PART I
TOPOGRAPHY OF THE SAMPLING STATIONS

Three stations were selected for analysis during the present investigation. All the three stations were situated on the outskirts of Aurangabad City, in Marathwada region of Maharashtra State. Aurangabad is located at latitude $20^\circ$N and longitude of $75^\circ$E.

The three stations were -

1) Wohar reservoir
2) Streamlet in industrial area
3) Boat around Daulatabad fort.

I. WOHAR RESERVOIR (Station 1)

This reservoir is located about 5 kilometers to the north of Aurangabad City. It is a freshwater reservoir on the course of the Wohar River. It has a large catchment area, spread over 25.10 square miles. It is a source of drinking water supply for a part of Aurangabad City.

II. STREAMLET IN INDUSTRIAL AREA (Station 2)

This is a small streamlet which runs through the newly developing Township (CIDCO) of New Aurangabad. It is located to the north east of the city centre, at
a distance of about 12 kilometers. The streamlet flows in and out of several small pools in the industrial area, where besides the rain water and wash-offs, the streamlet receives parts of the waste discharges from a number of chemical and other industries.

iii. BOAT AROUND DAULTABAD FORT (Station 3)

This is a perennial stretch of stagnant water, which fills a deep moat around the Daultabad fort, situated about 15 kilometers to the north west of Aurangabad. The Daultabad fort is on an isolated hill, about 700 ft. in height. The moat is mainly fed by rain water. Since it is enclosed on most of the sides, there is very little inflow into it from neighbouring areas. Also in view of the fact that the water is at a low level and overshadowed by the fort, the water is exposed to direct sunlight only for a limited period.

The topography of the three sampling stations is shown in Fig. 1.

The Monar reservoir, streamlet in industrial area (CIDCO) and the moat around the Daultabad fort are referred to in the text as stations 1, 2 and 3 respectively.
Fig. 1: Showing the topography of three Sampling stations.
MATERIAL AND METHODS

SAMPLING

Place of sampling:

The samples of water for analysis were collected from fixed points at the three stations.

Mode of collection:

The samples were collected in wide mouthed, screw capped, air tight and opaque polythene containers. Each sample comprised of 5 litres collected from about 15 cms below the surface of water.

Time of sampling:

The sampling was carried out every fortnight from June 1976 to May 1978. The samples from stations 1 and 2 were collected on the 1st and 15th of each month, while the samples at station 3 were collected on the 7th and 21st. The samples were always collected around 8-9 A.M.

PHYSICO-CHEMICAL EXAMINATION

Humidity and rainfall:

The data on humidity and rainfall was collected from Meteorological department, Chikalthana, Aurangabad.
Temperature:
The atmospheric and water temperature were recorded with a mercury thermometer.

pH:
The pH of the water was recorded with a "Systronic" portable pH meter, at the sampling station itself.

Organic and inorganic constituents:
The estimations of dissolved O₂, CO₂, nitrate nitrogen, nitrite nitrogen, chloride, phosphate, sulphate and solids (dissolved and suspended) were done as per Standard methods for the examination of water and waste water - 1974 (American Public Health Association, New York).

The estimations of bicarbonate was done by the method outlined by Wilcox and Hatcher (1950), ammonia nitrogen after Taylor (1949) and Calcium and Magnesium after Flashka (1962).

POPULATION STUDIES
The observations on ciliates were done after their movements were slowed down with methyl cellulose.
The identification of ciliates was based on Dick (1972).

The counting was carried out with the help of counting chambers, within twenty four hours of collection. The density was calculated on the basis of the total number of ciliates per ml.

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