MICROBIOLOGICAL STUDY OF DHANEGAON RESERVOIR AT DHANEGAON IN OSMANABAD DISTRICT, MAHARASHTRA (INDIA)

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The study of bacterial population of fresh water body of Dhanegaon reservoir water has been carried out during the year June 2003- May 2005. Dhanegaon reservoir is constructed in 1980 on Manjara river, near village Dhanegaon. Reservior is constructed particularly for irrigation purpose. The catchment area about 2371 Sq. Kms. More than 79 villages from Beed, Osmanabad and Latur district have been benefited from this project. Besides its use in industrial, agricultural and fishing purposes it is also the source of drinking water for entire Latur city.

The bacterial quantity of an important parameter from public health point of view since the play key role in water borne diseases. It is generally expressed in terms of the parameters like *E. coli* and total bacteria. Microorganisms are found everywhere but mostly found in water bodies. Their abundance and diversity used to guide suitability of water for fish, animal or recreational and amenity purposes (African Technical review, 1986) with increasing urbanization and industrialization water sources have been adulterated with industries as well as animal and human wastes. As a results water has become formidable factor in disease transmission. According to Goptal and Ghosh (1984) the sources due to insanitation are primary cause of water borne disease like typhoid, cholera, dysentery, diarrhea and stomach disorders.

Materials and Methods

Reagents

Tryptone-5.0 g
Yeast extract-2.5g
Gulcose-1.0g
Agar-15.0g
Distilled water- 1000ml

The standard plate count is universally used to determine the number of viable bacteria. A sample is plated on solid medium to allow single bacterial cells to develop in to microscopic colonies that can be counted suggested by APHA, 1985 and Trivedy and Goel 1985. Separate water sample were collected from the reservoir in three different sterile plastic containers. Further the samples were immediately processed for (SPC) within 3 hours in laboratory. SPC agar plates were prepared as per above composition and adjusted to the pH 7.0 +-0.1. After sterilization serial dilution of samples were prepared in sterile distilled water. The spread plate method was used as it allows only surface colonies to grow. The plates were incubated at 37^{O}C temperature for 24 hours. From the colony count the volume plating and the dilution, the number of viable bacteria in the sample were calculated. An effective number of colonies range from 30 to 250.

Results and Discussion-In the present investigation the number of bacterial count ranged between 140 to 155 /ml with mean value 173.75 /ml at spot A, 141 to 158 /ml with mean value 150.59 /ml at spot B and 140 to 160 /ml with mean value 150.67 /ml at spot C during the year 2003-2004. While in 2004-2005 it ranged between 139 to 159 /ml with mean value 149.84 /ml at spot A, 141 to 159 /ml with mean value 150.42 /ml at spot B and 140 to 160 /ml with mean value 151.42 /ml at spot C . The monthly mean value of bacterial count is shown in table no. 1 and graphically represented in Fig. no. 1. In the present investigation the minimum value of SPC count was found at spot A while maximum value was found at spot C. The minimum 139/ml at spot A while maximum 160 / ml at spot C. The minimum and maximum specific bacterial count was found due to the fluctuation of temperature and the small human activities, mixing domestic sewage and washing of cattles in the Dhanegaon reservoir. But the range of SPC was suitable for growth of fishes and other aquatic vegetation. The seasonal fluctuation of bacterial count is maximum in the monsoon season while minimum in summer season. In monsoon the bacterial count was high due to mixing of domestic sewage and surface run off water in reservoir. Similar results were observed by Surve *et. al* (2006), Sundari *et. al* (2004), Praharaj *et. al* (2004), Begum *et. al* (2004) stated that the maximum count was observed in monsoon and minimum in winter season while working on coliform bacteria. The

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different sources of drinking water during different seasons.

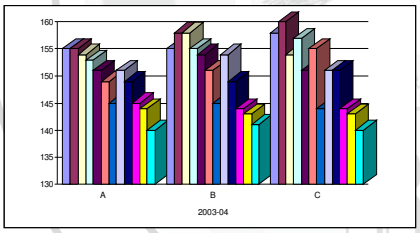
Conclusion-The drinking water supply in all major cities cannot be quarantined at every consumer and particularly in monsoon months. They spread the water borne disease. According to Gopal, 1999. The present system is not fully geared to undertaken quality assurance for entire population. The present study the Dhanegaon reservoir water is a need for continues monitoring of water supply throughout the year, to reduce the morbidity which may arise because of polluted water supply to the community.

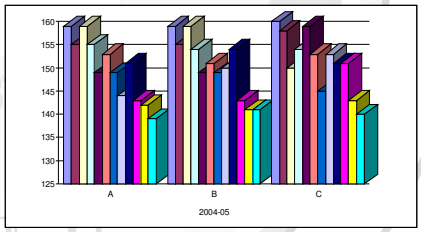
Table No. 1. Monthly Mean Values of Bacterial Count in Dhanegaon reservoir water-2003-2005.

Year	2003-04			2004-05		
Month	**A**	**B**	**C**	**A**	**B**	**C**
June	155	155	158	159	159	160
July	155	158	160	155	155	158
August	154	158	154	159	159	150
September	153	155	157	155	154	154
October	151	154	151	149	149	159
November	149	151	155	153	151	153
December	145	145	144	149	149	145
January	151	154	151	144	150	153
February	149	149	151	151	154	151
March	145	144	144	143	143	151
April	144	143	143	143	141	143
May	140	141	140	139	141	140

All Values are expressed in per ml.

Fig. No. 1. Monthly Mean Values of Bacterial Count in Dhanegaon reservoir water-2003-2005.





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