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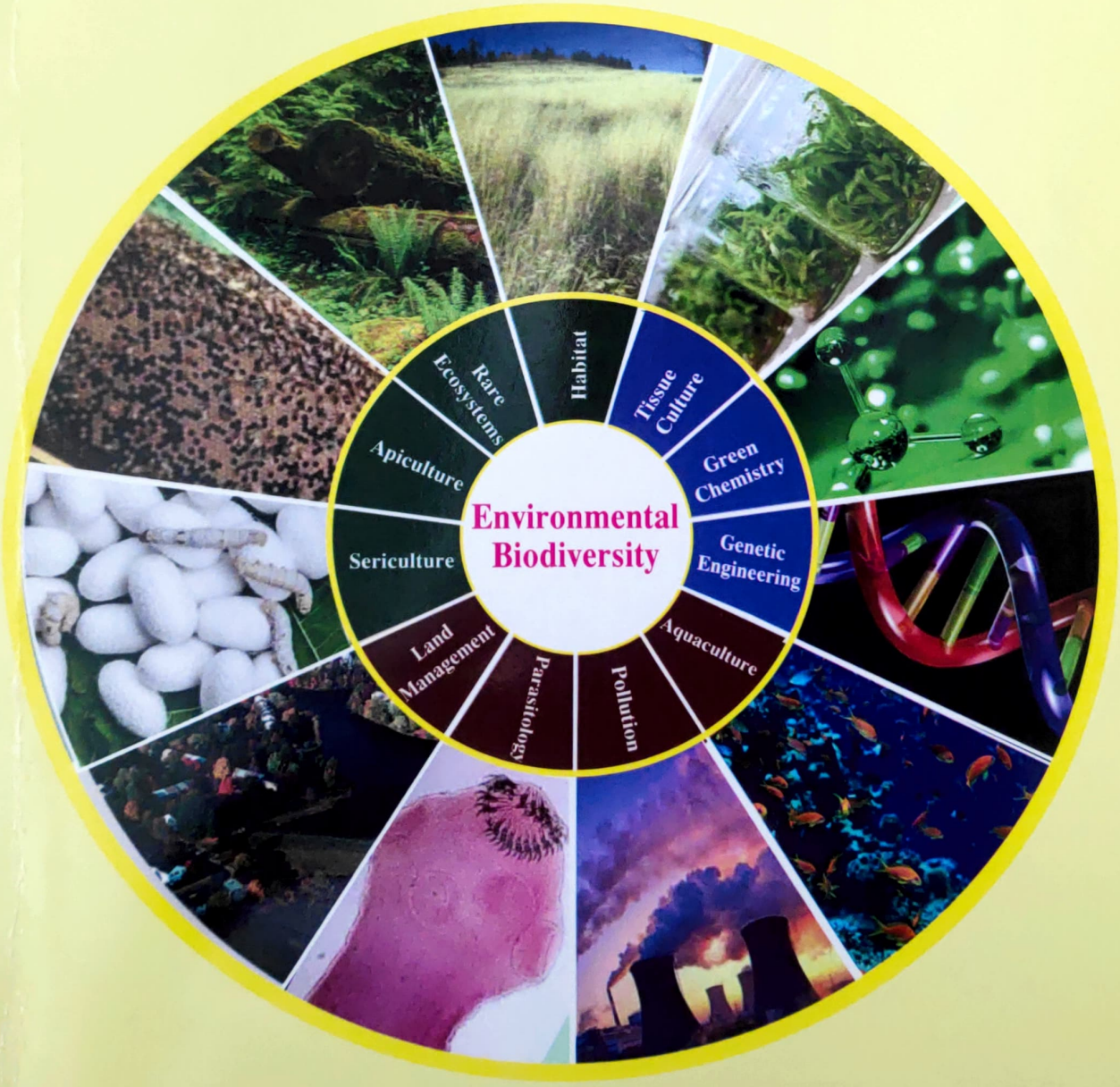

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DETERMINATION OF PHYSICO-CHEMICAL PARAMETRS OF MULA DAM WATER

S.A. Najan

Department of Chemistry, Arts, Commerce and Science College, Sonai Tal.Newasa Dist. Ahmednagar (MS), India

ABSTRACT

In the present study, water samples were collected from two different locations of Mula Dam MulariverRahuriTahsil Dist. Ahmednagar in Maharashtra State, India for physico-chemical analysis. The collected water samples were performed for analysis of different parameters such as pH, Temperature, Electrical Conductivity (EC), Alkalinity, Acidity, Total Dissolved Solids (TDS), Dissolved Oxygen (DO) andTotal Hardness (TH).

The methodsused for the analysis as per standard methods recommended by APHA, WHO, ICMR. The obtained values are compared with the standard limits. The results after study tell that the physico-chemical parameters are within the maximum permissible limit of WHO with some slight variations in some parameters. Hence, water is safe and suitable for domestic, irrigation and drinking purposes.

Key words: Physico-chemical parameters, water sample.

INTRODUCTION

Water is a life and life on earth is linked to water. Our existence is dependent on water, or the lack of it, in many ways, and one could say that our whole civilization is built on the use of water. This research article examines the influence of water on public health throughout history. Farming and the development of settlement lead to the beginning of the problem that faces mankind today how to get drinkable water in large quantities has been considered. The quality of the water was examined by the senses taste, smell, appearance and temperature. Also health of the people and animals using a water source was considered [1].Water sources were polluted by various domestic wastage usessuch as chemical fertilizers pesticides and insecticide for agricultural in rural areas whereas industrial wastages are directly passed without any proper treatment into natural water sources in urban areas [2].We need good quality of water every day for domestic, irrigation, drinking and other purposes.

India is one of the well-known agricultural countries. Economy of our country is agro based economy. Most of the peoples who live in villages get their works, businesses in agriculture field due to irrigation facilities in that sector.When there is no revolution in industry and agriculture, water quality was very good. But due to industrial andagriculture revolution and new technology water which is collected in the various water resources highly polluted in various ways [3].So it was not safe for domestic, irrigation as well as drinking purposes. Water is basis of all kind of life. Due to wrong consideration, the percolated ground water considered to be suitable, safe for the drinking and irrigation purpose due to natural filtration process. Few studies have found that the ground water to be contaminated. One of the main reasons of ground water pollution in India is unplanned urban development without proper careof sewage and waste disposals [4-9]. Water is polluted due to different phenomenon. The fast growing population and standard living the use of the present water resources is increasing now days [10, 11].

Industrialization without any provision of proper treatment of wastages and effluents as well as excessive applications of fertilizers,insecticides and pesticides for agriculture purposes are three main reasons of water pollution. For increasing demands, it is imperative to recognize the fresh

water resources and find out remedial methods for purification and improvement of water quality. Water is the universal solvent [12].

The main objectives of the physico-chemical study are to know the distribution of solutes in the dam water and suitability of the ground water for domestic, agriculture and drinking purposes.

The purpose of present study is to find out any impurities exertive on receiving water of Mula dam. This dam water is used for domestic purpose, aquatic animals as well as agriculture purpose. This dam is one of the minor irrigation project located on Mulariver in RahuriTahsil of Dist. Ahmednagar of Maharashtra State, India. This dam is benefited to Rahuri, Newasa Shevgaon, Pathardi and Ahmednagarfor domestic, irrigation and drinking water purposes.

EXPERIMENTAL

Water sampleswere collected from Mula damand Mulariver, TehsilRahuri Dist. Ahmednagarduring July 2019 - December 2019. All collected samples were collected in sterilized polypropylene bottles using standard procedure of grab or catch as per the methods of APHA10. All the chemicals used were of AR grade. Details of the analysis methods are summarized in Table-1.

Table-1: Parameters and methods employed in the physicochemical examination of water samples

Sr. No.	Parameters of water analysis	Methods Used
1	pH	pH-meter
2	E.C	Electrical Conductivity
3	TDS	Titrimetric
4	D.O	Titrimetric
5	T.H.	Titrimetric

Table-2: Drinking water parameters prescribed by ISI, ICMR, BIS and WHO

Parameters	ISI,		BIS		ICMR,		WHO		Experimentally Observed	
	MPL	HDL	MPL	HDL	MPL	HDL	MPL	HDL	Mula Dam	Mula River
pH	--	6.5-8.5	6.5-9.2	7.0-8.5	8.5-9.0	7.0-8.3	6.5-9.5	7.0-8.5	8.04	7.84
E.C	--	--	--	--	--	--	--	--	0.16	0.32
TDS	2000	500	1500	500	2000	200	--	--	100	200
D.O	--	--	--	--	3.6	7.6	--	--	4.5	5.1
T.H.	600	300	600	200	600	300	600	200	210	250

ISI (Indian Standard Institute), ICMR (Indian Council of Medical Research), BIS (Bureau of Indian Standard), WHO (World Health Organization) (MPL: Maximum permissible limit, HDL; Highest desirable level)

CONCLUSION

The analysis quality parameters of Mula damwater and river water shows that pH, Temperature, Total Dissolved Solids (TDS), Dissolved Oxygen (DO), Alkalinity, Acidity, Total Hardness,

values are well within the permissible limits. The result of study reveals that, quality of Muladam water is fit for drinking,domestic and agricultural purposes. Hence, dam water is suitablefor drinking purpose. There is an increasing awareness among the people of that area to maintain the dam water at their highest quality and purity levels.

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