RESEARCH ARTICLE

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Zooplanktonic Diversity of Some Fresh Water Bodies of Agra Region

Vishwakant
Department of Zoology
Agra College, Agra
Email: gupta.vishwakant2@gmail.com

ABSTRACT

Investigation period was chosen from July 2011 to June 2012. Water samples were collected at regular interval of one month from observing spots of different ponds. Zooplankton was assessed both qualitatively and quantitatively. Highest peak was available in month June (14746) at studied sites while minima was observed in month of December (6155) .Three major groups were observed which further divided as dominant forms, abundant forms and frequent forms. In fact three major groups identified as rotifera, protozoa and crustacea. Rotifers were rich enough to change chemistry of water. Conclusion was made in the light of zooplankton importance in ponds.
Key words: Zooplanktons, Fresh Water Bodies, Agra Region

INTRODUCTION:

The planktonic community is a group of tiny plants and animals, drifting or feebly swimming in the water mass. Zooplanktons have an influence on ionic composition and nutrient availability in fresh water. The entire morphometry, physiology and physico-chemico-biological status of fresh water bodies much depend on tiny creatures known as zooplankton. Whole survey of aquatic ecology in fishing areas is affected by now and so on upon fecundity, growth, development, numericity, diversity, reproduction of zooplankton. These are ecological markers in many ways especially in nutrient level and pollution. Plankton is used as a major source of food of different fish. Enrichment of plankton along with high profilic growth of nutrients leads to eutrophication. Moreover bearing of various physico-chemical parameters on the seasonal pulse needs to be understood.

Agra district had well known to have many fresh water ponds for some year back. But enormous habitat construction for human in proper city had made them got over. However author tried to find biodiversity of very little creatures of water as "zooplankton" in some fresh water ponds in district jurisdiction. This paper stresses over exercise in identifying fresh water domestic resources viz. ponds which are being got vanished day by day. Author found, identified and listed basic components of lentic ecosystems –zooplankton.

METHODS & MATERIALS:

Sampling and Analysis of plankton:

Monthly planktonic sample, at the experimental spots were collected by filtering 2 liter of water through planktonic net NO.25. Samples were preserved in 5% formaldehyde solution in labeled glass tube. In the laboratory, plankton were identified (Fritch, 1977; Tonapi, 1980; Adoni, 1985 and Sharma (1996, 2001) and counted. Zooplankton counting was done in the Sedgwick rafter counting cell (Welch, 1948). Also plankton samplers were used in this regard.

OBSERVATION:

Table 1: Showing no. of zooplankton per month (July 2011 to June 2012) in ponds A, B, C respectively. Also Mean Devition, Mean, and Standerd Deviations are given

No. of Zooplankton → month ↓	POND A	POND B	POND C	Total No.	Mean Deviation	Mean	Standard Deviation (S.D.)
July 2011	2705	2960	3255	8920	187.7778	2973.33	224.73
Aug.	2830	4500	5232	12562	904.8889	4187.33	1005.22
Sept.	2650	3790	5643	12083	1076.889	4027.67	1233.39
Oct.	3460	4130	2321	9911	655.1111	3303.67	746.74
Nov.	1128	3400	2110	6638	791.5556	2212.67	930.37
Dec.	1010	1890	3255	6155	802.2222	2051.67	923.61
January 2012	3800	1260	2132	7192	935.1111	2397.33	1053.78
Feb.	2200	3457	2643	8300	460.2222	2766.67	520.56
March	4220	1244	3262	8726	1109.778	2908.67	1240.37
April	4879	4352	5454	14685	372.6667	4895	450.03
May	6044	5437	3265	14746	1100.222	4915.33	1192.98
June 2012	3998	2500	4768	11266	836.8889	3755.33	941.67

Plate No.1

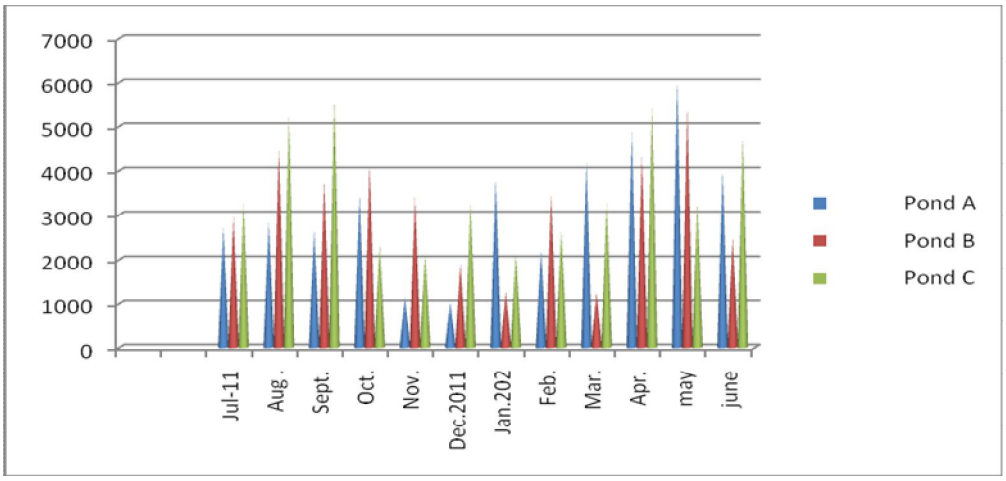
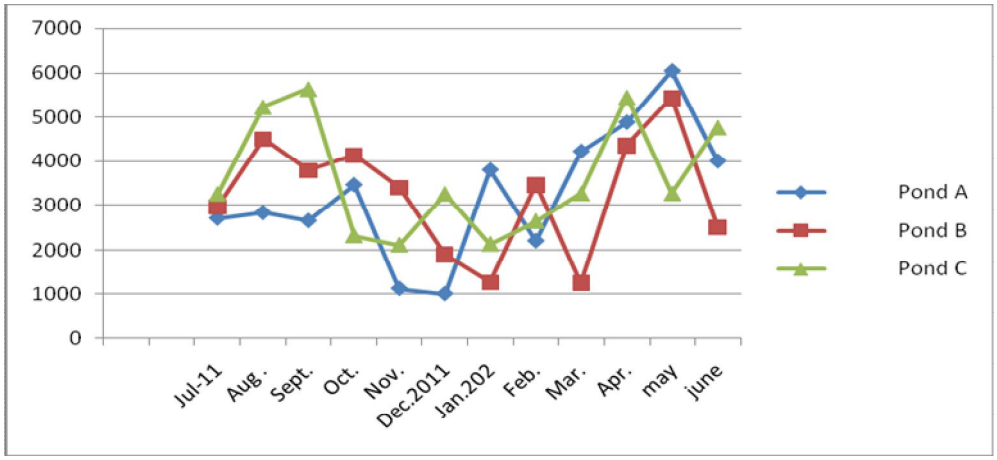


Plate No.2



ZOOPLANKTON:
Immediate consumer of phytoplankton as a result of quantitative analysis the Zooplankton was represented by 3 major groups viz Rotifera, protozoa and crustacea at studied station. Total 40 genera were observed.

Dominant forms:
Rotifera:
Brachionus, Asplanchna, Polyarthra
Protozoa:
Euglena, Paramecium
Crustacea:
Cyclops, Daphnia, Nauplii Larva, Diaptomerus

Abundant forms:
Rotifera:
Keratella, Notholca, Cephalodella, Trichocerea
Protozoa:
Amoeba, Arcella, Vamprella, Difflugea, Nucleria
Crustacea:
Clanoid, Daphnia, Eubranchipus, Pleurorus

Frequent forms:
Rotifera:
Rotaria, Gastropus, Diplois, Cephalodella, Ascomorphella, Monostyla, Notomata, Lecane, Lepadella, Phillodina, Synchaeta
Protozoa:
Ceratium, Vorticella, Chilomonas, Nebella, Euglypha
Crustacea:
Cypris, Monia

DISCUSSION:
The maximum zooplankton found in all three sites was recorded during summer. However minimum population was found during winter season. Highest peak was available in month June (14746) at studied sites while minima was observed in month of December (6155).
It is imperative and also logically justified that zooplankton and fresh water biotic communities has been a subject of study in india and lot of researchers have been engaging for last six decades (Vishwakant, 2007) parallel to them other workers were concerned about utility of zooplankton in assessing the water quality for population level and interaction with physic-chemical parameters includind nutrient enrichment (Zutsi & Vaas, 1982; Yousuf et.al., 1986 ; Reddy, 1994, 2001; Khan & Singh, 1999; Sukumaran & Das, 2001; Vishwakant, 2007, 2010, 2011)
It is a fact that zooplankton can exist under a wide range of environmental cue like oxygen, temperature, turbidity, depth, nutrients etc. they play an important role in denoting the numericity of certain fish species.(Vishwakant, 2007). What ever the author studied in present work that summer peak supposed to be of higher temperature, raised solar illumination, rich availability of food and nutrients (Goldman & Horne, 1983; Bhowmik et.al., 1997). Temperature enhancement could raise the level of brood production and moulting (Wetzel, 1983).
In present study Mean deviation was 1109.77 and highest S.D. was noted as 1240.37 , the deviation from mean (2908.67) was much because the numbers of zooplankton in all three ponds were far apart from each other as observed 4220, 1244, 3262 in ponds A, B, C respectively in March 2012, While in February 2012, Mean deviation was 460.22 and S.D. was registered as 520.56, and mean was 2766.67, it was due to numbers of zooplankton in all three ponds were too close from each other as observed 2200, 3457,

2643 in ponds A, B, C respectively. Here it should be noted that in both the months, total no. of zooplankton (8726 in March & 8300 in Feb.) and means were almost near, but because of reason mentioned above deviations were found more. The same trends were observed in the months of May & April 2012.

The major part of zooplankton was vested in rotifers. These fascinating creatures are present in diversified aquatic habitats especially in fresh waters. Their reproduction, growth, development and dominance make them prevalent forms around 20-50% (Herzig, 1987). They play tremendous role in grazing, suspension feeding, predating among zooplankton. Brachionus was found as dominant group. It was observed at pollution sites. Thus rotifers were known as pollutophilic (Vishwakant, 2007). The present strength of rotifers was found in accordance with works of Allen (1920), Byars (1960), Yousuf et. al., (1986)., Nayak & Khare (1993), Sharma (2001), Redddy (2001).

It was concluded by author that this was an attempt to study, occurrence, distribution, quantum of species, monthly variations, varietifullness etc. of lovely creatures zooplankton at all investigated sites.

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