

PROJECT NAME

**DTERMINATION OF QUALITY OF WATER BY PHYSICAL PARAMETER
(pH, TDS, TSS, TS)**



Department of Botany

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SUBMITTED BY

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CERTIFICATE

This is to certify that, the project work entitled "Determination of Quality of Water By Physical Parameter(Ph, Tds, Tss, Ts) " is being submitted by Mr. Ashutosh Gharge and Mr. Jafar Mujawar Miss under the guidance of Dr. M.N. Desai, Assistant Professor, Department of Botany, Vivekanand College, Kolhapur (Autonomous).


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INDEX

Sr.no	Content	Page no	sign
1	Abstract	1	
2	Introduction and objective	2	
3	Review literature	3	
4	Material methods	4	
5	Procedure	5	
6	Photos	6-8	
7	Observation and calculation	9-12	
8	Result	13	
9	Discussion	14	
10	Conclusion	15	
11	Acknowledgment	16	

ABSTRACT

Due to rapidly increasing population exponential industrial and urbanization etc. various water bodies are exposed to various forms of environmental degradation. This leads to aggregations of phytoplankton, macroalgae and occasionally colorless heterotrophic protists can discolor the water giving rise to foam. Due to this there is reduction in temperature, electric conductivity, pH level ultimately disturbs the ecological balance of the lake and finally lead to eutrophication in water bodies. In the present work 5 lake were selected from Shivaji university Kolhapur viz, Bhasha bhavan, Music department lake, Rankala lake, Rajaram lake and industrial waste water lake vicinity of Kolhapur city.

Temperature, electric conductivity and pH is an important parameter in assessing water quality because of its influence on the organism living within a body of water.

Overall water analysis results indications the Rankala lake, Music department and industrial water is turbid than other two water bodies.

In this analysis conclude that the music department, Rankala lake and industrial water is polluted than other water bodies and it is harmful to human and animal health.

Keyword = TDS, TS, TSS, pH, Water pollution

INTRODUCTION

Water is essential for life water is an invaluable resource to man and living things essential for by its diversified uses. The quality of drinking water is a powerful environmental determinant of health adequate supply of safe drinking water therefore is universally recognized as a basic water human need and one of the essential factors of civilization millions of people in developing countries do not have access to adequate and safe water supply increasing population and urbanization make it difficult for government around the world to meet the increasing demand for portable drinking water.

Water pollution affects water quality, refer to the overall quantity of the aquatic environment. The description of the quality of the aquatic environment can be carried out through a variety of way. It can be achieved through a quantitative measurement such as physicochemical determination or biochemical testes or through semi quantitative and qualitative description such a biotic indices visual aspect species inventories, order etc. therefore the present study describe details of human impact on lake and suggests same measures for restoration of this important resource

OBJECTIVES

- To collect water sample from selected water bodies.
- To study physio – chemical parameters.
- To study PH, temperature from selected water bodies.
- the effect of To understand biodegradable pollutant on water qual

REVIEW of LITERATURE

The extensive literature review was carried out by referring standard journal, reference books and conference proceedings. The major work carried out by different research is summarized below.

Tank *et al.*, (2010) study focused on the hydrochemistry of groundwater in determining its suitability for drinking and agricultural purpose. Groundwater samples were collected from eleven station of Jaipur city during monsoon season and were analyzed for physicochemical parameter such as PH TDS, temperature, sodium, potassium, calcium, magnesium chloride, comparison of the concentration of the chemical constituent with WHO drinking water standards of 1983 the status of groundwater is better for drinking purpose. The parameters like PH, sodium, potassium carbonate, bicarbonate, chloride is within permissible limit as per WHO but calcium, magnesium, and nitrate value exceeding the, limit the calculated value of SAR, RSC and percentage sodium indicate that the water for irrigation uses is excellent to good quality us salinity diagram was used for evaluating the water quality for irrigation which suggests that the majority of the groundwater sample were good for irrigation.

people can use the ground water for drinking and domestic purpose in study area expect in upper Katraj Nagar Pune. Pandey *et al.*, he analysis the physicochemical properties of ground water near municipal solid waste dumping site in Jabalpur. the samples were collected from bore well and hand pump near the MSW dumping sites and stored at 4°C. The temperature of ground water sample ranged from 25.11 to 27.31°C. The study is carried out on parameter which are selected for testing are pH, TSS, TDS. The parameters for both type waste is within permissible limit for the use expect TDS, TSS TS.

Material and Method

pH measures the hydrogen ion concentration in the water. It is measured on a log scale and equal to negative log₁₀ of hydrogen ion concentration. A natural solution has a pH of less than 7 renders its acidic nature and pH greater than 7 is alkaline in nature.

Total solids are the amount of all kind of solids (suspended, dissolved, volatile etc.) in water. Total solids can be determined as residue left over evaporation of unfiltered sample.

Total dissolved solids are the number of various kinds of mineral present in the water. TDS does not contain any gas and colloids. This can be determined as residue left after evaporation of filtered sample.

These solids denote the suspended impurities present in water. In most of cases they are organic in nature and cause several problems for water pollution.

REQUIREMENT

Evaporating dish, funnel, measuring cylinder, beakers, pH meter, pH paper, Lovibond comparator, tripod stand, Whatman's no. 1 filter paper, water bath.

PROCEDURE

- 1) Filter water sample to Whatman no. 1 to remove debris measure pH with help of pH meter. pH is also measured by pH paper.
- 2) Took on evaporating dish dry it and weight it, put 50ml unfiltered well Shaked water sample in evaporate on a water bath. After evaporation dry it. Oven for 1 hour cool it and took the final weight.
- 3) Took an evaporating dish dry it and weight it filters the water sample through appropriate number of Whatman filter paper so that the filtrate in evaporating dish on a water bath. After evaporation dry it in oven for 1 hour cool it and took final weight.
- 4) Determine total suspended solid as the difference between total solids and total dissolved solid.

FORMULA

$$1) \text{ TS} = (W_1 - W_2) \times 1000 \times 1000 \div V \text{ (unfiltered water)}$$

$$2) \text{ TDS} = (W_1 - W_2) \times 1000 \times 1000 \div V \text{ (filtered water)}$$

$$3) \text{ TSS} = \text{final weight of Whatman filter paper} - \text{Initial weight of Whatman filter paper}$$

W1 = Initial weight of evaporating dish in gram

W2 = final weight of evaporating dish in gram

V = volume of sample evaporated in

Music department lake



Bhasha bhavan lake



Rankala lake



Industrial waste lake



Result

Rainy season

Sr.no	Name of the lake	Physical parameter			
		pH	TDS	TS	TSS
1	Rajaram lake	8	400	600	1.77
2	Bhasha bhavan	7.1	400	800	1.83
3	Music department	8	1000	1600	1.86
4	Rankala lake	6.5	800	1000	1.6
5	Industrial water	5.5	400	1400	1.81

Winter season

Sr. no	Name of the lake	Physical parameter			
		pH	TDS	TS	TSS
1	Rajaram lake	8	600	800	1.78
2	Bhasha bhavan	7	400	800	1.75
3	Music department	7.9	600	1000	1.79
4	Rankala lake	6.5	400	1000	1.99
5	Industrial lake	6.5	400	1200	1.87

Summer season

Sr. no	Name of the lake	Physical parameter			
		pH	TDS	TS	TSS
1	Rajaram lake	8.3	400	600	1.64
2	Bhasha bhavan	7.5	400	800	1.95
3	Music department	7	600	800	1.65
4	Rankala lake	6.5	1000	1200	1.83
5	Industrial water	5.3	200	400	1.88

DISCUSSION

Accurate and timely information on the quality of water is necessary to implement the water quality index of the present lake is established from important programs efficiently from important various physicochemical parameters.

In rainy season less pH of industrial water TDS is high in music department and more turbid than other lake and TS of industrial water is high in other lake and TSS is less in rankala lake.

In winter season high PH is 8 in Rajaram lake and low pH is Rankala lake and industrial water.

High TDS is 600 g/lit in Rajaram lake and music department lake.

Industrial water shows high for TS as compared to their water bodies TSS is high in Rankala lake it shows water is turbid.

In summer season industrial water show low pH 5.3 and acidic in nature TDD and TS is more in Rankala lake and it is harmful in bodies.

TSS is high in bhasha bhavan lake overall water analysis result indicate the Rankala, music department water and industrial water is turbid than other two water bodies.

Kumar Tank *et. al.*, 2010 study focused on the Hydrochemistry of groundwater in determining its suitability for drinking and agricultural purpose. Groundwater samples were collected from eleven station of Jaipur city. during monsoon season and were analyzed for physio – chemical parameter such as PH, total dissolve solid, temperature, sodium, potassium, calcium, magnesium, chloride, comparison of the concentration of the chemical constituent with WHO drinking water standards of 1998 the status of groundwater is better for drinking purpose. The parameters like pH, sodium, potassium, carbonate, bicarbonate, chloride is within permissible limit as per WHO but calcium, magnesium and nitrate exceeding the limit. The calculated value of SAR, RSC and percentage of sodium indicate that the water for irrigation uses is excellent to good quality us salinity diagram was used for evaluating the water of the groundwater sample were good for irrigation.

Conclusion

Based on the study carried out following conclusion are drawn,

From the present study it is found that out of selected and water bodies and water bodies via. Rankala and industrial water is acid in nature.

Music department and Rankala lake show high total dissolve solid compare to other 3 water.so music department and Rankala lake show more pollution.

Music department, industrial water and Rankala lake show more total solid. It concluded this water is harmful to human beings

Music department, Rankala lake and bhasha bhavan total suspended solid is more.

In this project can concluded that the music department, Rankala lake and industrial water are polluted than other two water bodies.

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