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STUDY OF PHYSICO-CHEMICAL PARAMETERS OF THE WATER CHIKLIYA POND DISTRICT BARWANI M.P.

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ABSTRACT

All life living is the source of water. It nourishes aquatic life and rich diversity of plants and animals. Water is a major requirement for industrial and human survival development. Since ancient times, fresh water has always been of immense importance to the people, as its beginnings were his early habitations were within easy reach of settlements, rivers, dams, tanks, ponds and lakes. The utmost importance of fresh water resources has gained immense importance in their conservation. **(1)**The Air temperature of Chikliya Pond ranged between 28°C to 30.5°C during both Five month of study period . The Water temperature 23.5°C to 30°C , Transparency 12cm. to 21cm. pH 7.1 to 8.2 Alkalinity 83 mg/lit. to 268 mg/lit.

Key Word : Limnological Condition ,Physico-Chemical Parameters temperature, pH Chikliya Pond.

Introduction :

The existence of water is an important role for all living organisms. Water is the basic and primary requirement of all life's important processes and life originated first in water itself. Since then, humans have been fully connected to water since prehistoric times. We find this evidence historically. For example, to find settlements on the banks of rivers and to establish industries, and water is the basis of life. Singh at (2006) **(2)** In present time Water is the first requirement for the existence of life. The unbridled exploitation of water for irrigation, drinking and industrial purpose has caused a drastic decline of the important water resources. Physico-chemical analysis of an aquatic system indicates the water quality of that aquatic ecosystem. A number of workers from India and different parts of the world have made great contribution in the field of limnology for a long time.**(3)**

Material and methods:-

Chikliya pond is permanent pond in the present study. This Pond is situated at Chikliya village. This is located on "Barwani - Silawad" road about 35 km away from the Barwani town. The geographical position of the pond is 21°58' 30" latitude and 74°44'00" longitude. Water was analysed by standard methods as described by APHA **(4)**

(1995 and 1998): Trivedi and Goel (1986): **(5)** Welch (1953) **(6)**.. The period of investigation was five month July 2020- November 2020

Temperature:-The temperature was recorded with the help of simple; mercury filled Celsius thermometer having the accuracy of 0.1°C and range of 0°C to 50°C air and water temperature were taken with the help of this thermometer.

Transparency:-

Transparency was measured by a standard such disc of 20cm diameter. The sub - surface disappearance of the disc was measured twice and recorded as Secchi disc transparency in cm

Hydrogen ion concentration (pH):-

The pH of the pond water was measured by systronix battery operated pH meter. The pH meter was earlier calibrated against standard buffer solution of 7.0 pH and 9.2 pH buffers.

Alkalinity:-

It was analysed titrimetrically with the help of sulphuric acid (0.02N), using phenolphthalein and methyl orange as indicators. Carbonate and bicarbonate were calculated by the methods as give by APHA (1998).

Calculation

$$\text{Phenolphthalein alkalinity (PT) as mg/lit CaCO}_3 = \frac{\text{ml of titrant p} \times 1000}{\text{ml of sample.}}$$

$$\text{Total alkalinity (TA) as mg/lit CaCO}_3 = \frac{\text{ml of titrant T} \times 1000}{\text{ml of sample.}}$$

Observation:-

Monthly fluctuation in physico-chemical parameters of the Chikliya Pond (2020)

S.N.	Parameter	Jul.	Aug.	Sep.	Oct.	Nov.
1	Air temperature	29	29.5	30	30.5	28
2	Water temperature	25	26	29.5	30	23.5
3	Transparency	20	12	17	19	21
4	pH	7.2	7.1	7.6	8.1	8.2
5	Alkalinity	98	123	83	91	168

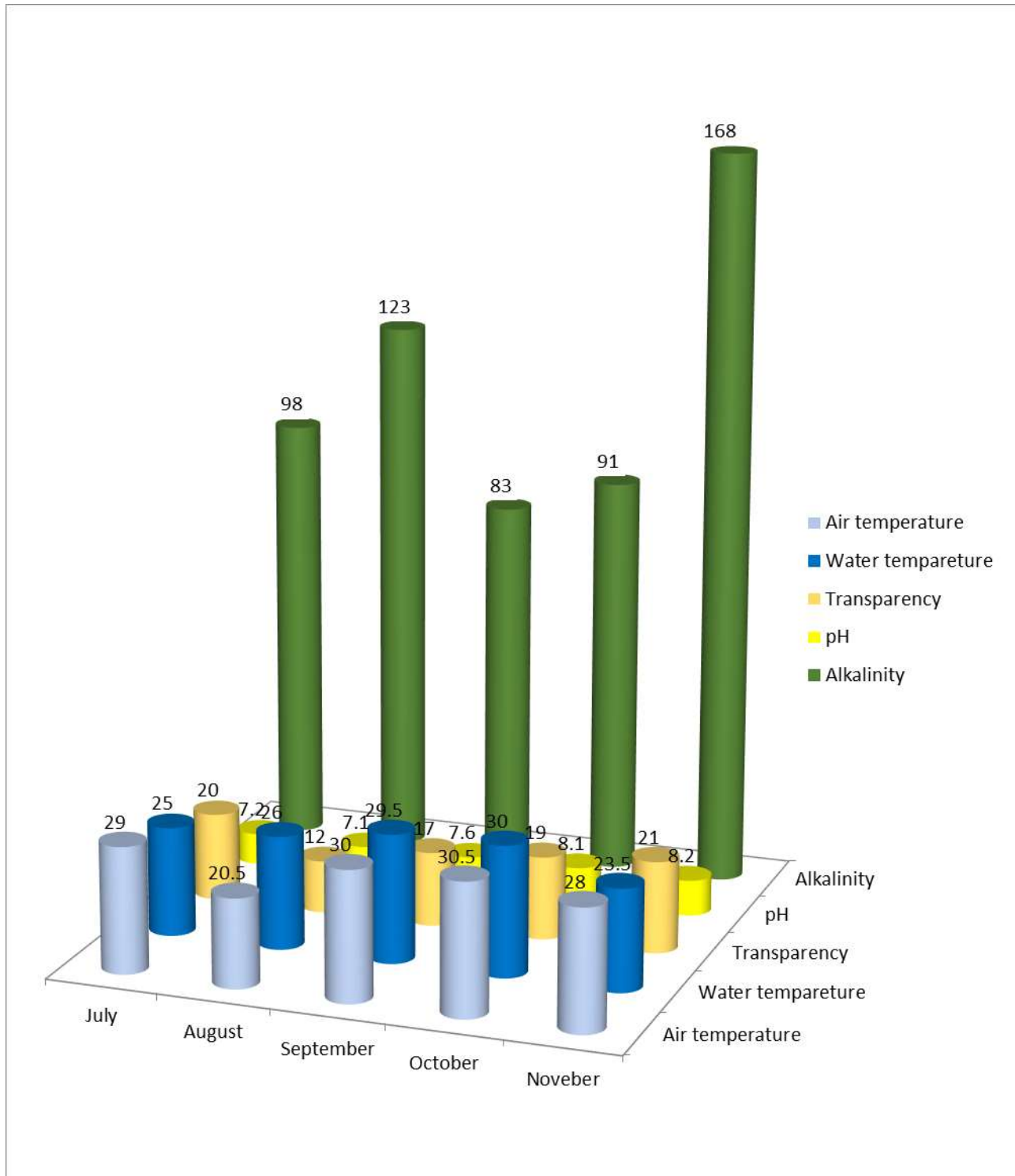


Fig-Monthly fluctuation in physico-chemical parameters graph of the chikliya pond.

Results and Discussion:-**Air temperature: -**

Air temperature of Chikliya pond ranged between 28°C to 30.5°C during both five month of study period. The minimum (28°C) air temperature was observed in November and maximum (30.5°C) was noticed during October. In pond of West Nimar values are comparatively more when compared to other Indian ponds. Singh et al.(1989), Choubey (1990), (7) Rehan et al. (1995). Mahajan & Kanhere 1995) (8) worked on lakes, reservoirs and pond in this part of the country and reported the similar range of water temperature in their studies on Bhopal lake Yashwant Sagar reservoir, Tawa reservoir, Gandhi Sagar reservoir respectively.

Water temperature: -

The water temperature of Chikliya pond ranged between 25° C to 30°C. The minimum (25°C) temperature was recorded in the month July and maximum (30°C) temperature was noticed during October.

Transparency :-

The Transparency of Chikliya pond ranged between 12cm. to 21cm. The minimum (12cm) transparency was recorded in the month of July while the maximum (21cm.) in November. Bhatnagar (1984) and Saha (9) & Choudhary (1985) reported minimum transparency in colder months and maximum transparency in monsoon in lower Lake of Bhopal.

pH: -

The pH of Chikliya pond varied from 7.1 to 8.2 The minimum pH (7.1) was recorded in the month of August while the maximum (8.2) was noticed during November. Mahajan and Kanhere (1995)) reported an annual pH variation range of 7.2 to 8.4 in a subtropical pond and Dhobdiya pond.(10), Singh and Rai (1988) reported pH range of 6.5 to 7.9 in Talab, Chindwara.

Alkalinity: -

The alkalinity of Chikliya pond ranged between 83 mg/lit, to 168 mg/lit. The minimum (83 mg/lit) alkalinity was recorded during September and the maximum (168 mg/lit.) was observed in the month of November. Singh and Rai (1988) reported a range of 81 mg/lit to 113 mg/lit.in Badat Talab. Mahajan and Kanhere (1995) reported a range of 87 mg/l to 115 mg/lit.in Dhobdiya pond. (10)

Conclusion: -

Water is an important component of various kinds of fauna, plants and human life on earth. And by studying the physico-chemical functions of water, it shows that the water is drinkable, and the aquatic animals are capable of rearing. The water purity test is done through various parameters, and water quality is determined.

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