

# Zooplankton Diversity of Mustabad Cheruvu, Rajanna Sircilla District, Telangana

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**Abstract:-** Zooplankton are the crucial role on aquatic ecosystem, they are diverse of group of heterotrophic organisms. They occupy key position in aquatic food web, serving as primary consumers i.e primary consumers that feed on phytoplankton and other microscopic organisms and in turn as food source for large organisms, zooplankton play a role in biogeochemical cycles, particularly in carbon sequestration through the biological pumps. The study has been done for 90days of interval between 9 am to 11am in the month of May to July.

**Keywords:-** Zooplankton, Primary Consumers, Food Web, Heterotrophic Organisms.

## I. INTRODUCTION

Zooplankton (*Greek; Zoon - Animal; Plankton-Wandering*) is the important component of aquatic fauna. In ecologically Zooplankton is one of the most important biotic components. (11) Zooplanktons are the heterotrophic smallest organisms such as food chains, food webs, and microscopic aquatic animals. Zooplanktons consisting of small animals and the immature stage of larger animals like larvae.

E.g.; Cladocerans, Copepods, Rotifers, Protozoan, Ostracods, Larvae etc

Zooplanktons are the minute, free swimming, microscopic consumers of aquatic ecosystem. Zooplanktons are unicellular or multi cellular forms with size ranging from a few microns to a millimetre or more. The zooplanktons play an important role to study the faunal biodiversity. They include representatives of almost every taxon of the animal kingdom and occur in pelagic environment either as adults [Zooplankton] or eggs and larvae [Meroplankton]. The zooplankton community is composed of both primary

consumers and secondary consumers. Zooplanktons are valuable food sources for fishes and other aquatic animals. Nearly all fishes depend on zooplanktons for food during their younger stages and some fishes continue to eat zooplanktons in their entire life. The zooplankton community was maximum in summer season, minimum in monsoon season. The composition of zooplankton, Cladocera, rotifers, copepods, and Ostracoda, protozoan the presence of copepods is indicative of pray-predator relationship among zooplankton. The tendency of Cladocera's, Rotifers is too built up rapidly high population densities under favourable environments. Zooplankton species are valuable experimental tools and tags. Zooplankton concentration population and nutrient level is help to determine health of ecosystem. Temperature is a major factor to change the community. Composition and effect the diversity of species.

## II. MATERIAL AND METHOD

### ➤ *Material:*

- Plankton collection net
- Oxygen water bottles(300ml)
- Water buckets
- Microscope

### ➤ *Data Collection:*

#### • *Description of Study Area:*

Mustabad cheruvu is one of the most irrigation in the Rajanna Sircilla district. It is a located between **18.280065° N** latitude and **78.714469° E** longitudes in Mustabad Mandal of Rajanna Sircilla district Telangana state. The present Mustabad cheruvu receives water from rains and also receives sewage water directly from the Mustabad Mandal. It is an perennial and the fishermen stocks advanced size carp fish seed every year in the month of July to August 2024.



Fig 1 Mustabad Cheruvu

#### ➤ Collection of Zooplankton Water Sample

Collection of sample present work has been conducted on Zooplankton analysis, for these 4 sampling sites of Mustabad cheruvu was selected for the qualitative analysis of zooplankton, site 1 was fixed at near the Mustabad cheruvu, site 2 in the middle of the cheruvu, site 3 was fixed near the outlet and site 4 was fixed here the Mustabad Mandal side. Zooplankton was collected at 90days of interval between 9 am to 11am in the month of May to July.



Fig 2 Collection of Zooplankton Water Sample

For the collection of zooplankton, a known amount of water was filtered through the Zooplankton net made up of nylon silk mesh Size 55 micrometres for the precise collection of planktons net is towed horizontally and vertically.



Fig 3 Sample



Fig 4 Examination of samples under Microscopes

### III. RESULT & DISCUSSION

The study on zooplankton diversity of Mustabad cheruvu, total 10 species of zooplanktons were identified belonging to six different groups, of zooplanktons were identified in this of which includes Cladocerans, Protozoan, Rotifers, Ostracoda, Larvae. Among them 4 species were observed in the sample collected at site 1, while 3 species of zooplanktons were observed at site 2 and remaining species observed in the sample collected at site 3. It is observed that

the high Cladocerans species in the water body. The Cladocerans abundant of species, total 10 species of zooplanktons were observed to 4 are belonging to Cladocera 2 are belonging to Copepoda, one is belonging to protozoan, one is belonging one is belonging to Ostracoda; one is belonging to Mosquito larva. The zooplanktons community to especially environment and change with biotic factors, temperature is one of the most important a biotic factor, which has influence on abundance and distribution of Zooplanktons.

Table 1 No. of Zooplanktons in Various Sites (4)

S. NO	ZOOPLANKTONS	SITE 1	SITE 2	SITE 3	SITE 4	MEAN
1	Cladocerans	5	4	5	6	5
2	Copepods	3	2	1	2	2
3	Protozoan	3	2	1	3	2.25
4	Rotifers	3	6	4	1	3.5
5	Ostracoda	3	2	5	1	2.75
6	Larvae	3	6	5	4	4.5



Fig 5 Daphnia Magna



Fig 8 Moina Brachiate



Fig 6 Leptodora Kindtii



Fig 9 Harpacticoida



Fig 7 Daphnia Pulex



Fig 10 Cyclops

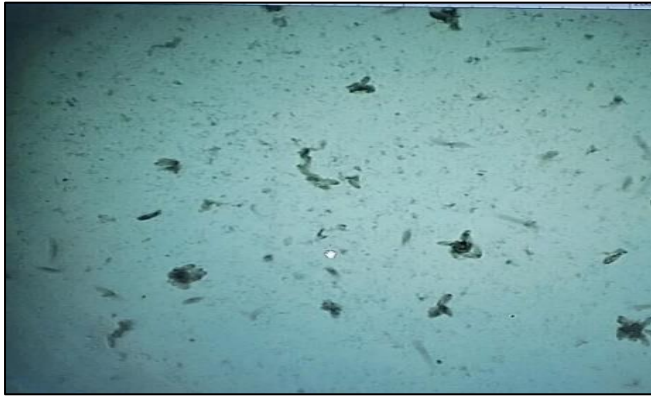


Fig 11 Paramecium



Fig 13 Lasturnatky

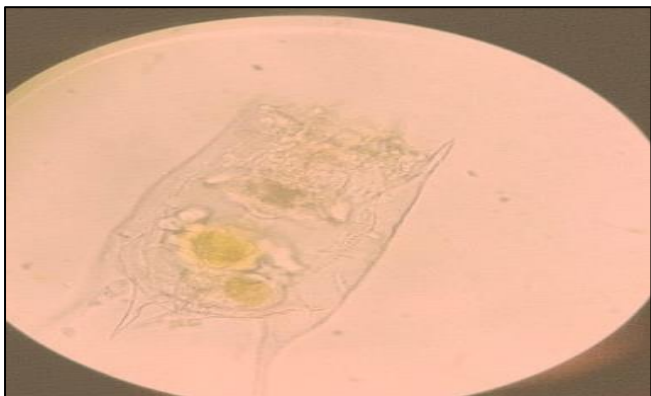


Fig 12 Branchionus Calyciflorus

The Cladocerans are high dominant by copepod, protozoa, rotifers, Ostracoda and larvae. Rotifer is the live food to raise larvae of many species during the first two weeks of exogenous feeding. No other live food need developed for larval feeding that can replace rotifers. ostracods belong to the main bioturbators among meiobenthic animals and have a considerable impact on the structure and geochemistry of major part of the bottom sediments. Overall zooplankton diversity and abundance indicated that the water body is rich with nutrients and mesotrophic in nature.

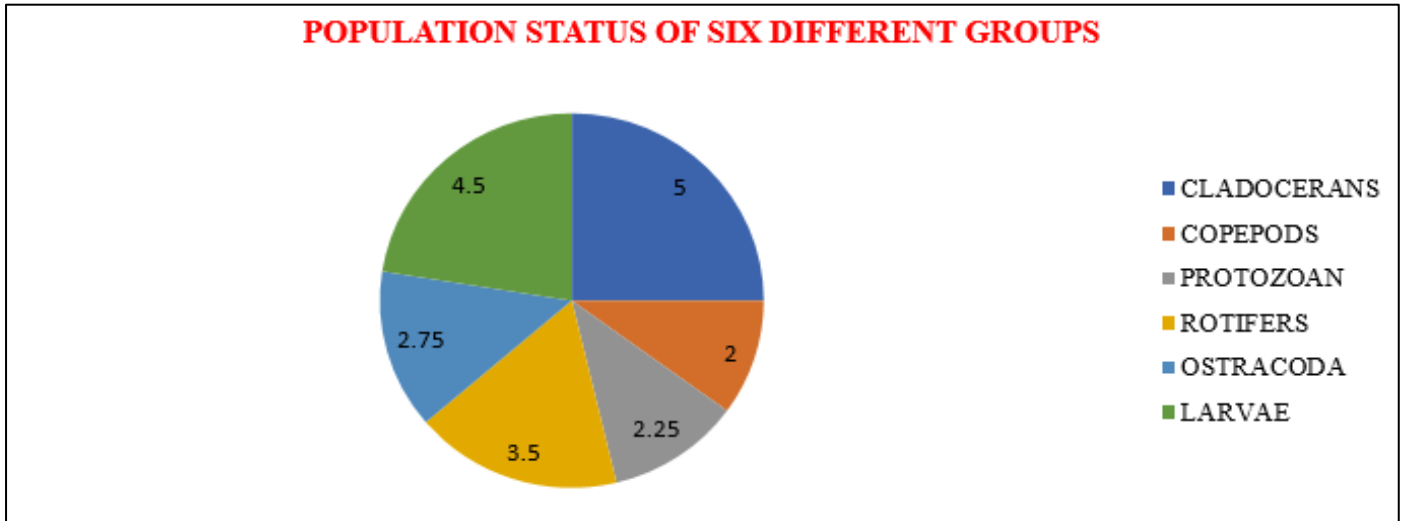


Fig 14 Population Status of Six Different Groups

#### IV. CONCLUSION

With this we conclude that, A present study on zooplankton diversity of Mustabad cheruvu total 10 species of zooplanktons identify the six different groups of zooplanktons. The Cladocerans are high dominant by copepod, protozoa, rotifers, Ostracoda and larvae.

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