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Studies on Physico-Chemical Aspects Khandala Water Tank of Osmanabad District Maharashtra

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ABSTRACT

The present paper deals with the studies on physico-chemical aspects of Khandala water tank of Osmanabad district (M.S.) India. The water parameters such as temperature, pH, D. O., Free CO2, hardness of water, total alkalinityand chlorinity were analyzed. The detailsstatus of tank was discussed in text. The present work was carried out during the year 2017 with its different seasons (January to December).

Keywords: Physico-chemical aspects – Khandala watertank,Osmanabad.

I. INTRODUCTION

Water quality is ever-changing entity and no water body has a persistently constant water quality in progression time. Today's world facing a problem of pure drinking water.The quality of water in an ecosystem provides significant information about the available sources for supporting life in that ecosystem. The present investigation was made on Khandala water tank. There is no any back record found on the same hence this task was undertaken. Many workers worked on this aspect they are Breet (1950), Bharadawaj and Sharma L.L. (1999), Choudhary N.K. & others (1979), Goel P.K. and V.R. Chouhan (1991), Chavan R.J. and A.D. Mohekar (1999) etc.

II. MATERIALS AND METHODS

The present investigation was undertaken from January to December (2017). Water samples were collected in the morning hours – from the Khandala water Tank. The temperature and pH was recorded on the spot and remaining parameters were analyzed in the laboratory by using standard literature given by APHA (1985 and 1991) and Trivedy and Goel (1986).

III. RESULT AND DISCUSSION

Table 1. Physico-chemical profile of Khandala watertank.

Sr. No.	Parameters	Range
1	Temperature (water)	18 to 38°C
2	pH	6.4 to 8.0
3	Dissolved Oxygen (mg/lit)	3.4 to 6.9
4	Free CO_2 (mg/lit)	0.5 to 1.9
5	Hardness of water (mg/lit)	75 to 141
6	Total Alkalinity (mg/lit)	61 to 93
7	Chlorinity (mg/lit)	13 to 25

The physico-chemical profile of a Khandala water tank will discussed as below,

Temperature (water): Generally the water quality depends on the atmospheric as well as water temperature of water body. The water temperature ranged between 18 to 38°C. It was maximum in the month of May and minimum in the month of

December. There is rise in water temperature leads to spared up the chemical reactions accelerates in the water body.

pH:the pH is most important abiotic factor that serves as an index of water pollution of the water body. The pH was recorded with the help of pocket digital pH meter. Majority of the water body are slightly alkaline or basic in nature because of the presence of carbonates as well as bicarbonates present in the water.It varies from 6.4 to 8.8. The maximum pH was recorded in the month of March and minimum in the month of October.

Dissolved Oxygen: The dissolved oxygen in the water body is very important parameter for aquatic animals because all the aquatic animals it used for respiration.In the water body the quality of D.O. depend on the photosynthetic activity of aquatic plants. It was determined by Winkler's method. It ranged from 3.4 to 6.9 mg/ lit. The highest values of D.O. observed in the month of May and lowest in the month of November. The cooler water can carry more amount of D.O. than warmer water of the water body.

Free CO_2: The amount of Free CO_2 is due to the respiration of aquatic animals.Free CO_2 was determined by titration method. It varies from 0.3 to 1.9 mg/ lit. The maximum values were recorded in the month of April and absent in the month of January. The Free CO_2 was increases due to the respiration and whereas decreases due to the photosynthesis activity.

Hardness: Generally the hardness of any water body will be due to the amount of calcium as well as magnesium salts present in the water. It indicates the level of carbonates and bicarbonates in the water. It was estimated by EDTA method. It was recorded highest (141 mg/lit.) in the month of April and minimum (75 mg/ lit.) in the month of July. So this water was suitable for the growth of aquatic animals.

Chlorinity: Chloride is an ion that is released in to surface water through the breakdown of salt compounds. Although salts are naturally occurring mineral, elevated levels in surface waters may be attributed to various human activities. It was recorded 13 to 25 mg/lit. The higher value impact on water quality as well as damage to vegetation.

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