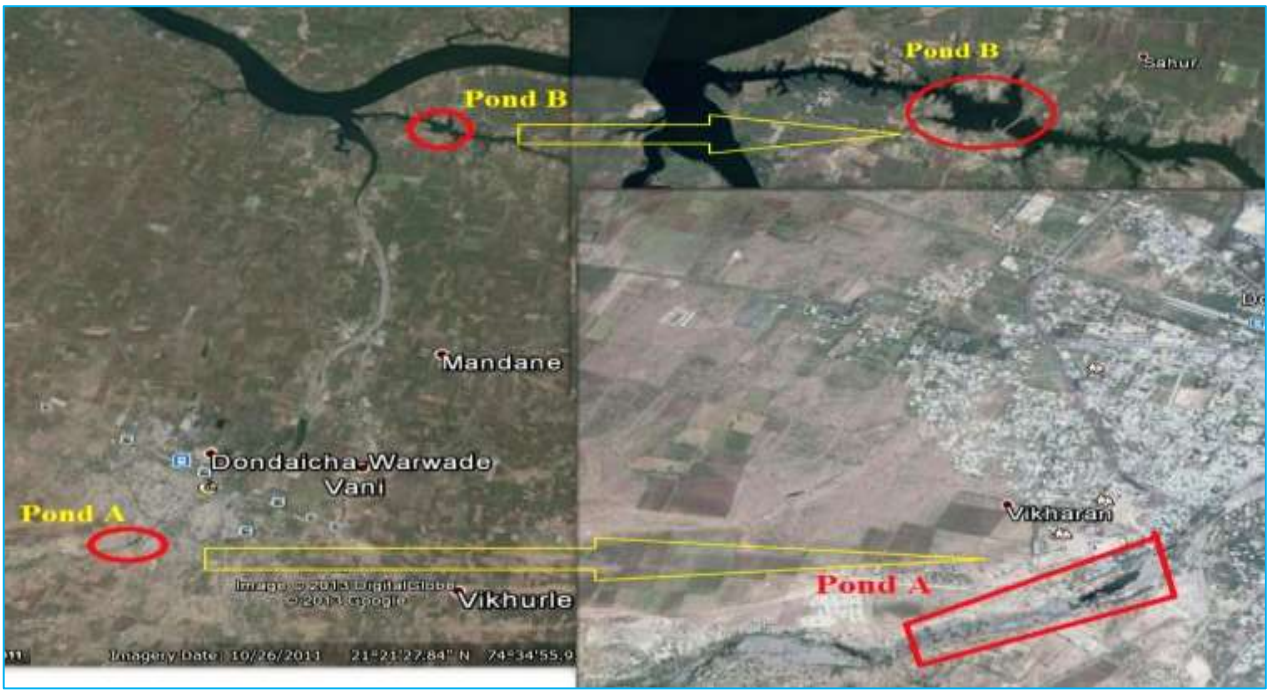
The present study is carried out in two different area separately by two observers and finally comparative study has been carried out.

## STUDY AREA;

The present work is based on the studies carried out for a period of one year, commencing from July, 2019 to June, 2020 in two pond ecosystems named as Pond A and Pond B (26009’26’’N & 91040’21’’E) of Tapi and Amaravati rivers. The Tapi river and Amaravati river are near to Dondaicha city of Shindkheda Talshil. A pond in Amaravati river is a temporary pond named as Pond A and a pond in Tapi river is permanent pond named as Pond B. in comparison with Pond B macrophytic growth is more than Pond A. The Pond A is rain fed and persistent while the Pond B is permanent pond of Tapi river. The bottom surface of Pond A is made up of sands and stones while the bottom of Pond B is made up of mud. The bottom of both the ponds consists of slit sediments combined with decaying vegetation.

**(A)** Amaravati River
**(B)** Tapi River

**(A)** **Amaravati river region** which is 0.5 km from Dondaicha town is studied (26009’26’’N)
**(B)** **Tapi river region** which is 10 km far from study area A (91040’21’’E))




**RESULTS AND DISCUSSION;**

In this study total organisms comprising 10 genera and eight families have been recorded; all belonging to the suborder Heteroptera. Family Notonectidae represents the highest number of organisms followed by Gerridae and Nepidae. Families such as Corixidae, Hydrometridae, Ephemeroptera and Belostomatidae comparised fewer number of organisms (Table 1). Pond A represents all the recorded genera while only nine genera were recorded in Pond B. The density of Hemiptera in Pond B was much less compared to the density of Pond A in different seasons (Table 2). Habitat density in terms of presence or absence of littorial vegetation and hydro median depth are found to be the most important factor affecting the distribution of aquatic hemiptera in the studied water bodies.

In premonsoon season, the density of Hemiptera was relatively high but during monsoon season it became lesser. In case of pond B, during monsoon polluted water disturbs insect density while in case of Pond A, the decrease was seen by flowing water. Other reason behind it, is presence of insecticides in flowing water. This condition was mainly seen Pond A where larger area of bank of it is occupied by agricultural field. In case of Pond A, a smaller area of its bank was occupied by agricultural field. Hence, presence of different insecticides causes decreased insect population. In post-monsoon season, density goes to higher number. During winter season, decrease was seen in Pond A while in case of Pond A no significant decrease was seen. In summer season, very few numbers of insect populations was found while in case of Pond B insect density not greatly changed because it is a permanent pond with constant water level throughout the year and represent stable environment for aquatic insects.

**Table 1. Aquatic Hemiptera collected at Amaravati and Tapi river ponds in Shidkheda Talshil, Dhule Dist**

| **Genera** | **Pond A Amaravati river** | **Pond B Tapi river** |
|---|---|---|
| **Hemiptera** | | |
| **Notonectidae** | | |
| *Notonecta* | ++ | ++ |
| **Gerridae** | | |
| *Trapobates spp* | - | + |
| *Aquarius* | ++ | ++ |
| **Nepidae** | | |
| *Ranatra* | ++ | + |
| *Laccotrephes* | ++ | ++ |
| **Ephemeroptera** | | |
| *Telogonodes* | + | + |
| **Corixidae** | | |
| *Sigara* | ++ | - |
| **Belostomatidae** | | |
| *Belostoma* | + | - |
| **Hydrometridae** | | |
| *Hydrometra* | + | + |
| **Pleidae** | | |
| *Neoplea* | R | ++ |

**+ - Present/Common; ++ - Abundant; R - Uncommon; - - Absent**

**Table 2. Hemiopteran density in Pond A and Pond B.**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