

Assesment of Drinking Water Quality in Dupadu Village, Prakasam District

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Abstract: - An attempt is made in the present study to assess the drinking water quality in Dupadu. Drinking water samples collected from 4 locations covering uniformly the entire village. The parameters such as pH, Turbidity, Conductivity, Acidity, Alkalinity, Hardness and fluoride were determined. From the analysis, it is observed that the fluoride concentration in drinking water in this village varies from 1.7 mg/l to 2.0 mg/l causing dental and skeletal fluorosis. Overall water quality was unsatisfactory for drinking drinking purposes without any prior treatment. The reason for selecting this village is it's our own village, my village people has been suffering from lot of water borne diseases like fluorosis, cholera etc. We decided to know what are the parameters having the drinking water which causes to water borne diseases and suggested to government to take the necessary precautions about public health.

Keywords:- Drinking water quality, Flouride concentration, IS & WHO standards.

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I. Introduction

Water plays an important role in the development of healthy society. Water is an essential natural resource for sustaining life and environment that we have always thought to be available in abundance and free gift of nature, however chemical composition of surface or subsurface water is one of the prime factors on which the suitability of water for domestic and drinking purpose depends. Dupadu village is the major water source for the surrounding areas, is no exception with respect to the increased population the water quality gradually decreases. Due to this problem people suffering with water borne diseases. The study was carried out to assess the quality of drinking water of Dupadu area Prakasam district, Andhra Pradesh, India. The fluoride concentration along with various chemical parameters in drinking water samples was determined in this region.

Study Area: - Dupadu area is located near Markapur, west Prakasam, Andhra Pradesh, and India. The details of study area as following table no.1

TABLE.1

SL.NO	SAMPLE	AREA	LOGITUDES	LATITUDES
1.	Sample no.1	Sc colony	79°22'5''	15°55'5''
2.	Sample no.1	At temple	79°21'52''	15°55'3''
3.	Sample no.1	Pump house	79°22'14''	15°55'5''
4.	Sample no.1	NSR colony	79°22'13''	15°54'50''

II. Methodology

The sampling points are located in such way that, they are uniformly distributed the entire village of the study area. Four sampling locations are fixed up for sampling. Bore wells and Hand pumps are considered for sampling. The samples were collected from bore wells hand pumps which were extensively used for drinking and other domestic purposes. The samples were collected in pre-cleaned and sterilized polyethylene bottles of two liters capacity. The depth of the bore wells varied between 150 to 450 feet. Water samples are collected from each sampling point and analysed in the laboratory and suggested precautions were taken to avoid contamination. The analyzed parameters viz. pH, Acidity, Alkalinity, Conductivity, Hardness, Turbidity and Flouride as per the standard procedures.

III. Results And Discussion

The results of the study are presented in the following table no.2. The following observations are made from the results.

1. The pH of the samples is found to be varying from a minimum value of 6.95 to a maximum value of 7.20.
2. Turbidity is found to be varied from 0.0 NTU to 0.2 NTU.
3. Conductivity is found to be varied from 1.36 micro mhos per cm to 3.54 micro mhos per cm.
4. As compared to IS(10500:2012) & WHO standards the Acidity is found to be more in the sample no.1 and sample no.2 and varying from a minimum of 32 mg/l to maximum of 57 mg/l.
5. Alkalinity is found to be varied from minimum of 40 mg/l to maximum of 90 mg/l.
6. Hardness is found to be varied from minimum of 17 mg/l to maximum of 39 mg/l.
7. As compared to IS (10500:2012) & WHO standards the Flouride concentration was exceed in all the samples and varied from minimum of 1.7 mg/l to maximum of 2.0 mg/l.

TABLE.2

S.NO	PARAMETERS	Sample no.1	Sample no.2	Sample no.3	Sample no.4
1	PH	7.11	7.08	6.95	7.20
2	Turbidity(NTU)	0.00	0.00	0.2	o.1
3	Conductivity (µmhos/cm)	3.54	2.84	1.36	1.71
4	Acidity(mg/l)	57	50	51	32
5	Alkalinity(mg/l)	90	80	40	54
6	Hardness(mg/l)	18	39	17	22
7	Fluoride(mg/l)	1.9	1.7	2	1.9

IV. Conclusion And Suggestions

1. PH, Alkalinity, and hardness are found to be with in the permissible limits, over the entire area.
2. Conductivity and turbidity are also found to be in acceptable limits.
3. Acidity is found to be exceeding the permissible limit of ≤ 50 mg/l in this region.
4. Fluoride concentration is found to be exceeding the permissible limit of 1.5 mg/l. based on this entire study, it is suggested to establish the acidity stabilization & flouride treatment plants for removing the excess quantity of acidity & flouride concentration.

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