

ANALYSIS OF CALCIUM IN KARAVE POND WATER SAMPLE, NAVI MUMBAI

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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 analysed for six month. 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.

INTRODUCTION

Historically it is a good wetland site but due to concepts of modern development it is now converted in to a badly managed water tank which is a place for dumping garbage. 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 karave pond water sample, Navi Mumbai. The pond water samples were taken in twelve glass bottles by following standard procedure.^[3-5] Samples were taken from twelve bottles from karave pond water sample, navi Mumbai. The samples were collected for six months and analysed in laboratory for the levels of CALCIUM.

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 to 13.

The concentration of calcium ions (Ca²⁺) is determined using the following formula.

$$\text{Calcium (mg/lit)} = \text{ml of EDTA} \times 400.08 / \text{ml of sample.}$$

RESULTS AND DISCUSSION

Concentration of calcium in present study ranged from minimal 5.65 mg/lit. To maximal 68.74 mg/lit. In pond water. (Table N0 132) Its average value was higher in winter 29.72 mg/lit.^[6-8], followed in summer 26.08 mg/lit and in rainy season 19.90 mg/lit and in pond water sample (Table N0: 133).

A similar pattern was observed by Varghese et. al. (1992). Higher concentration of calcium was found at Karave pond due to disposal of garbage 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 cattle's, human activities like bathing, washings cloths are the major sources contributing to calcium content in water.^[9-11]

Table 1: Calcium (mg/lit) of karave pond water sample.

Stations	Jan	Feb	Mar	Apr	May	Jun
1	19.84	16.31	20.04	23.26	21.63	24.14
2	23.20	31.75	19.27	24.82	24.18	16.21
3	31.85	27.26	27.26	29.82	16.71	18.05
4	28.07	46.41	32.07	30.70	22.20	37.25
5	59.34	17.65	51.21	44.75	6.41	65.40
6	17.65	4.30	24.05	32.81	5.65	81.50
7	23.20	19.30	20.91	23.27	4.82	24.50
8	20.05	19.15	20.05	18.42	3.26	25.65
9	18.44	17.60	19.26	20.06	6.42	30.72

10	18.50	19.50	17.68	21.81	4.01	26.30
11	19.40	16.30	20.07	17.60	3.22	23.21
12	20.15	21.22	40.09	40.29	35.35	26.16

Stations	Average	S.D
1	19.98	2.60
2	21.51	4.87
3	23.29	6.74
4	30.82	15.36
5	34.48	21.98
6	29.33	19,90
7	22.71	9.77
8	20.10	8.09
9	24.80	13.65
10	18.80	5.36
11	20.91	16.03
12	30.09	17.60

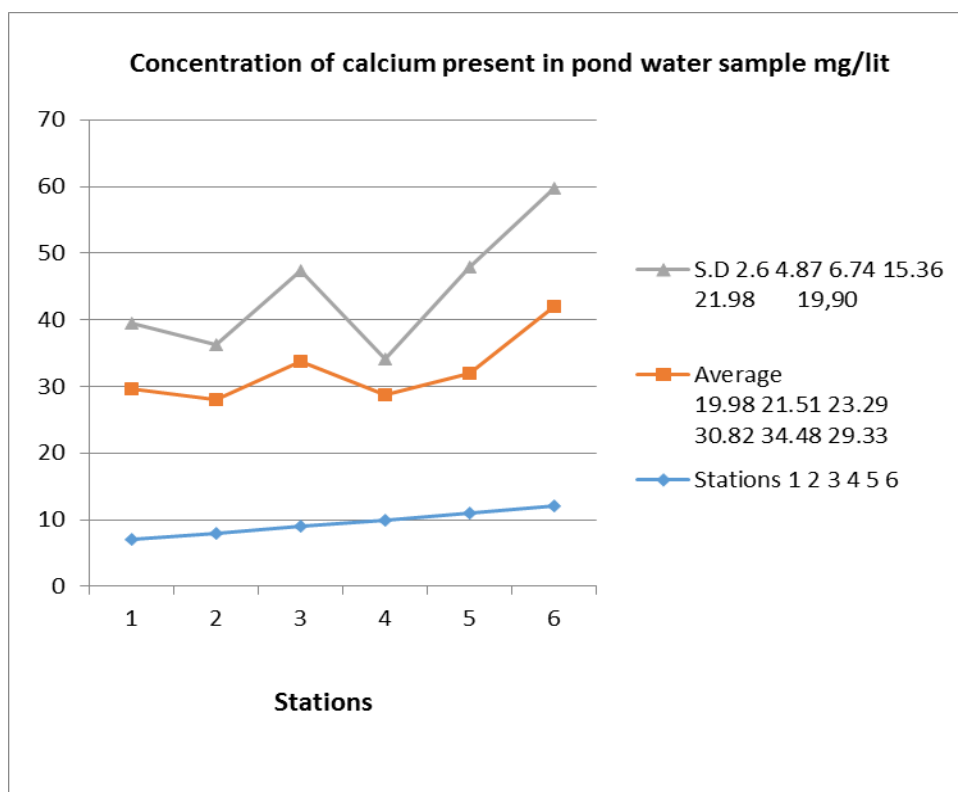


Fig. Concentration of calcium (mg/lit) in pond water sample.

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