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**Research Article**

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**CHEMICAL EVALUATION OF SHIVNA LAWHALI-TAKLI (MEDIUM PROJECT) DAM WATER TQ.-KANNAD, DISTRICT-AURANGABAD, STATE-MAHARASHTRA INDIA.****Shelar Mahendra Devidas\*, Rashmi Dwarkadas Pathrikar**

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**Received: Feb 2015****Revised and Accepted: March 2015****ABSTRACT:**

The article gives us detailed information of chemical parameters of Shivna lawhali-takli (medium project) dam water. In this article we are looking forward for such a inherent studies such of chemical parameters of temperature, dissolved oxygen, calcium, sulphate, chloride, ferrous, cobalt, nickel and phosphate. All these chemical parameters were observed in the seasons of winter, summer and monsoon during the year of 2014-2015. Such a results describes that the situation of this dam water in different seasons of months gives natural environmental fluctuation in the chemical parameters.

**KEYWORDS:** chemical parameters, Shivna lawhali-takli (medium project) dam water, monthly and seasonal variation.

**INTRODUCTION:**

Water quality analysis is important to preserve and protect the natural ecosystem. The Various physico-chemical and biological methods have been carried out water quality management. The study of different water parameters are very important for understanding of the metabolic events in aquatic ecosystem. The quality of surface occurring in the including rivers and reservoir, lakes, depends on their physical, chemical and biological prosperities<sup>[1]</sup>. Sulphate, Chloride, Nitrate, Phosphate were determined monthly variation By using Standard Methods Prescribed By<sup>[2,3]</sup>. The increasing industrialization, urbanization and developmental activities, to cope up the population explosion have brought inevitable water crisis<sup>[4]</sup>.

The health of lakes and their biological diversity are directly related to health. In freshwater bodies, nutrients play a major role as their excesses lead to eutrophication. Excessive macrophytic vegetation is indicative of the eutrophication status of any water body<sup>[5]</sup>. Bhatnagar et al, Studied physico- chemical analysis of some water samples in Rewa city (m.p.), India<sup>[6]</sup>. Kanse et al; Studied the physico- chemical characteristics of flowing water of major rivers in Pune city. The results they obtained in the investigations revealed that the discharge of untreated industrial effluent and sewage have contributed considerable pollution, hence the water of these rivers in unsafe for consumption or human use<sup>[7]</sup>.

Joshi and Shrivastava; studied drinking water quality in Tarai, region of Uttaranchal and found that iron and magnesium were slightly higher at few location as compared to the permissible standard and faecal contamination

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was also noticed in some of drinking water samples<sup>[8]</sup>.

Physico-chemical analysis is the prime consideration to assess the quality of water for its better utilization like drinking, fisheries, irrigation, and industrial use and helpful in to know the complex processes<sup>[9]</sup>. Expanding human population brought about by the opportunities of good water supply, irrigation, fish production recreation and navigation offered by Dam has put enormous pressure and stress on the quality of water impounded by the dam<sup>[10]</sup>.

Water is very essential to the survival of all organisms and The human body is composed of approximately 70% water by mass. Safe drinking water is a human birthright as much a birthright as clean air. An adequate supply of safe and portable water assist in preventing the spread of gastrointestinal diseases supports domestic and personal hygiene and improves the standard of living. However, much of the world's population does not have access to safe drinking water<sup>[11]</sup>.

The most important and life sustaining human drink is hardly found 100% pure in nature due to human activities and other natural factors. Many diseases in developing countries are caused by drinking contaminated water<sup>[12]</sup> And Ibe, et al.<sup>[13]</sup>. This is because dead vegetation, metal leachates from solid waste dumps; leaching of rocks, sewage, industrial wastes and agricultural chemicals return eventually to the river by run offs<sup>[14]</sup>. The quality and quantity of water are affected by an increase in anthropogenic activities and any pollution either chemical or physical causes changes to the quality of the recurring water body<sup>[15]</sup>.

#### MATERIAL AND METHODS:

Herewith the desired results were obtained for the samples were selected from the sites of Shivna lawhali-takli (medium project) dam water in seasons of winter, summer and monsoon. Such samples were collected from 4-5 different locations of sites in early morning between 7 am to 10 am in month from January 2014 to April 2015. The samples

were gathered in the five liter plastic chamber from depth of 7-13 cm below the surface of water.

#### Preparation of water samples:

Such a samples were selected and collected in polythene bottles of capacity five liter in the month early in the morning and evening time. According to dam water sites the desired samples were selected from door sides of dam and from the walls of dam water. Samples were collected from approximately about 8-15 cm below the surface of stagned water.

#### RESULTS AND DISCUSSIONS:

The Shivna lawhali-takli (medium project) dam water is stagned water but due to seasonal changes such as monsoon, winter and summer, the dam water has maximum adaptations. The stagned water has multipurpose utility options such as for farming, local area water supply, fishery and scientific study etc. According to suspended matters the dam water has largest bodies and antibodies. The chemical parameters of the dam water like, Temperature, dissolved oxygen, sulphate, calcium, chloride, cobalt, ferrous and phosphate were investigated by seasonal verification By using Standard Methods described By [19,20].

**Temperature:** The maximum temperature was recorded (29.87 °C) during summer and minimum Value was recorded (19.18 °C) during winter and in monsoon the temperature was (23.64°C) recorded. Dissolved Oxygen

**(DO):** The oxygenation process was due to supplementation of water from photosynthesis of plants. Such a processes maintains there metabolic process of aquatic organisms and maintain aquatic life. The maximum dissolved oxygen was obtained in the range between (5.24±1.02 mg/lit) in the season of winter and minimum dissolved oxygen was observed in the range between (3.25±1.27 mg/lit) in the season of summer days.

**Calcium:** Although we know that in the stagned water always we found minerals of rock water. The maximum amount of calcium was observed in the range between

(14.76±1.33 mg/lit) in the season of winter and minimum amount of calcium was observed in the range between (09.85±3.42 mg/lit) in the season of summer days.

**Chloride:** Chloride it nothing but some salts we may found in stagnered water such as amount of NaCl. The maximum amount of Chloride was observed in the range between (38.84±9.12mg/lit) in the season of summer and minimum Chloride was observed in the range between (27.68±3.81mg/lit) in the season of winter days.

**Cobalt:** According to cobalt that is one of the major transition metal it may be found in the rock minerals because percentages of metals must be there in stagnered water. The maximum amount of **Cobalt** was observed in the range between (18.16±2.24mg/lit) in the season of monsoon and minimum **Cobalt** was observed in the range between (09.30±3.13mg/lit) in the season of summer days.

**Sulphate:** The maximum amount of **Sulphate** was observed in the range between (31.45±2.30mg/lit) in the season of monsoon and minimum **Sulphate** was observed in the

range between (18.53±3.18mg/lit) in the season of winter days.

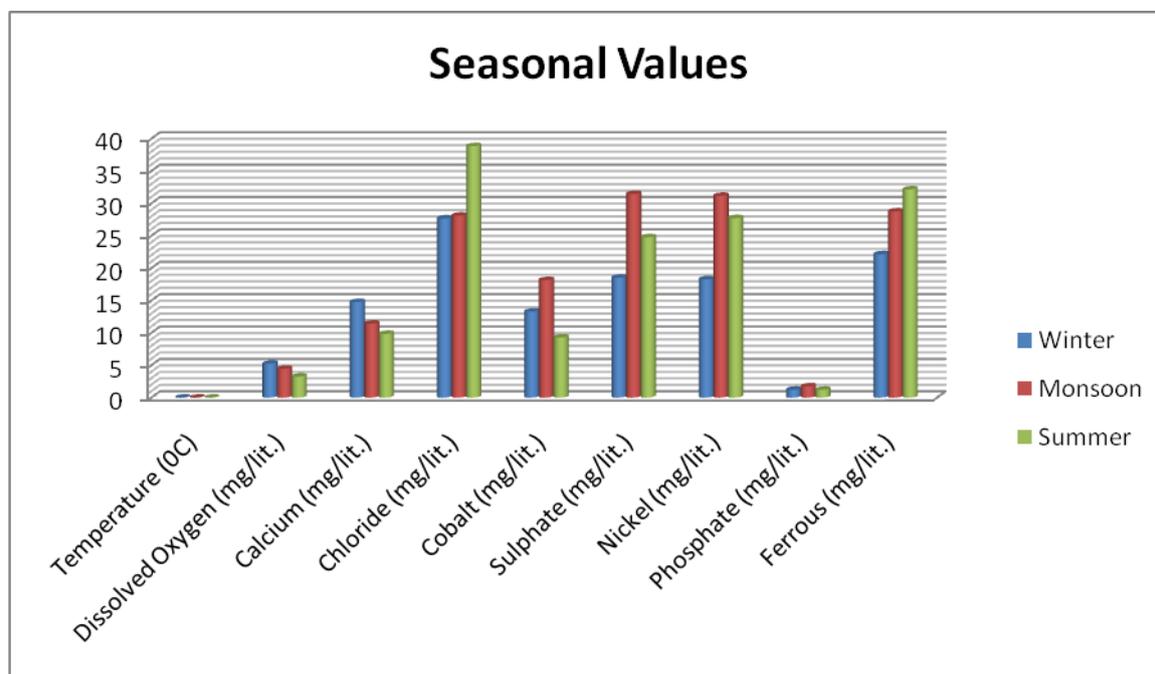
**Nickel:** The maximum amount of **Nickel** was observed in the range between (18.16±2.24mg/lit) in the season of monsoon and minimum **Nickel** was observed in the range between (09.30±3.13mg/lit) in the season of winter days.

**Phosphate:** The maximum amount of **Phosphate** was observed in the range between (1.74±1.14 mg/lit) in the season of monsoon and minimum **Phosphate** was observed in the range between (1.21±1.04 mg/lit) in the season of summer days.

**Ferrous:** The maximum amount of **Ferrous** was observed in the range between (32.16±2.37mg/lit) in the season of summer and minimum **Ferrous** was observed in the range between (22.14±4.16mg/lit) in the season of winter days.

**Table: 1. Chemical parameters of Shivna lawhali-takli (medium project) dam water in seasonal ratio.**

Parameters	Seasons		
	Winter	Monsoon	Summer
Temperature (°C)	19.18 <sup>0</sup> C	23.64 <sup>0</sup> C	29.87 <sup>0</sup> C
Dissolved Oxygen (mg/lit.)	5.24±1.02	4.46±1.16	3.25±1.27
Calcium (mg/lit.)	14.76±1.33	11.44±2.17	09.85±3.42
Chloride (mg/lit.)	27.68±3.81	28.11±7.44	38.84±9.12
Cobalt (mg/lit.)	13.28±1.16	18.16±2.24	09.30±3.13
Sulphate (mg/lit.)	18.53±3.18	31.45±2.30	24.77±1.44
Nickel (mg/lit.)	18.27±5.19	31.17±2.13	27.72±8.09
Phosphate (mg/lit.)	1.22±0.09	1.74±1.14	1.21±1.04
Ferrous (mg/lit.)	22.14±4.16	28.76±3.41	32.16±2.37



**Fig. 1. Seasonal monthly potentiometric values of Shivna lawhali-takli (medium project) dam water.**

## CONCLUSION:

Now a days investigated details shows historical chemical evaluations of water quality parameters of stanged dam water. The seasons of monsoon, summer and winter shows variety of environmental changes of fluctuating results. The water of present in dam due to increment of monsoon rain is applicable for irrigation, fish culture etc. All these water quality parameters shows minerals, nutrients etc. from these excellent results we may further proceed to maintain their future water quality parameters.

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