

## ROTIFERS AS INDICATORS OF POLLUTION

DURING the course of studies on rotifers in different samples of water around Visakhapatnam, Andhra Pradesh, an interesting observation was made in harbour backwaters. A particular species of Rotifera *Brachionus plicatilis* Muller, was observed to be present only in certain periods of the year.

The area investigated is a wide shallow brackish water environment surrounded by small mangrove plants. It is highly polluted and frequently subjected to sewage and urban effluents along with the industrial wastes.

During the period from March, 1975 to February 1976, regular weekly samples of plankton were collected from two points in the above locality. The quantitative study of the rotifer, *Brachionus plicatilis*, revealed that there were two peak periods of abundance (Table I) one in summer (June) and the other in winter (January). According to George<sup>1</sup>, Rotifers showed a summer maximum in tropical waters. But in the present observation in addition to the summer peak, *B. plicatilis* showed another peak in winter.

the remaining part of the year. But the observations from the other samples of water in Visakhapatnam showed the presence of these two species in abundance in highly polluted fresh water environments like ponds and swamps. Arora<sup>2</sup> reported species of *Polyarthra* and *R. rotatoria* in polluted waters of Nagpur. From the present observation, it is clear that these two species *K. tropica* and *R. rotatoria* are not able to tolerate the varying salinity conditions.

According to Ahlstrom<sup>3</sup>, *B. plicatilis* can be regarded as an indicator of high alkalinity as this species inhabits only brackish waters. But from the foregoing account it may be concluded that the presence of this species (*B. plicatilis*) may indicate the polluted nature of the brackish water environment and its occurrence in waters having low alkalinity. Further, the absence of this species in fresh water bodies of Visakhapatnam supports the above conclusion.

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TABLE I

Months	Temperature °C	pH	Dissolved oxygen (Mg/L)	BOD (Mg/L)	Salinity	Species of Rotifera recorded	Organisms/ liter
March 1975	26.5	8.8	4.2	10.2	9.45	<i>B. plicatilis</i>	18
April	27.5	8.5	3.7	24.3	16.11	<i>B. plicatilis</i>	98
May	29.0	8.0	1.68	26.4	17.77	<i>B. plicatilis</i>	172
June	30.5	7.5	0.82	32.0	11.33	<i>B. plicatilis</i>	1858
July	25.5	8.5	3.8	15.0	10.52	Nil	..
August	24.0	8.8	6.2	8.8	2.25	<i>K. tropica</i> <i>R. rotatoria</i>	8 12
September	24.5	8.5	7.1	0.8	3.32	Nil	..
October	23.5	9.0	6.2	10.6	3.66	Nil	..
November	24.5	8.8	3.2	12.0	8.81	Nil	..
December	22.5	8.5	2.5	14.6	6.91	Nil	..
January 1976	23.5	7.8	0.95	36.8	7.07	<i>B. plicatilis</i>	2642
February	24.5	8.0	2.5	26.0	10.55	<i>B. plicatilis</i>	266

Details of chemical analysis are given in the table, from which it is clear that the abundance of this species is mainly controlled by pH and dissolved oxygen content. High values of B.O.D. were recorded during the months of April, May, June, January and February. This species showed a wide range of salinity tolerance 7.1-17.8‰.

A few numbers of *Keratella tropica* and *Rotaria rotatoria* were also found during the period of August in the same locality, when the salinity was very low (2.25‰) while they were completely absent during

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