

Study of Physicochemical Parameters of Drinking Water from Degloor Tehsil, District-Nanded (MS)

Lakhekar S.N¹, Ingole R.N.²

¹Department of Chemistry, Chintamani College of Arts and Science, Gondpipri, Ta Gondpipri, Dist-
Chandrapur, Maharashtra, India

²Department of Chemistry, Shri Vitthal Rukhmini Arts, Commerce & Science College, Sawana, Ta Mahagaon,
Dist Yavatmal, Maharashtra, India

ABSTRACT

As water plays essential role in human life, so it is very important to know the quality of water. In view of this, we have collected 10 drinking water sample from different villages of Degloor tahesil, district Nanded (MS), having different sources such as bore well, well, River, ponds, hand pump to study it's suitability for drinking purpose. Physico-chemical Parameter such as Temperature (T), P^H, Total Dissolved Solid (TDS), Total Hardness (TH), of drinking water was determined. Result shows that most of the parameters are within permissible limit given by WHO, but some samples requires some purification process.

Keywords: Physico-chemical Parameter, Water Samples, Water quality standards.

I. INTRODUCTION

Water covers 71% of the Earth's surface. It is predictable that 96.54% of earth water is found in seas, ocean, bays. 1.69% is groundwater, and 1.74 % is present in glaciers and ice caps in the Arctic and Antarctic region and 0.76 % is fresh water. only 3% freshwater is available on earth and about 1.2 percent can be used as drinking water [1]. Most of the diseases are water born like cholera, diarrhea, typhoid, amebiasis, hepatitis, gastroenteritis, giardiasis, campylobacteriosis, scabies. 38 million Indians suffer from above said waterborne diseases every year. water is one of the most important, abundant & precious compound on earth, although statistics, the WHO reports that approximately 36% of urban & 65% of rural were without access to safe drinking water [2,3,]. Ground water is the major source of drinking water. Quality of drinking water affected day by day due to various man made activities like uses of insecticides, fungicides, herbicides, agriculture fertilizers, production of chemicals, industrial effects, domestic sewage, urbanization and natural activities like acid rain, climate change, weathering of rock, floods, droughts, earthquakes . As various type of pollutant like harmful chemicals, toxic metal like mercury, lead & several other poisonous and non poisonous substances are dissolved in ground water [4,5]. The concentration of particular dissolved substances is useful for human body but in specific range. In this research paper an attempt has been made to estimate Physico-chemical Parameter of drinking water having different sources & to compare the observed value with standard value of WHO.

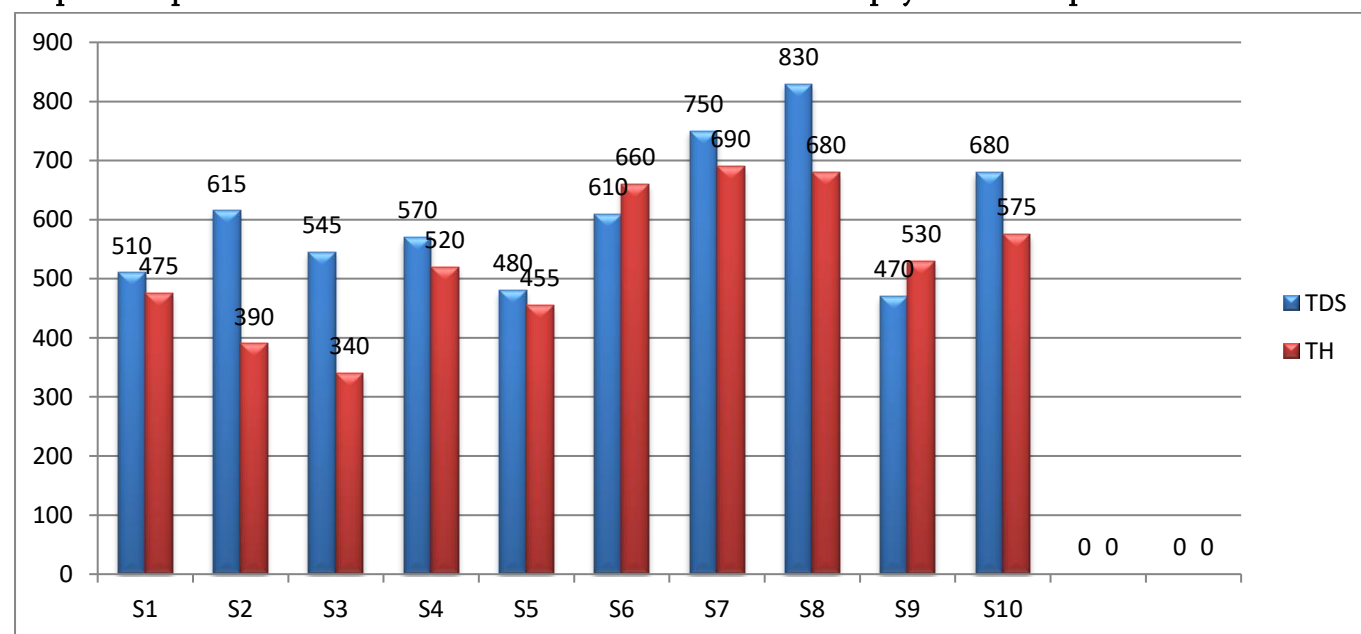
II. MATERIAL & METHOD

Water sample were collected in clean and dry polythene bottle of one liter capacity. Sample are collected from different sources like bore well, well, hand pump, river Ponds. P^H , conductance, TDS, salinity are measured by potable water analysis kit and TH is determined by complexometric titration. Color, odour, temperature were determined at the point of sample collection. Observed value for different parameter has been compared with standard specified by world health organization (WHO).(Table no.1)

Table no 1. Different water sources and their observed physiochemical parameter

Name of Region	Sample No. & Source	P^H	Total Dissolved Solid(mg/lit)	Total Hardness(mg/lit)	Temperature °C
	STANDARD WHO	6.5 to 8.5	2000	600	--
Lakkha	S ₁ (Bore Well)	7.0	510	475	25
	S ₂ (Manyad River)	7.1	615	390	25.5
Ibrahimpur	S ₃ (Bore Well ¹)	7.3	545	340	23.9
	S ₄ (Bore Well ²)	7.9	570	520	24.0
Eklara	S ₅ (Bore Well)	7.5	480	455	24.5
	S ₆ (ponds)	6.9	610	660	23.5
Vannali	S ₇ (Bore Well)	7.3	750	690	25.5
	S ₈ (hand pump)	7.3	830	680	24.8
Sugaon	S ₉ (Bore Well)	8.0	470	530	24
Degloor	S ₁₀ (Lendi river)	6.6	680	575	23

Graphical Representation of various water sources and their observed physiochemical parameters



Abbreviations- Total Dissolved Solids (TDS), Total Hardness (TH)

III. RESULT AND DISCUSSION

The Value of P^H was within the permissible limit and P^H value fluctuated in between 7.0 to 8.0. Temperature was found to be in the range between 23 to 25.5°C during study. Temperature was measured using thermometer. Maxima of total dissolved solid (TDS) and total hardness (TH) were found to be 830 mg/lit and 510 mg/lit [7]. Observed value of TDS are within the permissible limit. Hardness of water is due to the Calcium and Magnesium ion, value of total hardness is exceeding the permissible limit in samples no S6,S7,S8 High concentration of hardness may cause kidney problem [8,9].

IV. CONCLUSION

The present paper undertaken to account to bring an acute awareness among the people about the quality of water. The result shows that most of the parameter are within the permissible range. It can be conclude that water is safe for drinking purpose, but in some samples requires further purification processes.

V. ACKNOWLEDGEMENT

Author are grateful to principal of Chintamani College of Arts and Science Gondpipri Dist Chandrapur for doing the collaborative work on physiochemical study of water with Shri Vitthal Rukhmini Art's, Commerec & Science College Sawana, Tah. Mahagaon, Dist Yavatmal. Author are thankful to Principal of Shri V. R. Art's, Commerce & Science College Sawana, for providing the Laboratory and library facility.

VI. REFERENCES

- [1]. Igor Shiklomanov's chapter "World fresh water resources" in Peter H. Gleick (editor), 1993, Water in Crisis: A Guide to the World's Fresh Water Resources (Oxford University Press, New York)
- [2]. Archives of applied research (2001), 3(1), 444-449.
- [3]. Akoto O. and Adiyiab J (2007).Chemical Analysis of drinking water from some communities in the brona Ahafo region, International J. of Enviornmental sciences and Technology 4(2), 211-214.
- [4]. Dr C.Nagamani and Dr C. Sarawati devi (2015). Physicochemical Analysis of water sample, International J. of Scientific & Engineering research, vol 6
- [5]. Abida Dost mohammad, maqsood Ahmad khan,Amie Mahommad (2016). Analysis of physicochemical drinking water quality parameter of zairat valley,J.Applied Emerg.Science 16(2).
- [6]. Vogel's, text book of qualitative analysis of 6th edition.
- [7]. Guideline of Indian Standards Specification for drinking water IS 10500
- [8]. World Health Origination WHO (2011). Guideline for drinking water quality 4th Ed. Geneva Switzerland.
- [9]. Jain cok. Bhatiya K.K.S & Vijay T (1998) International J Environment Health.39(3),182-192.