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NEW REOCORDS OF ROTIFERS FROM THANE LAKES (MAHARASHTRA)

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Abstract :

During the course of an extensive survey of the ecology and systematics of the rotifiers from lakes of Thane city, (Maharashtra) few rotifer species i.e. B. rubens, B.bidentata, B.budapestinencsis, B. patulus, Lepadella sp, Lecane sp, Monostyla sp., Polyathra sp. were recorded first time from different lakes of Thane city.

Introduction :

Among the zooplankton rotifers can populate vacant niches with extreme rapidity and convert primary production into a form usable for secondary consumers, producing up to 50% of the total plankton biomass (Nogrady *et. al.*, 1993). Rotifers are amongst some of the most abundant and important members of the freshwater fauna, along with protozoa and crustacea. According to Shadeck (1983) Rotifer populations are very useful in indicating water quality particularly in pollution studies. Globally around 2000 species of rotifers are known (Shiel, 1995). Presently 325 species belonging to 25 families and 63 genera are known to occur in India. Thus the rotifer-species from this country comprise about 13% of the global Rotifera (Sharma, 1998).

Anderson (1889) initiated faunistic studies on freshwater rotifers in India. Since then many more have contributed to this study. In and around Thane (Maharashtra) many workers gave their contribution. Nene (1985),Mani (1994), Salaskar (1996), Mehata (1999), Somani (2002, 2003) have published the accounts of rotifers from the lakes in Thane & around. During their study 21 rotifers were recorded. However eight more genera were recorded first time from Thane, during the study.

Biodiversity is achieving a tremendous importance in present day research, where collection of base line data related to flora & fauna is important. If such studies are not carried out many of the exhisting organisms may go unnoticed or unrecorded. Hence it is very imp. To put into record the studies of organisms. In the present paper these eight rotifers sps. are reported.

Materials and Methods :

The study was conducted from month of May to 2001 to September 2003 in four lakes from Thane city namely Ambeghosale, Rewale, Makhmali and Upavan. Monthly water samples were collected for zooplankton by filtering water through 41 um mesh nylon net. Then the samples were preserved in 4% formation with Lugol's iodine prepared in formalin for further analysis. The rotifers were then identified according to the keys from Ward and Whipple,1958 and Battish, 1992. The measurement of various body parameters were made under 200 magnification on Lawrence and Mayo phase contrast microscope. Description is according to Battish (1992).

Result and Discussion :

During the course of study eight new species of four different families of rotifers were recorded first time from Thane (Maharashtra). These rotifers are recorded by various scientists from different parts of world from which recent references are Armengol and Miracle (2000),

B.budapestinensis

B.rubens

B. bidentata

B. patulus

Monostyla spp

Lecane spp.

Lepadella spp

Polyathra spp

Garcia *et.al.*, (2002), El. Shabrawy and Dumont (2003) scientists from India as Das and Singh (1993), Padmavathi and Durgaprasad (1997), Sharma *et.al.*, (2000), Rao *et.al.*, (2001), Battish (2002), Pathak and Mudgal (2002), Saikai and Das (2003), Survey *et.al.*, (2004). However they were not recorded from Thane lakes. The rotifers recorded were as follows

Family		Genus
Synchaetidae	-	*Polyarthra spp.*
Brachionidae	-	*B. budapestinensis*
		B. rubens
		B. patulus
		B. bidentata

Colurinae	*Lapadella spp.*
Lecaninae	*Lecane spp.*
	Monostyla spp

The observed rotifers are classified according to Battish (1992) as follows :

Phylum : Rotifera
Class : Monogononta
Family : Synchaetidae
Genus : *Polyarthra multiappendiculata,* Arora 1962

Body cylindrical and illoricate. 'Paddles' 12 in number six on each side arranged in 4 groups reaching slightly beyond posterior end of the body; two anterior antennae carrying long cilia at their tip present on anterior side, surrounded by ciliary wreath; lateral antennae small and hardly traceable pair of seriform projection present on ventral side.
Total lengh : 96 μm, Width of body : 64 μm

Family : Brachionidae

***Brachionus* patulus** (Muller, 1786)

The measurements were :
Max. width – 160 μm.
Anteromedian spine – 48 μm
Anterior widh – 144 μm.
Posterolateral spine – 32 μm.
Posterior width – 160 μm.
Postero median spine – 56 μm.
Anterior lateral spine – 56 μm.
Median spines – 64 μm.

Lorica firm, sub-rectangular, somewhat compressed dorso-ventrally, simple pattern of ridges on the dorsal plate. Both atero-dorsal and atero-ventral margin with spines, then in number; occipital medians longest and curve overhead ventrally; pectoral medians shortest, straight; intermediates on both margins and laterals about equal in length; median spines; posteriorly, lorica narrow very little, and terminates in two short spines, foot opening, bounded by two short spines, equal in length to posterolaterals or somewhat shorter; foot opening present in ventral plate, asymmetric in shape and position portion of lorica asymmetrical

Distribution : Cosmopolitan

Brachionus bidentata (Anderson, 1889)
Measurements
Total length : 136 um
Length of anteromedian spin : 24 um
Max. width : 112 um
Length of anterior intermediate spine : 16 um
Width at ant. margin : 24 um
Length of Ant. lateral spines :

Lorica with dorsal, ventral and basal plates. Six occipital spines of which laterals and medians are of the same length. Ventral margin slightly convex without adefined central notch. Lorica lightly stipped. The form is earlier reported by Anderson (1889), Edmondson (1934), Chandrasheshar and Kodarkar (1995) and Malathi (1998) from Hydrabad.

Distribution : Asia, America, South Africa.

Brachionus budapestinensis
Measurement
Max width – 104 μm.
Anterolateral spine – 16 μm
Anterior width – 80 μm
Anteromedian spine – 8 μm
Posterior width – 72 μm

Lorica firm, oval, divided into dorsal and ventral plates; ornamented with pattern of cuticular ridges on both dorsal and ventral plates, dorso-ventral depth about two-thirds width, anterodeorsal margin with four spines. Median pair longer than laterals, their distal end curved ventrally; posterior spines wanting; mental edge nearly straight, with small median unflanked notch; foot with V shaped aperture dorsally and longer oval opening ventrally. Posterior spines absent.

Distribution : *Brachionus* budapestinensis has a restricted distribution and is known to occur in summer months (Kotoid, 1908; Green, 1960). Even during present observation it was recorded in early summer.

Brachionus rubens (Ehrenberg, 1838)
Measurements :
Maximum width of lorica - 160 μm
Anteromedian width – 24μm
Anterior width – 136 μm.
Length of median spine - 32 μm
Posterior width – 136 μm.
Anterolateral width – 24 μm

Each anterior spine of lorica asymmetrical, with shoulder on one side; posterior spines absent; lorica very transparent. Lorica < 280 μm.

Distribution : Wide spread epizoic on Daphnia and Moina in eutrophic pond, also free in open water, rarely in brackish waters.

Family : Colurinae
Lapedella ovalis (Muller, 1786)

Description : Lorica more or less circular; anterodorsal margin, more or less straight; anteroventral margin with shallow V shaped notch; toes small and acutely pointed.

Measurements :
Length of Lorica : 56 μm
Maximum width of lorica : 32 μm
Length of toe : 16 μm

Distribution : Cosmopolitan

Family : Lecanidae
Lecane inopinata (Harring and Myers, 1926)

Measurements :
Total length – 152 μm.
Posterior width – 56 μm
Maximum width – 88 μm
Posterior spine (including toe) – 40 μm.
Anterior width – 56 μm
Claw length – 12 μm

Description : Lorica is ovate. Antero-dorsal and ventral margins are coincident. Dorsal plate is slightly trancate posteriorly, without any surface markings. Ventral plate is nearly of the same size as dorsal with several longitudinal and two transverse ridges. postero-ventral segment is small and projects a little beyond the dorsal. Toes are short, straight and fused nearly 1/3 of their length, ending in claw. (A single individual was found)

Distribution : America and India

Monostylla bulla (Gosse, 1851)

Measurements :
Total length – 80 μm
Length of spine (including toe) – 32 μm.
Maximum width – 72 μm

Monogonont rotifers with retractile head, loricate body, oval in shape, dorsal and ventral plates connected by a flexible membrane, foot with two small joints; and toe single, often ending in a claw.

This species is common in the collections and aggress with the description given by Harring and Myers (1926). Reported earlier by Anderson (1889) from Calcutta Edmonson & Hutchinson (1934) from Kashmir and Punjab, Pasha (1961) from Madras, Arora (1965) from Nagapur and Nayar (1968) from Rajasthan.

Distribution : All over the world

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