ASSESSEMENT OF POTABLE WATER QUALITY AT TEHSIL ALSISAR, DISTRICT JHUNJHUNU, RAJASTHAN

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ABSTRACT

People on globe are below tremendous threat thanks to unsought changes within the physical, chemical & biological characteristics of air, water & soil. Thanks to inflated population, urbanization, manufacture, use of fertilizers water is extremely impure with completely different harmful contaminants Natural water resources are being contaminated thanks to weathering of rocks & natural process of soil; mining process etc. it's necessary that quality of potable ought to be checked at regular amount to stop numerous waterborne diseases. In gift analysis physico-chemical parameter of potable comparable to color, pH, hardness, TDS, residual Cl, dissolved atomic number 8, electrical conduction, Free greenhouse emission are analyzed. potable quality of 10 villages of Alsisar district Jhunjhunu, Rajasthan was analyzed to spot the character and quality of water .The potable samples were collected in clean synthetic resin one cubic decimeter cans & subjected for analysis in laboratory. The most objective of the current paper is to aware folks of involved space concerning the water quality & involved health hazards.

Key words: - Water quality, pH, Hardness, TDS, Alsisar

INTRODUCTION

Jhunjhunu is that the town of Rajasthan in northern Asian country. Principally spring water, tube wells square measure the sources of potable in Jhunjhunu. Industry, mining, urbanization, domestic & agriculture waste is unendingly contaminating water resources. Water quality is being detiorated day by day. Therefore waterborne diseases square measure spreading wide

resulting in the fatal hazards. Study & interpretation of chemical characteristics of natural water was studied by Hem 6.2 Water quality parameters of spring water, stream water & industrial water are according by many staff. Water quality standards of sanaganer tehsil of Jaipur have conjointly been studied. Pilani district of Jhunjhunu Rajasthan has conjointly been investigated for water quality parameters. A review on analysis of potable of varied places has been done by Bhalmeet al.

In ability paper water of villages present in Alsisar sub division of Jhunjhunu has been studied & compared with standards provided by UN agency, BIS & ICMR.

MATERIAL AND METHODS

Drinking water sample of 10 villages of Alsisar subdivision were collected in sensible quality polyethylene bottles of 1 cubic decimeter unit} capacity viz. Hand pumps, tube wells, open wells, PHED offer. Sampling has been eluded adding preservatives. Analytical grade reagents & double water has been used for preparation of samples. Instruments like hydrogen ion concentration meter, conduction meter .TDS meter were employed in the limit of precise accuracy.

RESULT AND DISCUSSION

The results obtained for urban are as close to Alsisar Tehsil of Jhunjhunu are reported in table-2. The standards a price of physico-chemical examination of water sample has been reported in table -1. These values are given by BIS- Bureau of Indian customary, ICMR- Indian council of medical analysis, WHO - world health Organization

Drinking Water Specifications

The Bureau of Indian Standards (BIS), Indian Council of Medical Research (ICMR) and World Health Organization (WHO) have laid down the standard specifications for drinking water.

Table-1 Standard Specifications for drinking water

S.NO	Parameters	BIS:1999	ICMR:1975	WHO:2003
1	pH	6.5-8.5	7.0-8.5	6.5-9.5

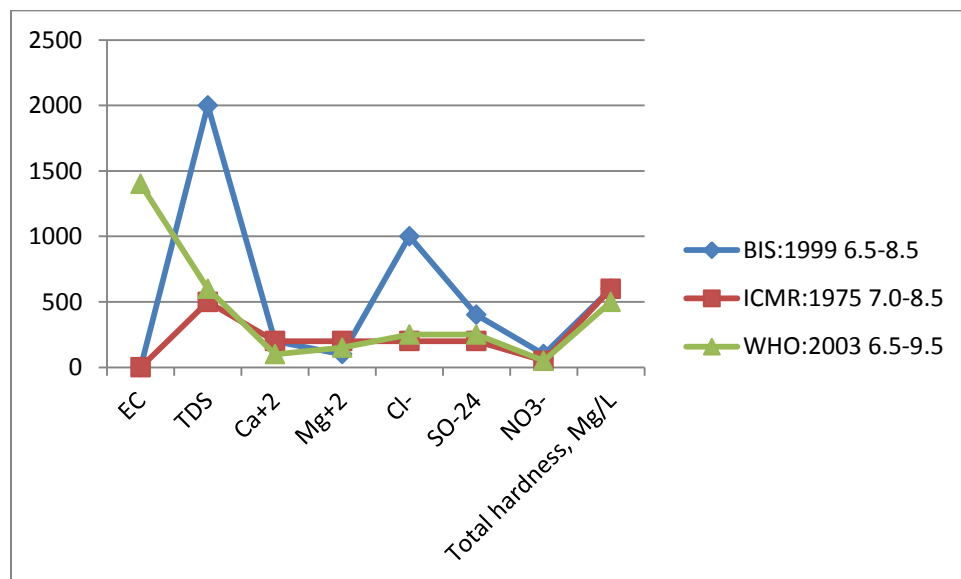| 2	EC	-	-	1400
3	TDS	2000	500	600
4	Ca^{+2}	200	200	100
5	Mg^{+2}	100	200	150
6	Cl^-	1000	200	250
7	SO^{-2}_4	400	200	250
8	NO^{3-}	100	50	50
9	Total hardness, Mg/L	600	600	500

Table-2 Physico-chemical analysis of urban areas of Alsisar District-Jhunjhunu, Rajasthan

Parameters	Alsisar	Birmi	Deloi	Haripura	Ladusar	Mahansar	Malsisar	Patoda	Pilani Khurd	Rampura
Permanent hardness (ppm)	130	460	390	380	360	380	300	340	370	350
Sp.C mS/cm	7.9253	6.2991	16.5250	9.5320	13.7298	9.5250	10.8231	12.3476	10.6548	12.7490
Total Hardness (ppm)	420	480	460	450	440	470	410	490	480	430
Free CO_2 (ppm)	13	14	9	7	8	8	7	10	10	6
DO (ppm)	14	12	16	24	26	18	14	10	14	20
pH	7.83±0.07	7.81±0.08	8.57±0.03	7.99±0.9	7.70±0.05	8.20±0.07	7.68±0.09	7.80	7.78	8.10
TDS (ppm)	84.00	110.75	104.79	110.28	87.00	85.00	102.34	117.40	98.24	86.40

Alkalinity (ppm)	212	217	210	219.5	217.7	215	217	210	213	220
Conductivity (mS)	0.236	0.569	0.839	0.485	0.287	0.258	0.417	0.515	0.434	0.524
Free Cl_2 (ppm)	0.925	0.903	0.873	0.951	0.709	0.878	0.976	0.890	0.940	0.972
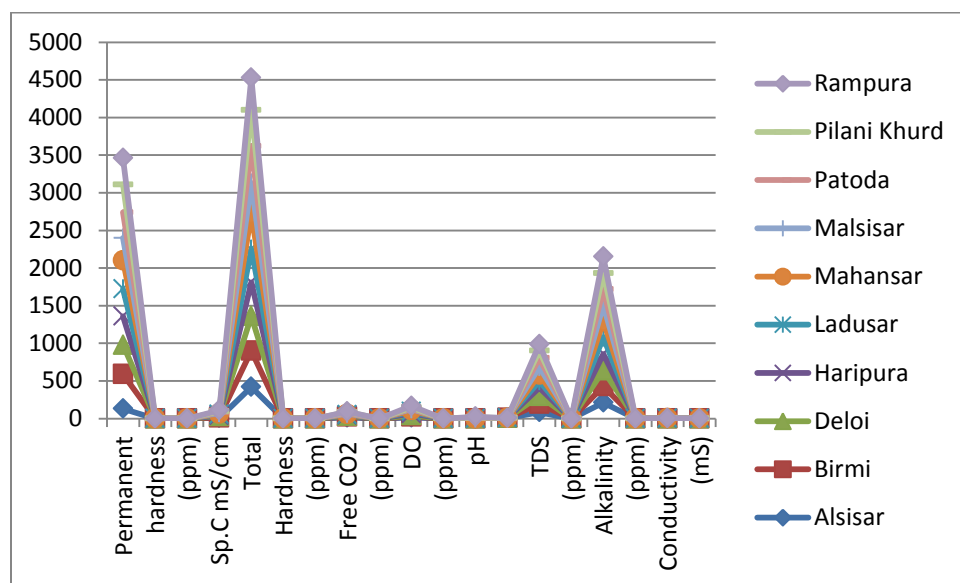
pH

The data revealed that pH ranged from 7.68±0.09 to 8.57±0.03. The minimum pH scale was discovered in Malsisar and most pH scale was detected in Deloi village. pH scale is that the negative exponent of H^+ concentration. In step with World Health Organization (1992) standards, best and ideal pH scale price for human consumption is 7.0; however it's going to vary from 6.9-9.2. Thus, all the samples tested were slightly alkaline; water of Deloi village is basic in nature thanks to presence of excessive salts. Basic water will cause abdomen issues therefore it should be treated before its use. Till recently, issues concerning drinkable centered on eliminating pathogens.

Chlorine

The gas wont to cut back the danger of communicable disease could account for a considerable portion of the cancer risk related to potable. Chlorination of potable was a serious think about the

reduction within the mortality rates related to waterborne infective agent. The utilization of gas was believed to be safe. This view is evident in an article, which appeared on the back page of the New York Times.

The report expressed that with the employment of gas, "Any municipal water system may be created as pure as mountain spring water. Chlorination destroys all animal and microorganism life, going away no trace of itself afterwards". This statement mirrored opinion accepted till recent years once halogenated organic compounds, akin to chloroform, were known in chlorinated beverage provides. Recent surveys show that these compounds square measure common in water provides throughout the U. S.

These considerations concerning cancer risks related to chemical contamination from chlorination by-products have resulted in various epidemiologic studies. These studies typically support the notion that byproducts of chlorination are related to enlarged cancer risks.

The concentration of free residual chlorine should be between 0 to 1 ppm. Excess chlorine in water can lead to various negative health effects. But all collected samples have free chlorine level within limits.

Total Hardness

Further value of total hardness of different villages ranges from 410 to 490 ppm. The desirable limit of drinking water hardness is 300 ppm (ICMR) and for washing water is 500 ppm. Water hardness is mostly due to the geochemical formulations of water and because of presence of varied salts of atomic number 20 and Mg (bicarbonates, carbonates, sulphates, chlorides etc.). Inadequate intakes of atomic number 20 are related to exaggerated risks of pathology, lithiasis (kidney stones), body part cancer, high blood pressure and stroke, arteria coronaria illness, hormone resistance and fleshiness. exaggerated intake of Mg salts could cause a brief elastic modification in intestine habits (diarrhoea) and is that the reason for hypermagnesia during which human and animals square measure unable to expel Mg from body (WHO) Temporary hardness of water are often reduced by boiling and permanent hardness are often treated by numerous strategies.

Dissolved Oxygen

DO in varied samples have been determined by Winkler's methodology. Dissolved O has been calculable on the premise of iodometrictitration. Presence of bacterium and chemical substances reduces the dissolved O in water. Values of dissolved O in drink samples are among safe limits.

Samples are tested to estimate TDS (total dissolved solids), specific conduction, conduction and pH scale. pH scale thanks to hydroxides is absent in samples and in the main thanks to the carbonates and bicarbonates.

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