

ASSESSMENT OF WATER QUALITY FROM FIVE DIFFERENT RESERVOIRS (DAMS) OF MARATHWADA (MAHARASHTRASTATE) INDIA

ShoebPeerzade^{1*}, A. J. Khan¹, R. L. Ware¹, Syed Abed²

1*. Dept. of Chemistry, Milliya Arts Sci. & Management Sci. College Beed.

2. Dept. of Chemistry, Government College Of Arts & Sci. Aurangabad.

Email *: shoebpeerzade@gmail.com

ABSTRACT:

The water reservoirs (dams) are the important resources of fresh water. The water from reservoirs (dams) find multiple use like domestic, agriculture, industry, transportation, etc. The quality of water is directly linked health of human being. It is necessary that the quality of water should be checked at regular time interval because due to use of contaminated drinking water human population suffers from varied of water diseases. The present study deal with the Assessment of water quality of five different reservoirs (dams) of Marathwada (Maharashtra state). The water samples are collected from Terna, Manjara, Gayakwadi, Bendusara, & Majalgaon reservoirs of Marathwada (M. S.). From comprehensive physico- chemical analysis for temperature, PH ,turbidity, chloride, sulphate, nitrate, DO, BOD, COD, Total Hardness, Total dissolved Solid, Calcium, Magnesium,. etc. The method employed for the analysis as per standard methods recommended by APHA, WHO. The study revealed that the water from different reservoirs is well within the permissible limit of WHO with some slight variation in some parameters. Hence water is safe suitable for domestic agriculture & drinking purposes.

KEYWORDS: water quality, physico-chemical parameters, five reservoirs, water analysis.

INTRODUCTION:

fresh water while fresh water is obtained
The earth is covered by 71% of water. from lentic & lotic water resources.[1]
Water resources on earth are divided into The water reservoirs play an important
two main types' namely marine water & role which provides water for

commercial, industrial, domestic, & agriculture, purposes. The fresh water ecosystem is totally depends on the quality of water for the sustenance of its inhabitants. The quality of water linked with the quality of environment hence biological component of fresh water slowly on better physico-chemical condition & therefore analysis of physico-chemical parameters of water is essential. Water is very essential & important for human life. Water is the soul of nature. It is one of the prime & basic needs of mankind. It is most important environmental factor & is essential for well-being of the living world, is especially for human population. Through the quality criteria of water are different, sometime water is not suitable for drinking & other purposes because of contamination. [2] Wrong agriculture practices also deteriorate the quality of water by percolation of contaminants through sub soil & bedrock & the ground water table. [3].

India is having very rich resources of land water bodies in the form of lakes & reservoirs. The reservoirs are constructed by impounding the river system. The reservoirs are constructed for effective utilization of water for irrigation, power

& generation, & flood control. Several investigators are pointed out the importance of physico-chemical parameters in assessing the quality of water. Several investigators had carried out Studies on water quality sources at different location. [4-7] The present work is undertaken to study the water quality of the five reservoirs of Marathwada (M. S.). The purpose of present study is to find out any impurities exertive on receiving water of five reservoirs of Marathwada (M. S.).

MATERIALS & METHODS:

The water samples were collected from five reservoirs of Marathwada (M.S.) i. e. from Terna reservoirs from Osmanabad district, Gayakwadi reservoirs from Aurangabad district, Bendusara, Majalgaon , &Manjara ,reservoirs from Beed district in a polythene bottle of capacity one to two liter in the month of January 2010 to December 2010. The standard procedure were adopted for the determination of physico-chemical parameters given by APHA (1989) &Trivedy&Goel (1986) Each sample was analysed for important physico-chemical parameters such as temperature, PH ,turbidity, chloride, sulphate, nitrate, DO, BOD, COD ,Total Hardness, Total

dissolved Solid, Calcium, Magnesium, etc

RESULTS AND DISCUSSION:

The physico- chemical parameters are recorded are given table 1. Water temperature is the most important factor of the water which has a great deal of the water influence on various chemical & biological reactions taking place in the water. [9] The water temperature ranges from 26C° to 30C° in all the reservoirs. The PH values ranges from 7.65 to 8.10 which is very much suitable for growth of fishes & crops. The chloride concentration in the reservoirs ranges from 58.60 to 166.50 mg/ lit. This is well below the possible limit of 250 mg/lit. [4] The sulphate concentration ranges from 28.8 to 44.6 mg/lit. which is within the desirable limit. The nitrate concentration ranges from 30.9 to 55.4 mg/lit. The nitrate concentration is somewhat high as compared to permissible limit. [8] The dissolved oxygen is one of the important parameter in water quality analysis. It reflects the physical & biological processes prevailing in the water, Non polluted is normally with dissolved oxygen. [10] In present study dissolved oxygen values ranges from 8.60 to 1.90 mg/lit. Which are well above the requirement of the fishes in the reservoirs

The Biochemical oxygen demand (BOD) ranges from 3.42 to 4.20 mg/lit/ The BOD values from 2.00 to 5.00 mg/lit.may indicates the pollution. [11] The chemical oxygen demand (COD) values ranges from 9.90 to 12.66 mg/lit. These values are somewhat higher than the desirable values which are due to pollution caused by domestic sewage & industrial effluents. The total dissolved solid (TDS) in the present study ranges from 256.8 to 290.4 mg/lit. The BIS (1991) maximum permissible limit is 1500 mg/lit. for drinking water. In the present study area the TDS values are well below the maximum permissible limit. In the present study total hardness (TH) ranges from 105.4 to 113.6 mg/lit. These values are within the range of permissible limit. The calcium Content ranges from 62.8 to 70.2 mg/lit.while magnesium ranges from 6.10 to 7.62 mg/lit. The calcium & magnesium content in the reservoirs is low.

CONCLUSION:

The assessment of water water quality from five different reservoirs of Marathwada (M.S.) It was concluded that most of the parameter are in the desirable permissible limit with few variation in the nitrate & COD. The

result of this study reveal that water is fit for domestic & drinking purposes.

Table 1: Physico- chemical Assessment of five reservoirs of Marathwada.

Parameters	Terna	Gayakwadi	Manjara	Majalgaon	Bendusar a
Temperature c°	27	26	29	28	30
PH	7.65	7.90	7.67	8.10	7.80
Turbidity (NTU)	140.0	138.0	150.0	143.0	135.0
Chloride (mg/lit.)	166.50	80.64	65.50	58.6	109.4
Sulphate (mg/lit.)	44.60	32.80	35.50	39.40	28.80
Nitrate (mg/lit.)	50.40	30.90	55.50	40.60	33.50
D.O. (mg/lit.)	11.50	8.60	12.90	9.50	10.80
BOD (mg/lit.)	3.61	4.20	3.42	3.74	3.81
COD (mg/lit.)	10.15	11.26	13.46	9.90	12.66
TDS (mg/lit.)	256.80	270.60	290.40	265.0	261.50
Total harness (mg/lit.)	108.40	112.20	105.40	109.60	113.60
Calcium (mg/lit.)	65.60	63.40	70.20	68.90	62.80
Magnesium (mg/lit.)	7.62	6.92	6.10	7.11	6.50

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