

STUDY OF SOME PHYSICO-CHEMICAL PARAMETERS OF  
RAMSAGAR LAKE, ARMORI, DISTRICT GADCHIROLI (M.S.)  
INDIA

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**Abstract:**

The increased circulation of toxic metals in recent times resulted in invariable build up of such toxic substances in the human food chain. Heavy metals are rapidly absorbed to particulate materials as like detritus, planktons, suspended sediments and they are assimilated by living organisms. The present investigations aims to study the physico-chemical characteristics limits in Ramsagar lake, Armori of Gadchiroli district of Maharashtra state of India Sulphates, Nitrates, Phosphates, Turbidity, Calcium, Magnesium and Potassium. The analysis shows a low level of these physico-chemical parameters below the permissible limits as the standards given by different health organizations and water quality parameters also in permissible limit as compared to standards given by WHO.

**Keywords:** Some physico-chemical parameters, Ramsagar lentic Ecosystems, Armori.

**Introduction:**

Gadchiroli district of Maharashtra state is known for lakes, rich minerals and thick forests. But most of the water bodies are gradually becoming polluted by the addition of pollutants from the surrounding, thus jeopardizing the aquatic fauna and flora along with the human. Water is prime necessity of life; lots of reservoir to fulfill the requirements of the inhabitants, hence it needs to monitor them by limnological methods. Man uses water for different purposes like domestic irrigation and for generating the electricity in power plants in the industries and disposal of the waste. Our very own survival on earth essentially depends on the water, nature's valuable gift to all life forms. The optimal and sustainable development of the resource is very crucial so that it is accessed reliably to avoid any future problems regarding its qualitative and quantities availability.

**Study Area and Sites: Ramsagar Lake, Armori:**

It is situated 35 Km. away in the north side of Gadchiroli city on Gadchiroli to Brahmapuri road. It is situated at the corner of village, Armori. It is perennial lake of the village, Armori, District- Gadchiroli. Human interference and Idol immersion observed on this site. A large slatternly looking village lying on the road connecting Brahmapuri and Gadchiroli, and distant 15 miles from the former and 21 miles from the latter. It is also connected with Mendki (Chandrapur District) by a good second class road which will ultimately be extended to Talodhi (Chandrapur). It is located on 20° 28' 0" North latitude and 79° 59' 0" East longitude. As it is situated 8 miles of Wairagarh and little further from the western border of the zamindaris, Armori has naturally become the most important mart of the eastern half of the district. Main Vainganga River passes two miles to the west. The manufactures of the place are coarse and fine cotton cloth, country carts, and tasar spinning and weaving at regional tasar centre, at Armori. Ramsagar lake was selected for the study on the basis of its use values and no previous work done on such area.

**Materials and Methods:**

The water samples were collected from all these three reservoirs in pre-sterilized plastic bottles according to standard method of APHA (1995) and by Manivasakam (1984). The samples were analyzed for different physico-chemical parameters as per method, described by Trivedy and Goel (1984).

**Results and Discussion:**

The survey was undertaken to judge the suitability of different effluents in water for the drinking and irrigation purposes. In the present investigation, results of analysis of seven physico-chemical parameters like Sulphates, Nitrates, Phosphates, Turbidity, Calcium, Magnesium and Potasium of this entic ecosystems of Armori of Gadchiroli District of Maharashtra state, India. A details picture on the physico-chemical characteristics of this water body was discussed below.

**Phosphates:** Phosphate have been recorded with minimum value of 16.15 mg/l to maximum value of 21.45 mg/l, may be due to the presence of rocks enriched with phosphates, cloth washing and other mineral deposits. During the natural process of weathering the rocks gradually release the phosphorous as phosphate ions which are soluble in water and the mineralize phosphate compounds breakdown and increase the phosphate concentration.

**Nitrates:** Nitrate ranges from 4.21 mg/l to 42.71 mg/l as the permissible limit for nitrates is 45 mg/l. Lowest value and highest value observed but value observed is permissible limit as compared to WHO.

**Sulphates:** Sulphate value ranges from nil to 21.0 mg/l, where as the permissible limit for a sulphate is 250 mg/l.

**Turbidity:** All samples show very high value to Turbidity and it ranges from 18 to 1000 NTU, where as the prescribed limit is 5.25 NTU to 25 JTU (ICMR). This may be due to high value of suspended solids present in the sample water or may be due mining drainage water from mines.

**Calcium:** Calcium have been recorded with minimum value of 12.79 mg/l to 21.02 mg/l

**Magnesium:** Magnesium have been recorded with minimum value of 5.28 mg/l to 11.0 mg/l

**Potassium:** Potassium have been recorded with minimum value of 0.23 mg/l to 14.50 mg/l.

#### **Conclusion:**

These values are within the permissible limit of BIS (1991). Similar observations were recorded by Kaushik *et. al.* (1997) for different reservoirs in Gwalior regions. All the reported values were under the permissible limits (WHO Standard, 1983). The manganese ranged between 1.60 to 12 mg/L. These values are under the permissible limits (USPH standard 1980). All the values of it were beyond the permissible limits (WHO Standard 1983). All these observations indicates that the water from all these reservoirs is highly potable and without any pollution.

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