



STUDY ON THE PHYSICO-CHEMICAL PARAMETERS OF WATER QUALITY OF ARUVIKKARA DAM, THIRUVANANTHAPURAM DISTRICT, KERALA

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ABSTRACT: The present attempt is to study the physico-chemical parameters of the water quality of Aruvikkara dam viz., temperature, pH, dissolved oxygen, biological oxygen demand, calcium, magnesium, hardness, nitrate, alkalinity, electrical conductivity and sodium of the Aruvikkara reservoir. The study was conducted at five different locations of the dam for one year from February 2013 to January 2014. The study revealed that water quality index of all the stations except the station 3 lies in the range of 26-50 which was good. The water quality index of the station 3 lies in the range of 51-75 which was poor.

Keywords: Aruvikkara reservoir, physico chemical parameters, water quality index

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Water of good quality is required for living organisms. The quality of water resource is usually described according to its physical, chemical and biological characteristics for confirming the good quality of water resources large number of physico- chemical and biological parameters are to be studied in details and must be found in normal range. Assessment of water resource quality of any region is an important aspect for developmental activities of the region because rivers, lakes and man – made reservoirs and ponds are used for water supply to domestic, industrial, agricultural and fish culture purposes.

Aruvikkara located in Kerala, India with coordinate's 8.5677800°N 77.018890°E is a village in Thiruvananthapuram district in the state of Kerala, India. It is located on the banks of the Karamana river 15 km from Thiruvananthapuram city. Aruvikkara dam is one of the main sources of water for distribution in the Trivandrum city.

MATERIALS AND METHODS

The Water Samples from Aruvikkara were collected from five different stations between 8am to 12 pm in sterilised Polythene bottles regularly for every month. The collected samples were immediately brought in to Laboratory for the Estimation of various Physico -

chemical parameters. pH was recorded at the time of sampling by Digital pH Meter. Other parameters were estimated in the Laboratory by using Indian Standard Procedures (Trivedy and Goel (1986), Grasshoff (1983), APHA(1992).

RESULTS AND DISCUSSIONS

Water Temperature: Temperature of water depends upon water depth besides solar radiation, climate and topography. It is the most important factor as it has profound direct or indirect influence on physico chemical, biological, metabolic and physiological behavior of aquatic ecosystem (Welch, 1982).The maximum seasonal average of temperature was 31°C at the station 5 during the pre monsoon and the minimum was 25.5°C at the station 1 during the post monsoon.

Water pH

Water p^H is one of the very significant chemical characteristic of all waters, which explains certain significant biotic and abiotic ecological characteristics of aquatic systems in general. Seasonal average values of p^H ranged between 6.6 at station 3 in the pre monsoon and 7.3 at station 3 in the post monsoon. The pH was within the limits of standard values (WHO, 1985- 7 to8.5).