



Benthic Macro Invertebrates of River Bichhia at Rewa District (M.P.)

KEYWORDS

Benthic macro invertebrates, Bio indicators, Bichhia river.

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ABSTRACT

The present study is an attempt for the assessment of Benthic macro-invertebrates of river Bichhia at Rewa District (M.P.). Four study sites were selected on the bank of 25 Km. stretch of River viz. Akhad Ghat-I, Raj Ghat-II, Chittaria Ghat-III, Khutaha Ghat IV, Benthic invertebrate are sensitive to the environment, therefore, they are used as bio-indicators for pollution and health of a water Body. On the basis of the presence or absence of their families, it could be interpreted that Akhad Ghat and Raj Ghat sites had least pollution while the Chittaria Ghat and Khutaha Ghat sites indicated heavy pollution. The families which were encountered at the most were, Chironomidae, Hydrophilidae and Noteridae; Lestidae Nepidae showed lesser distribution while pleidae, Hygrobiidae and Hydrobiidae species were least in number.

INTRODUCTION

Benthic macro-invertebrates are aquatic macro-fauna inhabiting the bottom substratum. they give sensitive response to toxic effluents and pollution, therefore are studied for evaluation of water quality as biological compounds of the aquatic ecosystem. they are aquatic macro fauna having sedentary and long life span, inhabiting the deferent substratum of river, stream, lake and other water bodies, for at least a part of their life cycle and are visible to unaided eyes. Having developed taxonomy, they can be retained on the sieve and can be easily identified. Most of these macro-invertebrate, share their biological life in fresh water, while their adults fly over for miles in search of suitable habitat for reproduction. (Mustow 1996; Akolkar et al. 1999; Khan, 2006; Khanna and Vats, 2006; Singh and Ahamad, 2006; Prasm et al. 2006). The present study is an attempt for Assessment of the benthic macro-invertebrates of river Bichhia at Rewa (M.P.)

MATERIALS AND METHODS

The present study was carries out in Rewa city and Bheeta Village in Rewa district (M.P.). The area is situated between latitude 24018' & 25012' North and longitude 8102' & 82018' East. The district is situated of the Area varies 440 M to 811 M above between sea level.

Attention has been focused on two village in four site for studying benthic macro-invertebrates of river Bichhia at Rewa, four study sites, viz., Akhad Ghat (Site-I), Raj Ghat (Site-II), Chittaria Ghat (Site-III), Khutaha Ghat (Site-IV) were selected on the Bank of river Bichhia. Benthic Macro-Invertebrates were studied for evaluation of water quality as Biological components of the aquatic ecosystem. They were selected as Bio-indicators as they are visible to unaided eyes, have developed taxonomy, can be retained on the sieve (.5mm) and can be easily identified. They give sensitive response to toxic effluents and pollution they were identified upto family level.

RESULTS AND DISCUSSION

Benthic macro-invertebrates were studied for evaluation of water quality as biological components of the aquatic ecosystem. They were selected as bio-indicators, as they give sensitive response to toxic effluents and pollution most of these macro-invertebrates particularly insect larvae, which are aquatic, share their biological life in fresh water, while their adults fly over for miles together in search of suitable fresh water environment for reproduction, breeding and lay-

ing eggs in suitable habitats and establish biological communities. (Mustow 1996; Akolkar et al. 1999; Muhammed Zaheer Kham, 2006; Khanna and vats, 2006; Singh and Ahmad, 2006; Prasm et al. 2006).

SITE-I : Family Gomphidae of order Odonata was found at this site. Amongst Hemipteran families, Aphelocheiridae, Corixidae Nepidae, Notonectidae, Naucoridae, Pelidae and Belostomatidae were noted. Other families observed at this site were Syrphidae, Hydrophilidae and Noteridae of order Coleoptera and Lymnalidae, Physidae and Hydrobiidae of order Mollusca were observed. Activities like cattle wading, open defecation, sewage effluents discharge etc. Affect the habitat of Benthic Macro-invertebrates at site-I.

SITE-II : Odonata families could not be found here. Naucoridae, Notonectidae represented Hemipteran order. Chironomidae as Dipteran family; Hydrobiidae, Hydrophilidae and Noteridae as coleopteran families were observed. Planorbidae was observed as Molluscan.

This site was most polluted. Therefore, tolerant Benthic families like Chironomidae, Noteridae, Survived at this site. Besides anthropogenic activities like Cattle wading, Cattle grazing, open defecation etc. Sewages effluents of Bad odour merges here.

SITE-III : Lestidae, Gomphidae and Aeschinidae families of order Odonata were found. Amongst the families of Hemiptera, Nepidae, Notonectidae, Belostomatidae, Naucoridae and Corixidae were found here families Hydrophilidae, Noteridae of order Coleoptera, family Lymnaeidae of Mollusca were also observed.

SITE-IV : Odonatan families were. Lestidae and Gomphidae. Hemipteran families were Nepidae, Pleidae and corixidae; families Hydrobiidae, Hydrophilidae and Noteridae of Coleoptera; Families Syrphidae and Chironomidae of Deptera and families Lymnalidae and planorbidae of Mollusca were present at this site.

Benthic Macro-invertebrates are the best suitable for water quality evaluation among the other living systems present in aquatic ecosystems (CPCB, 1999, 2001, 2002; Kumar, 2003). Benthic Macro-invertebrates gives response to environmental changes like, sewage, factory and agricultural waste material, pollution and other sources. The Macro-invertebrates

are 'pollution indicators' which gives an index of Health of water body (Hallawell, 1986; Prasm et al. 2006; fishar and Williams, 2007). Taxonomical key is useful for Biological water quality determination. (Trivedi and Dezwart 1995).

Table-I : Occurrence of Benthic Macro-invertebrates families encountered in River Bechhia at Rewa Autumn season-2011

S. No.	Taxonomic group	Families	Site-I Akhad Ghat	Site-II Raj Ghat	Site-III Chittaria Ghat	Site-IV Khutaha Ghat
1.	Coleoptera	Hygrobidae	A	P	A	P
		Dystislidae	P	A	A	A
		Hydrophilidae	P	P	P	P
		Noteridae	P	P	P	P
		Syrphidae	A	A	P	P
2.	Deptera	Chironomidae	P	P	P	P
		Nepidae	P	A	P	A
3.	Hemiptera	Aphelocheiridae	P	A	A	A
		Naucoridae	P	P	P	A
		Notonectidae	P	A	P	A
		Pleidae	A	A	A	A
		Belostomatidae	P	A	P	A
		Corixidae	A	A	A	P
		Planorbidae	A	P	A	P
4.	Odonata	Lestidae	A	A	P	P
		Gomphidae	P	A	A	P
		Aeschinidae	A	A	P	A
5.	Mollusca	Lymnalidae	A	A	A	A
		Physidae	P	A	A	A
		Planorbidae	A	P	A	P
		Hydrobiidae	A	A	A	A

Table-II : Occurrence of Benthic Macro-invertebrates families encountered in River Bechhia at Rewa Winter season - 2011.

S. No.	Taxonomic group	Families	Site-I Akhad Ghat	Site-II Raj Ghat	Site-III Chittaria Ghat	Site-IV Khutaha Ghat
1.	Coleoptera	Hygrobidae	A	P	A	P
		Dystislidae	P	A	A	A
		Hydrophilidae	P	P	P	P
		Noteridae	P	P	P	P
		Syrphidae	A	A	P	P
2.	Deptera	Chironomidae	P	P	P	P
		Nepidae	P	A	P	P
3.	Hemiptera	Aphelocheiridae	A	A	A	A
		Naucoridae	P	A	P	A
		Notonectidae	P	P	P	A
		Pleidae	A	A	A	A
		Belostomatidae	P	A	P	A
		Corixidae	A	A	A	P
		Planorbidae	A	P	A	P

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4.	Odonata	Lestidae	A	A	P	P
		Gophidae	A	A	A	P
		Aeschinidae	A	A	P	P
5.	Mollusca	Lymnolidae	A	A	A	A
		Physidae	P	A	A	A
		Planorbidae	A	P	A	P
		Hydrobiidae	A	A	A	A

Table-III : Occurrence of Benthic Macro-invertebrates families encountered in River Bechhia at Rewa Summer season - 2011.

1.	Coleoptera	Hygrobidae	A	P	A	P
		Dystislidae	P	A	A	A
		Hydrophilidae	P	P	P	P
		Noteridae	P	P	P	P
2.	Deptera	Syrphidae	P	A	P	P
		Chironomidae	P	P	P	P
		Nepidae	P	A	P	A
3.	Hemiptera	Aphelocheiridae	P	A	A	A
		Naucoridae	P	P	P	A
		Notonectidae	P	A	P	A
		Pleidae	A	A	A	P
		Belostomatidae	P	A	P	A
4.	Odonata	Corixidae	P	A	A	P
		Lestidae	A	A	P	P
		Gophidae	P	A	A	P
		Aeschinidae	A	A	P	A
5.	Mollusca	Lymnolidae	P	A	P	P
		Physidae	P	A	A	A
		Planorbidae	A	P	A	P
		Hydrobiidae	P	A	A	A

Bio-assessment of water quality of river Bichhia using Benthic macro-invertebrates gave positive results and indicated pollution. Estimation of the water quality by analysing various taxonomic groups of macro-invertebrates at selected location of river Bichhia in Madhya Pradesh gives a definite picture of pollution and water Health of the river. The present study was an attempt for observing presence of families of various taxonomical groups of macrobenthic invertebrates, observed at four selected study sites of river Bichhia at Rewa (M.P.).

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