



Research Article

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Study of physical properties of drinking water from different bore-well of rural area of Bhiloda Taluka, Aravali district

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ABSTRACT

The data of pH-Meter, Conductivity Meter, Total dissolved salts (TDS), Alkalinity, Chlorides and Calcium of various region of Bhiloda taluka and compare with WHO limits were studied.

Keywords: Drinking water, Physical properties, Bhiloda taluka, Aravali district

INTRODUCTION

In the present work the quality of bore-well water of Bhiloda ruler area has been assessed and discussed. The water quality physical parameters in bore-well water differ from different areas. Hence the present study was undertaken to characterize the physiochemical nature of bore-well water in Bhiloda surrounding by taking water samples from different places and different bore-well. In the present study, water is an important component of the environment, and it supports life on earth [1]. Water plays an important role in photosynthesis and hence important for crop water is necessary to all forms of life. The earth surface measures 50 billion hectors in area; 20% of the land area are the rest (80%) are covered with water. Nothing can survive on earth without water. A person consumes an average of about 2 liters of water each day. More than 70% of the weight of human body consists of water. The availability of good quality water is an indispensable future for preventing diseases and improving quality of life. The quality of water varies with depth of water. The main objectives of the physico-chemical study are to know the distribution of solutes and suitability of the water for domestic, agriculture and drinking purposes [2-4].

EXPERIMENTAL SECTION

Study area

The water was collected from the bore-wells located in these rural area and hill area were shrouding bhiloda town and the sampling location source and corresponding habitats are 6 to 12 km fare from each other. The depth of the bore wells ranged from 90-135 feet in all.

Preparation of water samples

The samples were collected in clean polyethylene bottle without any air bubbles. The bottles were rinsed before sampling and tightly sealed and labeled in the field. The temperatures of the samples were measured in the field itself at the time of sample collection.

Analysis of water samples

Analysis was carried out for various quality parameters such as pH, electrical conductivity (EC) Total Dissolved Solids (TDS),total alkalinity, Chlorides and Calcium as per standard process.

Determination of water quality parameters

The water quality parameters analyzed were as follows,

pH was measured using standard pH -meter

EC was measured using standard Conductivity meter and also TDS by standard methods and Cl by titration & Ca by EDTA- titration

Methods employed for determination of physico-chemical values

Sr. No.	Parameters	Methods employed
1	pH	pH-Meter
2	EC	Conductivity Meter
3	Total dissolved salts (TDS)	Conductivity Meter
4	Alkalinity	Titration
5	Chloride	Titration
6	Calcium	EDTA Titration

RESULTS AND DISCUSSION

The results of the physico-chemical values of different bore-well are presented in below table. The pH is an important in water body and in the studied areas, the pH values fluctuated between 7.1 to 8.3. The electrical conductance were observed values fluctuated between 0.083 to 0.123. The ISI prescribed the desirable limit of TDS as 500 mg/L. The TDS were observed values fluctuated between 166.7 to 368.4. The observed TDS values were well within the limits but a sample of Sankarpura village bore-well has comparatively high TDS value of 368.4 mg/L which is beyond the prescribed limits of 500 mg/L. The observed chlorides values fluctuated between 107 to 214 and alkalinity values were over the limit hence, may be possible the natural salts were soil from water. Calcium values were well within the limits.

Comparison of physico- chemical values of Bhiloda ruler area with standard WHO

Sr. No.	SAMPALING LOCATION	Values By Instrument				Values by titration	
		pH	EC mho	TDS mg/L	Total Alkalinity mg/L	Chlorides mg/L	Calcium mg/L
1	VANKANER	7.8	0.108	234	134.5	168	50.1
2	KHUMAPUR	8.1	0.114	287	147.1	204	33.7
3	MOHANPUR	8.3	0.109	284	175.5	188	39
4	RINTODA	7.6	0.104	166.7	144.3	133	68
5	NANDOJ	7.1	0.110	174	143.3	167	46
6	SANKARPURA	7.1	0.123	368.4	154.8	214	44
7	NARANPURA	7.9	0.102	344	156.4	199	56
8	LILACHHA (HILL)	7.2	0.111	189	133.3	134	71
9	KISHANGADHA (HILL)	7.8	0.098	214	137.3	107	78
10	JANALI (HILL)	7.3	0.099	233	144.1	183	61
11	BHETALI(HILL)	7.4	0.085	278	146	149	52
12	RINTODA(HILL)	7.6	0.088	315	145.8	173	43
13	MAU (HILL)	7.8	0.083	198	158.3	187	68
14	TORDA(HILL)	8.1	0.086	211	137.8	156	51
15	WHO	6.0-8.5	-----	500	120	250	75

The standard limits of water quality parameters in drinking water prescribed by WHO is shown in above table Sr. No.-15

CONCLUSION

The analysis of the water quality parameters of different bore-well shows that all above the values well within the permissible limits of WHO. The result of study reveals that, quality of water of bore well is though fit for domestic and drinking purposes need treatments to minimize the contaminations especially the alkalinity. Hence, it is suggested that this bore well water is not much suitable for drinking purpose. Efforts of this study may prove to be useful in achieving the same.

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