

Calcium Present in Tube Well Water Sample of Nipani Town

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Abstract: Normally, a flow of surface water draining through humid area contains more calcium than any other ion. Calcium is the most common cation in fresh water at 20°C, 5.6 mg/lit dissolve. Causing pH 9.9 to 10.0. As calcium ion is relatively large, it can be hydrated & forms complexes with inorganic ions. To calculate the concentration of calcium in the present study in pond water sample were collected and analyzed every month throughout the year. So, we have studied the calcium present in pond water sample. Calcium was extremely low was 5.65 mg/lit.

Keywords: pond water sample, Pollutants, calcium

1. Introduction

It is the most abundant alkaline earth element in the earth crust derived from natural sources like carbonate, phosphates, sulphate, fluorides and silicates. Green Wald (19ml) showed that about 10% Ca ++ occurs in bicarbonate form [1,2] . Normally, a flow of surface water draining through humid area contains more calcium than any other ion (Hem 1970) calcium is the most common cation in fresh water , at 20°C , 5.6 mg/lit dissolve , causing pH 9.9 to 10.0 . As Calcium ion is relatively large, it can be hydrated and forms complexes with inorganic ions . (Mattness and Harvey, 1982).

In the present study, the levels of calcium were studied in the Tube well water sample near the vicinity of Halsiddhanath sugar factory located at Nipani. The Tube well water samples were taken in twelve glass bottles by following standard procedure[3-5]. Samples were taken from twelve bottles from various Tube wells which are located at 1. Bhim Nagar, 2. Nagoba lane, 3.Kharade lane, 4. Namar mal, 5. Shivaji Nagar, 6. Andolan Nagar, 7. Kmgar Chowk, 8.Ambale polt, 9. Mestri Nagar, 10. Ramling Temple, 11. Mestri Nagar, 12. Bhise lane. The samples were collected every month throughout the every year and analyzed in laboratory for the levels of CALCIUM.

2. Materials and Methods

Methodology for determination of calcium Volumetric determination of calcium was carried out by EDTA method . In this method, EDTA combines first with calcium and when pH is made sufficiently alkaline , magnesium is precipitated as hydroxide and the indicator murexide combine colour turns to violet at pH 12 to13.

The concentration of calcium ions (Ca+2) is determined using the following formula. Calcium (mg/lit) = ml of EDTA X 400.08 / ml of sample.

3. Results and Discussion

Concentration of calcium in present study ranged from minimal 2.37 mg/lit. to maximal 62.56 mg/lit. in pond water. (Table NO 134) Its average value was higher in winter 23.42 mg/lit .[6-8], followed in summer 25.58 mg/lit and in rainy season 18.11mg/lit and in tub well water sample).

A similar pattern was observed by Varghese et . al . (1992).The impurity is comparatively less than industrial and pond water . Higher concentration of calcium was found at , nagoba lane , charade lane & Nirmal Mal due to slum areas disposal of waste and human's interference pond water is more polluted. (Fig .No. 29) . Their station wise, month wise and season wise profiles are depicted in Fig . 50. It has been found that disposal of sewage and washing cattles, human activities like bathing , washings cloths are the major sources contributing to calcium content in water [9-11] .

Table 1: Calcium (mg/lit) of Tube well water sample

Stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	19.81	16.34	20.05	23.26	24.69	24.14	20.08	18.44	16.05	17.12	21.60	22.25
2	23.20	32.80	19.27	24.82	24.90	16.81	16.20	24.06	15.35	16.20	21.05	23.62
3	32.81	27.24	26.20	29.81	34.45	20.05	14.45	28.08	14.32	15.30	28.07	30.37
4	28.07	46.41	32.07	29.75	23.21	39.20	11.21	20.31	16.21	16.20	62.56	40.29
5	59.32	17.64	56.11	43.70	6.42	67.25	12.31	13.25	12.14	12.15	52.10	51.72
6	37.60	4.37	24.06	32.81	5.65	85.50	25.72	17.18	18.21	19.30	36.25	36.40
7	23.20	19.31	20.81	23.24	4.81	25.50	12.82	26.17	20.08	20.09	41.02	34.63
8	20.05	18.70	20.05	18.42	3.25	25.60	9.62	20.32	34.21	34.21	27.21	23.70
9	20.06	17.64	18.17	19.05	6.24	30.72	19.25	30.20	35.71	41.05	17.63	18.85
10	18.40	17.62	17.65	20.18	4.02	26.27	17.64	21.03	20.04	20.05	20.01	21.05
11	18.46	16.98	20.05	17.62	3.21	26.30	14.45	14.21	14.21	14.12	16.40	17.21
12	19.25	20.85	40.08	40.29	34.40	20.17	21.65	15.60	13.21	10.21	26.40	21.45

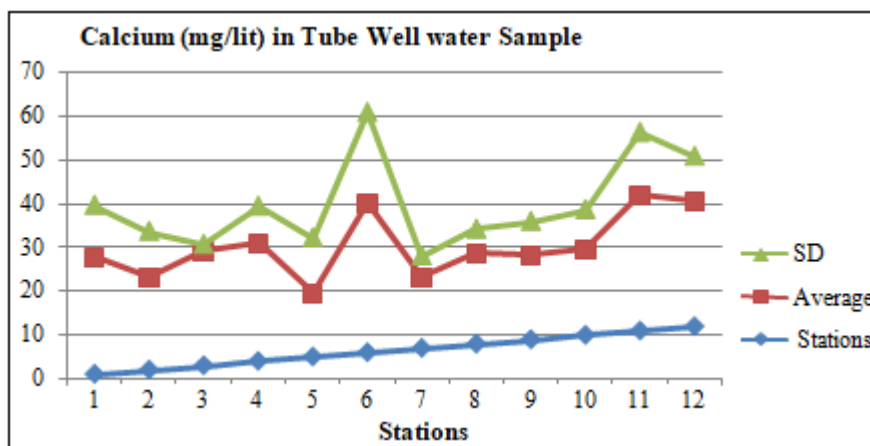


Figure 1: Calcium (mg/lit) in Tube well water sample

Stations	Average	SD
1	26.69	11.96
2	21.33	10.35
3	26.21	1.50
4	26.91	8.57
5	14.60	12.62
6	33.96	20.97
7	16.28	4.74
8	20.74	5.46
9	19.15	7.80
10	19.67	9.02
11	30.86	14.50
12	28.46	10.42

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