



PHYSICO-CHEMICAL LIMNOLOGY OF KUNSAWALI TANK, OSMANABAD (M.S) INDIA

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ABSTRACT :

The Present communication deals with the study of physicochemical Limnology of Kunsawali tank, Osmanabad (M.S.), India. The work was carried out during the year 2018 (January to December). The physicochemical parameters like Temp. pH transparency, D.O. free CO₂ total alkalinity total hardness chlorides, nitrates phosphates and T.D.S. were studied during one year.

KEYWORDS : *Physicochemical Limnology, Kunsawali tank, Osmanabad.*

INTRODUCTION :

Water quality is an ever changing entity and no water body has a persistently constant water quality in progression of life Human history can in fact be written in terms of interactions and inter relations between human and water. The quality of water in an ecosystem provides significant information about the available resources for supporting life in that ecosystem.

The rapid increase in population overexploitation for different purposes. The quality of water has been deterioration at an alarming stage. The aquatic biota is in danger Zone.

Several investing from abroad and India have contributed in the field of limnology in fresh water The Notable Researches are Brett(1950), Kamat (1956), Goel (1988), Goel and Chuhan (1997), Chavan and Mohekar (1999)

There is no authentic record is available about the limnological aspects of Kunsawali tank, Osmanabad hence the event was undertaken.

MATERIALS AND METHODS

The work was carried out during the period of one year. The temperature of water and pH was recorded on the spot.

The samples were collected in the morning hours monthly and brought to the laboratory for further investigations. The water temp. Was recorded by using mercury thermorneter. The transparency was measured by sachi disc. The pH was measured by hamma maete pH meter

The remaining parameters were analysed by using standard literat are i.e. APHA (1980) Triredy et al (1998) and Kodarkar et al (1998).

RESULTS AND DISCUSSION

The results of physicochemical parameters of Kunsawali tank are given below.

Sr. No.	Parameters	Range
1.	Water temp °C	21 to 39 °C
2.	pH	7.1 to 8.5
3.	Transparency (cm)	41 to 52
4.	D.O. (mg/lit)	4.2 to 7.6
5.	CO ₂ (mg/lit)	1 to 3.2
6.	Total alkalinity (mg/lit)	140 to 180
7.	Total hardness (mg/lit)	100 to 130
8.	Total dissolved Solids (T.D.S.)	205 to 370

- 1) **Water temp:** The water temp. ranged from 21 to 39 c. The temp. in water is basically important for its effect on the chemistry and biochemical function in the organism. It is imp. In the determination of and saturation level of gases in water. A steady rise and fall in the water temp. is attributable to the corresponding in the atmospheric temp. due to increased or decreased solar radiation. The water temp. is maximum in summer and minimum during winter.
 - 2) **pH:** It affects plant metabolism within the cell by affecting the uptake of nutrients and Co₂. The PH varies between 7.1 to 8.5... similar results observed by Sakhare and Joshi (2003), Sathe et al (2000), Rao and Govind (1964) Sreenivas (1965). It is highest in summer lowest in monsoon,
 - 3) **Transparency:** It is useful for assessing primary productivity of the water body. It varies from 41 to 52. It was measured by Sacchi disc. Its highest values recorded in winter and lowest and lowest in rainy season. The similar trend of changes in transparency was observed by Timms and Midly (1970) Singh and Swaroop (1979).
 - 4) **D. O.:** It is a great limnological significance. It regulates many metabolic processes of aquatic organisms. Many chemical and biological reactions are with the participation of oxygen (Goldman and Home 1983). The variation of D.O. ranges from 4.2 to 7.6 The minimum D.O. was in summer and maximum in winter is also reported by Naik and Purohit (1996) and Kauret al (1997).
 - 5) **Free CO₂:** It is generally low and the cone. Is maintained by diffusion from the atmosphere, respiration of animals and plants, bacterial decomposition of organic matter, seepage of in flowing grand water Mishra (1978). In the present study, Co₂ was high (3.2) in rainy season and low (1.5) winter months similar observations made by Khan and Choudhary (1994).
 - 6) **Alkalinity:** It is due to the minerals which dissolve in water form soil, According to Kaur et al (1996) high alkalinity values are indicative of eutrophic nature of nature of water bodies. It ranged between 140 to 180. It was recorded highest in summer and lowest in monsoon similar observations made by Bhardwaj and Sharma (1999), Kumar et al (1997).
 - 7) **Total hardness:** It ranges from 100 to 130 mg/lit. Similar observations were made by Sathe et al (2000). The higher values of total hardness of water was during summer season and lower in winter.
 - 8) **Total dissolved solids:** T.D.S. varies from 205 to 370. The highest values recorded during summer and lowest in winter. T.D.S. can be attributed to high rate of evaporation and consequently decreased water level leading to accumulation of dissolved solids similar finding reported by Paka and Rao (1997).
- From above, observations the water of Kunsawali tank is safe for drinking and Agricultural use.

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