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Study of Population Density & Seasonal Variations of Cladoceras & Copepods in River Sikrahna Near Bagaha, West Champaran, Bihar

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Abstract: Cladocerans and Copepods are microcrustacean present in fresh and marine water bodies. Occurrence of these microcrustaceans revealed a strong dependence of development on discharge pattern. Population density and seasonal variations of microcrustaceans were extensively studied on Sikrahna river running across Bagaha. Cladocerans & Copepods form a major group of herbivores mesozooplankton. In the present study, ecophysiological knowledge about between difference in metabolic and reproductive rates, feeding, selectivity and element composition were compiled. A total no. of 5 species of Cladocerans and 3 species of copepods were collected from Sikrahna river during study from July 2010 to June 2011.

Keywords: Cladocerans, Variation, density, dominant, Microcrustaceans, mesozooplankton.

I. INTRODUCTION

Population density & Seasonal variation of microcrustaceans (Cladocerans & Copepods) were extensively studies on river Sikrahna running across Bagaha. A total no. of 5 Sps. Of cladocerans were collected from river Sikrahna. At Bagaha the highest density of total Cladocerans were observed in June 2011. While the lowest density in September 2010. Monia dubia was the most dominant Cladoceran, its maximum density during study were recorded in June 2011 (30 u/L), while the lowest density in September 2010 (8u/L) during study. Daphnia Carinata was the second dominant Sps. Of cladocera. Its maximum density (28u/L & 26 u/L) in June 2011 and May 2011, while, the minimum (8u/L & 10 u/L) in September & October 2010 during study.

During Study a total 3 species of copepods were collected from Sikrahna river. But at Bagaha, they were sparsely presented due to lake of pollutants. The causes of variation in population density and seasonal variation were discussed in the available literature.

II. MATERIALS & METHOD

For the analysis of population density, samples were collected in plastic cans & added few drops of chloroform or Sulphuric acid as suggested by Golterman et al. (1978) and then brought to laboratory. Table

Organisms/Months	Jul10	Aug	Sep	Oct	Nov	Dec	Jan-11	Feb	Mar	Apr	May	Jun11
CLADOCERA												
Daphnia carinata	12	8	10	12	16	18	12	16	20	22	26	28
D.lumholtzi	10	6	6	6	x	x	x	x	8	10	10	12
Sinocephalus sp.	8	6	x	x	6	10	x	x	8	10	14	16
Monia dubia	16	12	8	10	14	16	16	12	14	18	20	30
Bosmina longirostris	x	x	x	6	8	8	10	x	x	x	12	x
Total:	46	32	24	34	44	52	38	28	50	60	82	38

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II. RESULT AND DISCUSSION

A total 5 Species of Cladocerans and 3 species of Copepods were found in River water. But at Bagaha, Monia dubia was the most dominant Cladoceran followed by Daphnia Carinata which were followed by D. lumholtzi, Simocephalus and Bosmina longirostris. Other than rotifers, the presence of Daphnia carinata regarded as pollution indicator by Dzyuban and Kuzantsovo (1978). During study, it was not found a clear distribution pattern of the microcrustaceans. The species composition of microcrustaceans was different from zooplankton during sampling. All the microcrustaceans collected showed a distinct increase towards the surface niche at night hour in the river. In accordance to present findings VERMA (1967) and JANA (1974) found no distinct diurnal movement of Cyclops. The present findings is in the agreement with finding of Krishnamurthy and Viswaswara (1965), who reported that major groups of Cladocerans like Cyclops and Monia dubia are present in the middle layer of water during the day. It can be concluded that the physico – chemical conditions of water is of prime importance which plays an important role in the diurnal movement of zooplanktons. Similar reports were given by Merrix- Jones et al.,(2013). In addition, solar radiation may be a predictor responsible for variation in species composition (Pinel-Alloul et al. (2013).

CONCLUSION

The qualitative analysis of microcrustaceans of river sikrahna from Bagaha revealed the presence of Cladocera and sparshly copepods. From those cladocerans are best represented as no. of sps diversity and abundance, copepods in naupilus larva. The dominance of zooplankton sps is highly variable in different types of aquatic system according to nutrients level, predators & other environmental factors which then affects other biotic components of the ecosystem.

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