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***Short Communication***

# Seasonal variations of zooplankton in an aquatic pond near Bagbazar, Chandannagar, Hooghly, WB, India

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## Abstract

*Seasonal variations of zooplankton in an aquatic pond near Bagbazar, Chandannagar, Hooghly, W.B. was studied during the period of March, 2018 to February, 2019. Four seasons viz., summer (Mach-May, 2018), monsoon (June-September, 2018), post-monsoon (Ocober-November, 2018) and winter (December-February, 2019) were selected for the study. During the study period 10 different genera of zooplanktons of different groups (rotifera, cladocera, copepoda and ostracoda) were collected and identified. Maximum abundance of zooplankton species were found during summer and monsoon season. Rotifers were found dominant groups during the study period*.

**Keywords:** Seasonal variations, zooplankton, aquatic pond.

## Introduction

In aquatic ecosystems zooplanktons are microscopic animals which constitute the component of secondary production[1]. Alam *et al*.[2] reported that zooplanktons were important food material for both omnivorous and carnivorous fishes. Many studies[3-6] were revealed that zooplankton was good indicator of any particular environment. Different researchers[7-11] have found that zooplanktons were ecologically important biotic component and act as bioindicator[5-6].

Some researchers[12-13] worked on the assemblage of planktons linked to seasonal changes, meteorological and hydrological events. The present study mainly focuses on the seasonal variation of zooplanktons.

## Materials and methods

Zooplanktons were collected with plankton net (50-55µm) on seasonal basis from an aquatic pond near Bagbazar, Chandannagar, W.B. Sampling was done between 7.00 a.m. to 10.00 a.m. at every month from March, 2018 to February, 2019. *i.e*., up to a period of one year.

Four seasons were selected for collection of zooplanktons. Sampling occurred seasonally started from summer (March-May, 2018); monsoon (June-Sept., 2018); post-monsoon (Oct-Nov, 2018) and winter (Dec, 2018-Feb, 2019). Sample preservation was done by using 4% formalin. Sedgwick rafter plankton counting cells were used to carry out the qualitative estimation of zooplanktons and finally species were identified following literature of Battish[14] and APHA[15].

## Results and discussion

Taxonomical study of zooplanktons revealed that 10 genera of zooplanktons were taken to show their seasonal variations during different seasons (Table-1 and Figure-2, 3 and 4). Several workers[16-29] observed the distribution of zooplankton species.

The present study has shown that the higher population density of the zooplankton is found in both summer and monsoon seasons while low population is observed during post-monsoon (Figure-3 and 4). Among the zooplankton groups rotifers have been found dominant (Figure-1, 2 and 3).

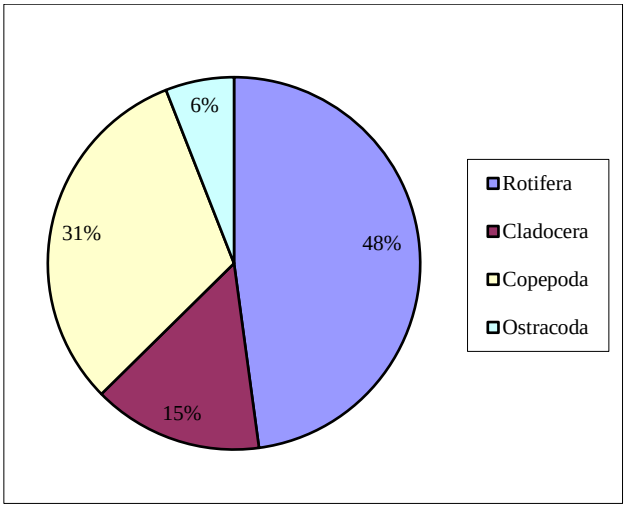


**Figure-1:** Zooplankton percentage under different groups.

**Table-1:** Season wise variations of zooplankton in an aquatic pond near Bagbazar, Chandannagar, Hooghly, W.B. (March, 2018 - February, 2019).

| Zooplanktons | Summer | | | Monsoon | | | | Post-monsoon | | Winter | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rotifera | March (2018) | April (2018) | May (2018) | June (2018) | July (2018) | August (2018) | Sept. (2018) | Oct. (2018) | Nov (2018) | Dec. (2018) | Jan. (2019) | Feb. (2019) |
| *Brachionus augularis* | - | - | - | - | - | 5 | 7 | 11 | 40 | 32 | 21 | 17 |
| *B. caudatus* | 31 | 45 | 51 | 28 | - | - | - | - | - | - | 3 | 5 |
| *Keratella* sp. | 4 | 9 | 12 | 11 | 3 | - | - | - | - | - | - | 1 |
| *Filinia* sp. | 22 | 15 | 10 | 5 | - | - | - | - | - | - | 7 | 4 |
| Cladocera | | | | | | | | | | | | |
| *Daphnia* sp. | 10 | 7 | 3 | 5 | - | - | - | - | - | - | 10 | 27 |
| *Moina* sp. | 8 | 3 | - | - | - | 16 | - | - | - | - | - | - |
| *Bosmina* sp. | 10 | 2 | - | - | 1 | 12 | 4 | 3 | - | - | 2 | 1 |
| Copepoda | | | | | | | | | | | | |
| *Diaptomus* sp. | - | - | - | 15 | 25 | 38 | 24 | - | - | 7 | 8 | 17 |
| *Cyclops* sp. | 19 | 11 | - | - | - | 10 | 12 | 11 | 14 | 19 | 23 | 11 |
| Ostracoda | | | | | | | | | | | | |
| *Cypris* sp. | - | - | - | 4 | 9 | 11 | 18 | 8 | - | - | - | - |
| Total | 104 | 92 | 76 | 68 | 38 | 92 | 65 | 33 | 54 | 58 | 74 | 83 |

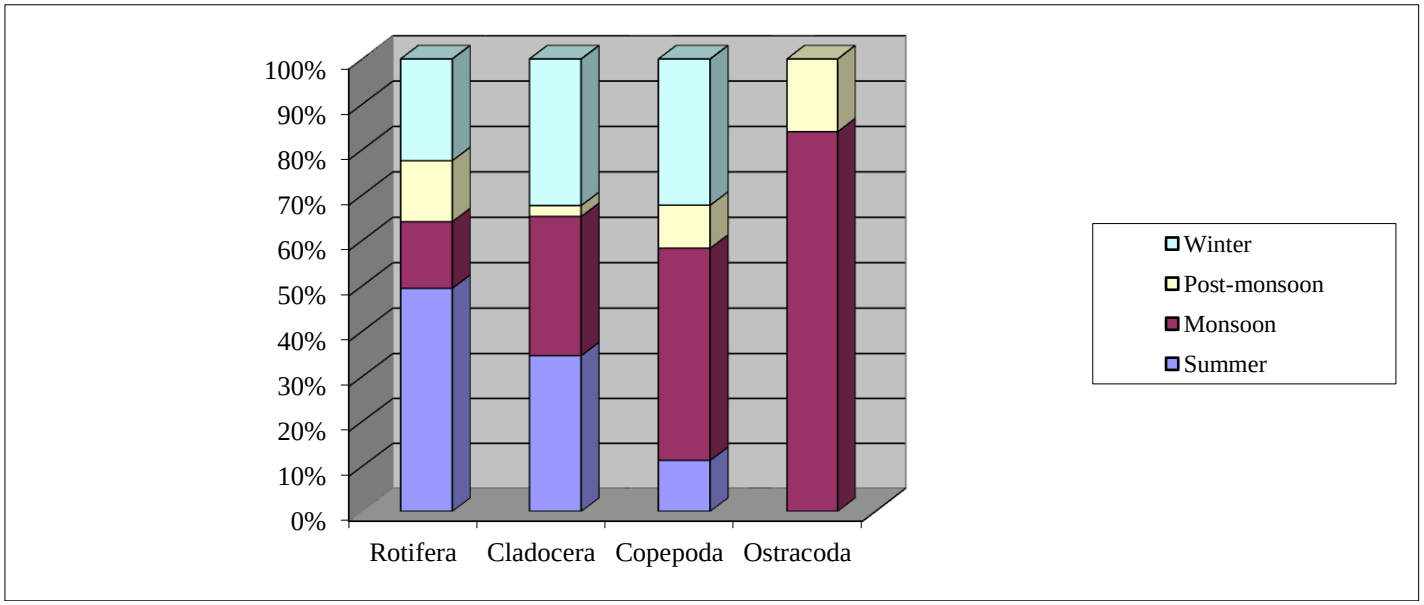


**Figure-2:** Abundance of Zooplankton groups.

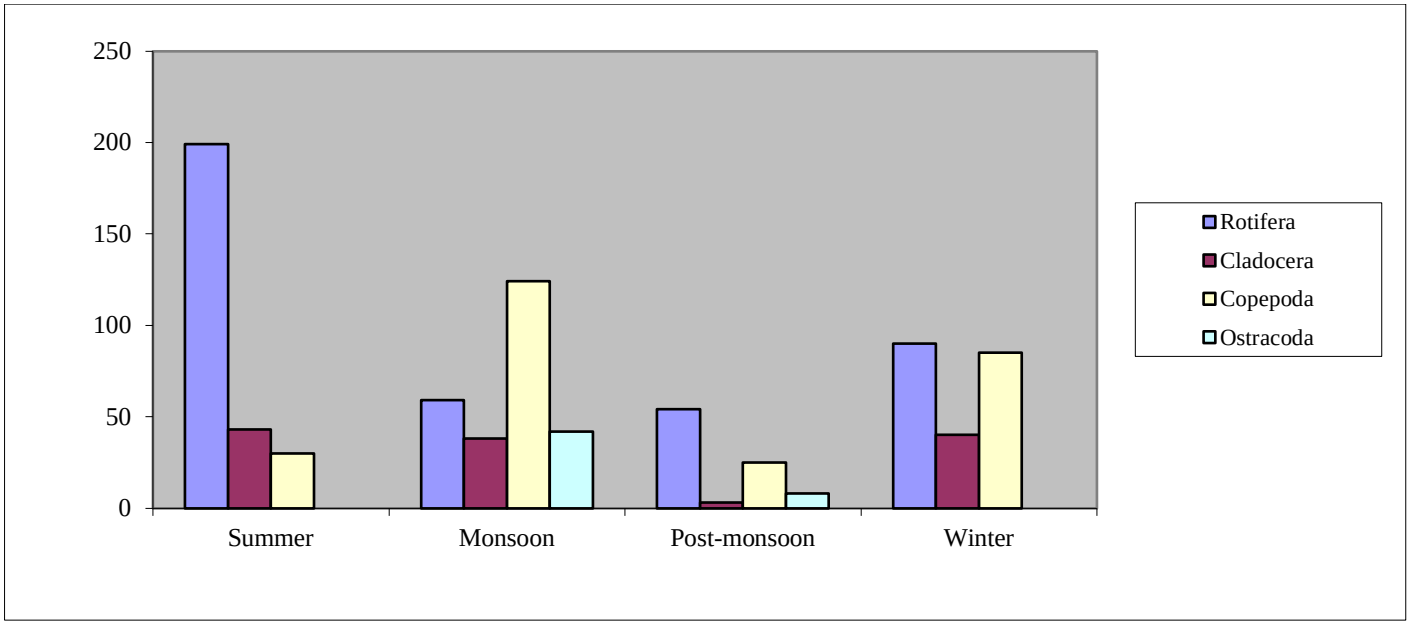


**Figure-3:** Seasonal variations of Zooplankton groups.

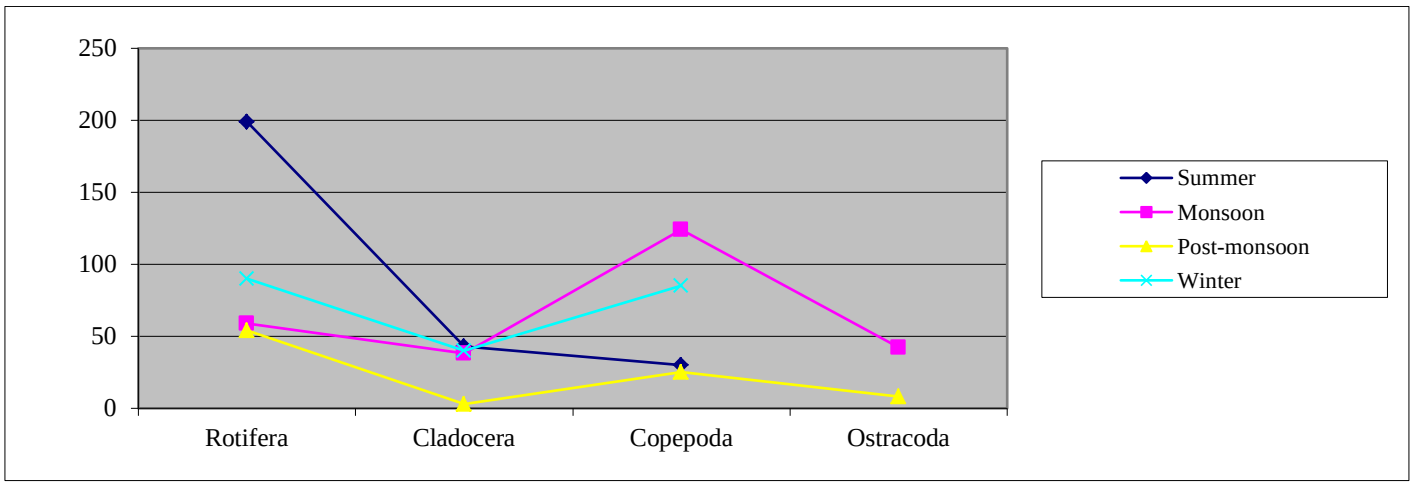


**Figure-4:** Season wise abundances of Zooplankton groups.

## Conclusion

Among the four selected groups of zooplankton rotifera was found to be dominant and maximum percentage of rotifera was found in summer season. Maximum density of cladocera was also recorded in summer. Maximum populations of copepoda and ostracoda were observed during monsoon season.

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