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Quantitative Percentage Composition Of Macroinvertebrates Of Kishanpura Lake, Indore

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Abstract: ***Kishanpura Lake, Indore (M.P.) is a shallow tropical lake whose shoreline has dense population of macroinvertebrate communities and bottom fish fauna. Littoral zone along the shoreline of the lake is rich in biodiversity of macroinvertebrates and fishes. Benthic macro invertebrates are best indicators for bio-assessment. The abiotic environment of the water body directly affects in the distribution, population density and diversity of the macro benthic community. Benthic fauna are especially of great significance for fisheries that they themselves act as food of bottom feeder fishes (Sharma, 2002).***

Keywords: Kishanpura lake, Macroinvertibrates, Benthos

I. INTRODUCTION

Kishanpura lake is situated in a less populated area of Indore Township. The lake receives considerable amount of water. Its basin has shrubs on two sides while on other two sides there is open agricultural land. Total catchment area at lake site is 11.0 Sq. Km. The present study deals with the variety and abundances of macroinvertebrates of Kishanpura Lake, Indore, with reference to population dynamics.

In 2008, the oligochaetes (52.7%) were the largest contributor of the total collected macroinvertebrate. The next group was the gastropods (30.4%). Insects showed a sudden decrease in their presence at 9.2%. Shrimps were completely absent in the collection. The pelecypods (3.8) and leeches 1.5% also showed their presence.

II. MATERIAL AND METHODS

A rod net was used in collecting hand sample and sieving them for isolation. The bigger animal species where picked up by hand where as the smaller form were isolated by sugar floatation method and studied under low power (x50) microscope. They were preserved by narcotizing them by Methanol and Chloral hydrate and late 70% Alcohol. The benthic organisms were identified with the help of Tonapi (1984), Pennak (1989). APHA (1998) Standard books.

Species diversity index: In the present work only benthic macroinvertebrate species diversity index was calculated, following Shannon weaver index (1949) as modified by Wilhm and Dorris (1968).

$$d = \frac{(ni)}{n} \log 2 \frac{(ni)}{n}$$

Where d = Species diversity index
ni = Number of individuals in the species.
n = Total no. of individuals

III. RESULTS AND DISCUSSION

The littoral area of lake is an interspace of land and water. Its fauna is poorly studied (Belsare, 1982). The adaptive

capacity of the benthic animals depends on the population dynamics of physico-chemical parameters and availability food. These are basic substances for their distribution, growth, productivity, and reproductive potential.

The littoral benthic fauna of insects is influenced by detritus mass and also recycle organic matter. The presence or absence of demersal fish species, which feed on them, does not limit insect biodiversity.

Molluscs were represented by gastropoda an bivalves, all together individually of three family *Planoribdae. Limnidae* and *Viviparadae* were received among the class gastropoda during the study period.

The littoral aquatic molluscs fall in different groups such as the univalve snails (gastropods) and the bivalve clams and the mussels (palecypodes).

In the present study the molluscs were positioned third, so far as quantitative representation of benthic groups was concerned.

Kulshrestha et.al. (1989) also stated that the molluscs population was highest in April and November and was dominated mainly by family Viviparidae. Coon et.al. (1977) studied relative abundance and growth of mussels in pools.

Insecta form the second largest group of bottom fauna was represented by 6 genera *Chironomus pulmosus, Strictochironomus sp., Baetis sp., Corixa sp., Berosus sp, Hydaticus sp*. These species register and increase the abundance during winter season. These were in agreement with findings of Mandal and Moitra (1975), Malhotra et.al. (1990), Bass (1986) Barbhuyan and Khan (1992).

Among insects Chironomus most abundant genus and they were found through out the year in numbers.

Among all the benthic fauna, the chironomid group was a major component, which was widespread and abundant. They contributed major part of the total community of macrobenthic fauna and were found dominant among them throughout the study period of Kishanpura Lake. Mundie (1957) and Dougherty and Morgan (1991) also reported that chironomids are the dominant benthic organisms in most of the water bodies.

The maximum population and biomass of chironomid occurred in Kishanpura Lake. Jakher (1980), and Singhal (1991) have also observed high abundance of chironomids in water bodies.

All groups of bottom fauna had their own maximum peak in a particular peiod of the year and quite independent of one and other.

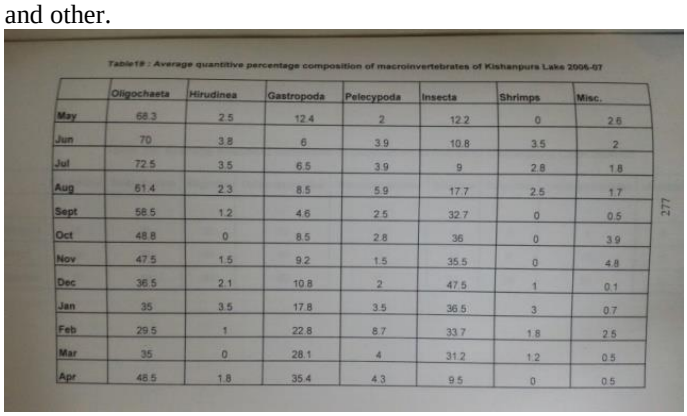

Table19 : Average quantitive percentage composition of macroinvertebrates of Kishanpura Lake 2006-07

	Oligochaeta	Hirudinea	Gastropoda	Pelecypoda	Insecta	Shrimps	Misc.
May	68.3	2.5	12.4	2	12.2	0	2.6
Jun	70	3.8	6	3.9	10.8	3.5	2
Jul	72.5	3.5	6.5	3.9	9	2.8	1.8
Aug	61.4	2.3	8.5	5.9	17.7	2.5	1.7
Sept	58.5	1.2	4.6	2.5	32.7	0	0.5
Oct	48.8	0	8.5	2.8	36	0	3.9
Nov	47.5	1.5	9.2	1.5	35.5	0	4.8
Dec	36.5	2.1	10.8	2	47.5	1	0.1
Jan	35	3.5	17.8	3.5	36.5	3	0.7
Feb	29.5	1	22.8	8.7	33.7	1.8	2.5
Mar	35	0	28.1	4	31.2	1.2	0.5
Apr	46.5	1.8	35.4	4.3	9.5	0	0.5

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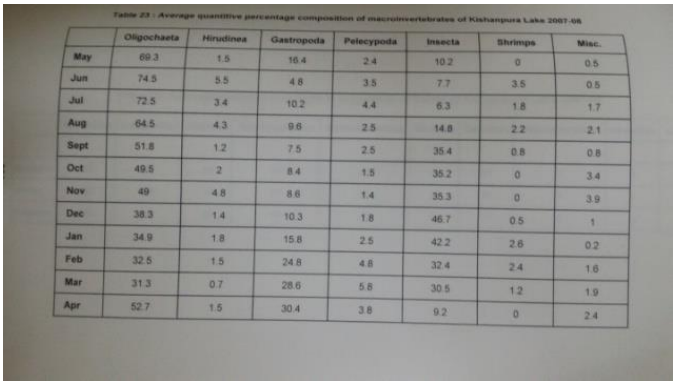

Table 23 : Average quantitive percentage composition of macroinvertebrates of Kishanpura Lake 2007-08

	Oligochaeta	Hirudinea	Gastropoda	Pelecypoda	Insecta	Shrimps	Misc.
May	69.3	1.5	16.4	2.4	10.2	0	0.5
Jun	74.5	5.5	4.8	3.5	7.7	3.5	0.5
Jul	72.5	3.4	10.2	4.4	6.3	1.8	1.7
Aug	64.5	4.3	9.6	2.5	14.8	2.2	2.1
Sept	51.8	1.2	7.5	2.5	35.4	0.8	0.8
Oct	49.5	2	8.4	1.5	35.2	0	3.4
Nov	49	4.8	8.6	1.4	35.3	0	3.9
Dec	38.3	1.4	10.3	1.8	46.7	0.5	1
Jan	34.9	1.8	15.8	2.5	42.2	2.6	0.2
Feb	32.5	1.5	24.8	4.8	32.4	2.4	1.6
Mar	31.3	0.7	28.6	5.8	30.5	1.2	1.9
Apr	52.7	1.5	30.4	3.8	9.2	0	2.4

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