



# Correlation - studies of physical, chemical and biological parameters of Shriram Sagar Project, Pochampad in Monsoon and post-monsoon period

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Manuscript details:	ABSTRACT
<p>Received: 17.09.2018 Revised: 29.10.2018 Accepted: 23.12.2018 Published: 31.12.2018</p> <p><b>Editor: Dr. Arvind Chavhan</b></p> <p><b>Cite this article as:</b> Tamloorkar HL (2018) Correlation - studies of physical, chemical and biological parameters of Shriram Sagar Project, Pochampad in Monsoon and post-monsoon period, <i>Int. J. of Life Sciences</i>, Volume 6(4): 1007-1009.</p> <p><b>Copyright:</b> © Author, This is an open access article under the terms of the Creative Commons Attribution-Non-Commercial - No Derives License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.</p> <p>Available online on <a href="http://www.ijlsci.in">http://www.ijlsci.in</a> ISSN: 2320-964X (Online) ISSN: 2320-7817 (Print)</p>	<p>Correlation study of physical, chemical and biological parameters are divided into two phases/period namely Monsoon and Post-monsoon phase. Physical and Chemical parameters collectively show great influence on Zooplanktons present in the above said water body. From the experimental data it is possible to correlate the fluctuation in the number of Zooplanktons like rotifers, cladocerans and Ostractus per liter.</p> <p><b>Keywords:</b> Correlation, rotifers, physical and chemical parameters.</p> <p><b>INTRODUCTION</b></p> <p>Water plays a key role in different vital activities. Water is inevitable for all living organisms as it has a great social and economical value ultimately affecting human health (Kesre, 2011). Water is extensively used for irrigation, industrial development, hydro-electrical generations, fisheries, human life survival and for domesticated animals. Hence physical, chemical and biological analysis is of prime importance to assess the quality of water for its best uses and also to know the pollutional load on receiving water bodies.</p> <p><b>METHODS AND MATERIALS</b></p> <p><b>1) For physical parameters:-</b></p> <ol style="list-style-type: none"> <li>i) Temperature is measured by Thermometer.</li> <li>ii) Turbidity by Jackson turbidity meter.</li> <li>iii) Colour by Messeters Jar method.</li> <li>iv) Transparency by Ruttner's barrier layer photocells.</li> </ol> <p><b>2) Chemical parameters :-</b></p> <ol style="list-style-type: none"> <li>i) PH by PH meter.</li> <li>ii) Free Carbon dioxide by titrometric method.</li> <li>iii) Dissolved oxygen by wrinkler's method.</li> <li>iv) Carborate &amp; Bicarbonates by titrometric method.</li> <li>v) Zooplanktens by quantitative method, number/liter.</li> </ol>

**Observations:**

The physical and chemical characteristics of the water body - Shriram Sagar Project, Pochampad reflects the Zooplankton's population. In an aquatic ecosystem not only zooplanktons but all biotic communities depend directly or indirectly upon different hydrographic conditions of water. Thus, the study of physical and chemical factors is essential to understand their relationship and relationship with zooplanktons. To get the overall picture of the Shriram Sagar Project, Pochampad observations were computed from monthly concentration in the 1st week of every month.

**Physical Parameters:**

**Temperature:** Temperature varies from 20 to 27°C highest temperature was recorded in the month of June

(27°C) whereas the lowest in the month of November (20°C)

**Turbidity:** It varied from 75 to 144. Highest turbidity was recorded in the month of July (144) whereas the lowest in the month of November (75).

**Colour :** In the months of monsoon it was observed just like tea due to presence of clay and dust flowed in water body where as in the postmonsoon season it was light green in colour due to the formation of algal blooms on the surface water.

**Chemical Parameters:**

pH- it varied from 6.9 to 7.3 Highest pH was recorded in the month of November whereas lowest one was 6.9 in the month of (75) June.

**Table 1.1 indicates Physical parameters.**

Sr.No.	Months	Temp	Turbidity	Colour	Transparency
1	June	27°C	140	Tea colour	Trophogenic
2	July	26°C	144	Tea colour	Compensatory
3	Aug	24°C	140	Tea colour	Tropholotic
4	Sept	25°C	92	Light Green	
5	Oct	23°C	97	Light Green	
6	Nov	20°C	75	Light Green	

**Table 1.2 indicates chemical parameters.**

Sr. No.	Months	pH	Free CO <sub>2</sub> mg/L	Dissolved O <sub>2</sub> mg/L	Biocarbonate carbonate/ Alkalinity	Chloride
1	June	6.9	8	2.20	26.00	300.96
2	July	7.1	30	1.98	6.00	300.87
3	August	7.0	27	1.80	28.00	307.80
4	Sept	7.1	19	3.75	Nil	311.46
5	Oct	7.2	36	3.10	Nil	304.87
6	Nov	7.3	35	3.82	Nil	425.40

**Table 1.3 indicates Zooplanktons monthly variation no/L**

Sr.No.	Months	Rotifers	Copepoda	Cladocera	Ostracocetes
1	June	05	08	06	07
2	July	07	06	04	05
3	August	06	05	04	04
4	Sept	07	04	03	05
5	Oct	11	05	08	10
6	Nov	14	10	09	08

**Free CO<sub>2</sub>:** It varied from 8 to 36 mg/lit. highest CO<sub>2</sub> highest CO<sub>2</sub> was recorded in the month of October (36 mg/lit) whereas lowest CO<sub>2</sub> concentration was 8 mg/lit. recorded in the month of June

**Dissolved O<sub>2</sub>:** It varied from 1.80 to 3.82 mg/lit. highest dissolved O<sub>2</sub> was recorded in the month of November (3.82 mg/lit) whereas concentration was 1.80 mg/lit. recorded in the month of August.

**Carbonate:** It was recorded as Nil in the Monsoon season but in the post-monsoon season it was found to be increased upto 28.

**Chloride:** It varied from 300.96 to 425.40 it was found to be lowest in the month of June (300.96) where as it was highest in the month of November 425.40.

#### Biological parameters:

Rotifers, copepods, cladocera and ostracocetes were recorded in the monsoon period showed the lowest number per liter in the month of July and September but at the onset of the post monsoon period particular in the month of October. their numbers were increased. They were found highest in number the month of November. They were Rotifers (14/lit) Copepods (10/lit), Cladocera(9/lit) and Ostracocetes (8/lit)

#### Discussions:

In the present investigation temperature, turbidity of water showed the co-rrrelation with the temperature increased temperature positive turbidity was found to be increased in the months of Monsoon where as it reduced to lowest in the month of November. Variation in surface of water temperature and pH were also noted by khatri(1980). Our findings are also consistent with the investigation made by him.

With the increase free CO<sub>2</sub> in water there was reduction of Bicarbonate Carbonate alkalinity. An inverse relationship of free CO<sub>2</sub> with carbonate alkanity was found the present work which was also noted by Ganapati(1943) and Rao(1955). But our investigation of bicarbonation carbonate alkanity and free CO<sub>2</sub> is not consistent these observations made by Qadri and Yusuf (1978) and Lal(1981).

In the present study dissolved oxygen content in the surface water wa usually not so high. It is in similarity with the findings of Sarawar(1987) and Nama & Vyas(1988). Negative co-rrrelation between dissolved

oxygen and temperature was observed in the present case but it is consistent with the investigation made by Rao (1955) Sreenivasan(1974) and Khatri(1980).

Zooplanktens like Rotifers, copepods claderans and Ostracocetes were recorded lowest in number in the monsoon period where as highest in the post monsoon period particular in the month of November. Our findings about Zooplanktons are consistent with Reel (2000) also investigated that the Rotifers like Bronchionus, Filina, Keratella and Monostyla were found to be highest (59/lit) in the month of November.

**Conflicts of interest:** The authors stated that no conflicts of interest.

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