

HYDRO-CHEMICAL PARAMETERS OF GROUND WATER AROUND LIME MINES IN KARAMPUDI. GUNTUR DISTRICT, ANDRAPRADESH

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ABSTRACT

Present study deals with the ground water quality and fluoride levels identification of near by villages of Karepudi Mandal. Guntur, District, Andhra Pradesh. The samples were collected from 04 places in the Karempudi Mandal in December 2013. The temperature, pH, TDS, DO, BOD, COD, Total hardness, chloride, sulphate and nitrate were determined. All the parameters were found to be below permissible limit except fluoride.

Keywords: Ground water quality, lime stones, water pollution, water parameters, Karempudi, Guntur district.

INTRODUCTION

Karempudi is a village and a mandal located on the banks of river Naguleru in Guntur district in the state of Andhra Pradesh in India. Karempudi is said to be located in the eastern Ghats. The river Naguleru originates in the hills and flows through and eventually drains into river Krishna. The soils are mainly Red and Black soils. The area is one of the places with low rain fall in the state and in the past mainly rainfed crops are only cultivated. But nowadays all crops are being cultivated as there is Right Canal and Nagarjuna Sagar passing through Karempudi feeding the agricultural needs. The ground water aquifers are also marginally low in the total Palnadu region. Water tastes mainly sour in the Palnadu area leaving out Karempudi with some good quality water. Paddy, chillies, ground nut, and cotton are the main crops.



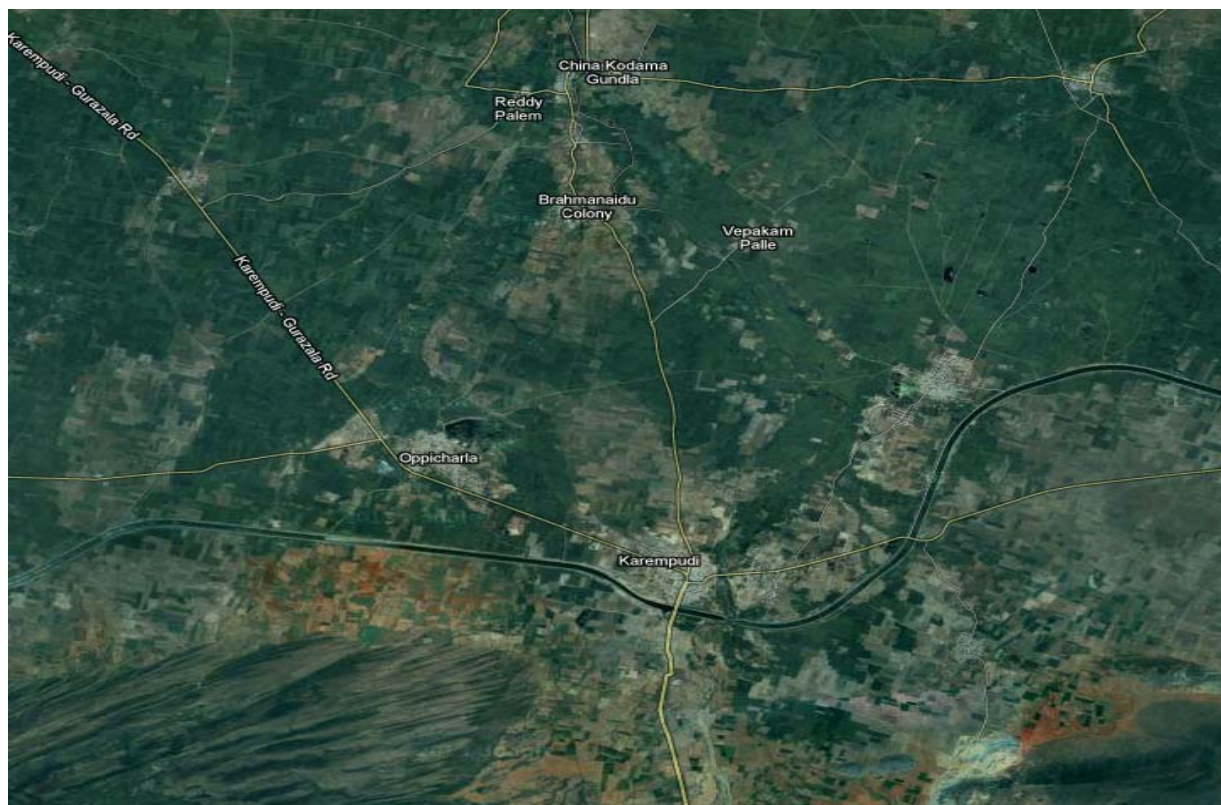


Figure.1 Satellite image of KARAMPUDI Mandal

EXPERIMENTAL

The water samples were collected by taking care of not to have any bubbling during sampling process. The initial water samples were thrown out and the bottles were filled up to the mouth without any air gap. The temperature was recorded at the site only. The pH was measured by using pH meter (ELICO-120) and combined glassed electrode, TDS was determined by evaporation method. DO was determined by winkers method. BOD was calculated using DO for five days. COD was measured using dichromatic titration method. A EDTA method was used to determined total hardness. Mohrs method was used to determine for chloride. Sulphate was determining using turbido meter. Nitrate was determined by chlorimeter. In all these experiments required solutions were prepared using double distilled water. The pH meter and Colorimeter Hitachi was calibrated before use. The volumetric apparatus also calibrated

RESULTS AND DISCUSSION

S.NO	Parameter	Karempudi	Oppicherla	Vepakam Palli	Brahmmanayudu colony	Reddy Palem	Karempudi Thanda	Permissible limit ISI 1991
1	PH	7.55	7.61	7.34	7.25	7.93	8.02	6.5-8.5
2	Total Hardness	713.3	526.8	454.2	672.2	839.1	824.4	600
3	Ca (ppm)	184.1	167.2	175.1	199.4	144.8	188.2	200
4	Mg (ppm)	69.4	71.9	93.7	85.0	96.3	84.1	100
5	Na (ppm)	60.7	59.4	81.9	75.8	74.5	63.4	75
6	K (ppm)	8.3	8.8	6.9	7.5	6.9	8.2	9
7	Cl (ppm)	897	778	691	845	839	971	1000
8	SO ₄ (ppm)	202	187	198	126	146	188	200
9	F (ppm)	3.67	4.52	3.2	3.5	3.4	2.8	1.5
10	NO ₂ (ppm)	39	44	51	42	52	49	45
11	D.O (ppm)	6.9	7.5	6.3	6.9	5.5	4.6	8
12	B.O.D (ppm)	19.9	31.5	28.4	30.6	27.4	24.2	28-32
13	C.O.D (ppm)	246	235	284	255	276	289	250
14	Temperature	31.5	33.4	32.5	32.8	32.1	33.5	28-30

The Karempudi mandal is located beside right canal and affected with low rain fall every year. The P^H value of water samples above 7.0 indicates the basic nature of drinking water. Hardness also more than permissible limit. The fluoride is more than permissible limit. Here local people suffering with Fluoride effect. After monsoon also the fluoride is in high concentration level. In summer the fluoride concentration level may increase than these results. The government ought to alert the people about the fluorosis problem.

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