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Diversity and abundance of rotifers in Phubala irrigation canal, Bishnupur district Manipur, north east India

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Abstract : The individual of phylum Rotifera are aquatic, microscopic invertebrates inhabiting the freshwater of the world. A survey of rotifer in Phubala Irrigation canal, Bishnupur District Manipur has been undertaken during the period of 2012 and 2013. A total of 18 rotifers have been recorded. The family Brachionidae is recorded as the most dominant group represent by 11 species followed by three species Lecanidae and one species each of Euchlanidae, Mytilinidae, Asplanchnidae and Filinidae.

Keywords:

INTRODUCTION

Rotifers are one of the fascinating groups of zooplankton in aquatic ecosystem. They occur almost universally in freshwater habitat and make an important group of zooplankton community. This minor phyla consist of approximately 2030 described species (Segers, 2007). Zooplanktons are important for their role in the energy transfer in an aquatic ecosystem as they are one of the primary natural food of the fish (Prasad and Singh 2003). Ecologically, they are one of the most important biotic components influencing all the functional aspects of an aquatic ecosystem (Dadhick and Sexena 1999; Sinha and Islam 2002).

With the global loss of various species as a result of population and habitat disturbance, assessment of species diversity and species richness are needed (May, R.M. 1986). Works on rotifer in India is very few, limited and scattered (Vanjare, 2008). Studies in India are mainly concentrated in the North and North-Eastern states (Sharma, 2005). In Manipur very few works have been done in regards with rotifers in Manipur except that of Ersilia and Shashikumar (2005). The present study reports on the rotifers from a man made irrigation canal supply to paddy fields in Phubala Village of Bishnupur District Manipur (latitude- 24.60633N and longitude 93.79441E, Village code 136700). The aim of the present work is to add knowledge to the earlier research on rotifer diversity of Manipur.

MATERIALAND METHODS

Materials for the present study were collected during September 2012 to October 2013 at regular interval between7-9 am using 55 micron mesh size conical plankton net.The collected samples are preserved in 4% formalin with a little amount of glycerine for further studies. During the study period the irrigation canal is divided into four sites. The selected survey stations are Awang Turel Wangma (Site I), Awang Leikai Maril (SiteII), Mayai Leikai Maril (SiteIII) and Makha Leikai Maril (Site IV). Plankton samples were collected following the methods described by Edmondson (1959), Michael (1988) and APHA (2006). Identification of zooplankton specimens were done following Edmondson (1959), APHA (2006),

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Battish (1992), Needham & Needham (1962), Segers (2007) and Sharma (2008). Microscope observations of preserved samples were done using Fisher-Scientific Micromaster Stereo zoom microscope with computerized inbuilt CCD camera and image capture software.

RESULTS AND DISCUSSION

A total of 18 species of rotifers are recorded from the study site. The rotifers collected from the four sampling sites belong to 6 families and 18 species. The family Brachionidae represents maximum species (11 species) followed by three species of the family Lecanidae and one species each of the family Euchlanidae, Mytilinidae, Asplanchnidae and Filinidae. The collected rotifers from the four sampling sites are representing in table I and the status of rotifer in the water body is shown in figure I.

Table I: Distribution of Rotifers in Phubala Irrigation Canal

Family	Species	Site I	Site II	Site III	Site IV
Brachionidae	*Anuraeopsis fisa*	+	-	-	+
	Brachionus angularis	+	+	+	-
	B. bidentatus	-	+	-	-
	B. calyciflorus	-	-	+	-
	B. caudatus	-	+	-	-
	B.falcatus	+	-	+	+
	B.quadridentatus	+	-	-	+
	B. ruben	+	-	+	+
	Keratella tropica	+	-	+	-
	Platyias quadricornis	-	+	-	+
	Plationus patulus	+	-	-	+
Euchlanidae	*Euchlanis dilatata*	+	-	-	+
Mytilinidae	*Mytilina ventralis*	-	-	+	-
Lecanidae	*Lecane bulla*	+	-	-	-
	L. leontina	-	-	+	-
	L. papuana	-	+	+	+
Asplanchnidae	*Asplanchna sp.*	+	+	+	+
Filinidae	*Filinia camasecla*	+	-	+	-

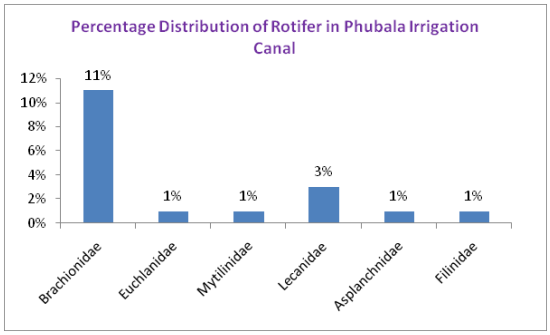

Fig I. Status of rotifer in Phubala irrigation canal

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