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## Study of Water Quality Parameters in Different Region of Rajasthan: A Review

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**Abstract:** Water is an essential natural resource for the existence of growth and development of life on the earth. The demand for water has increased over the years, and this led to a water scarcity. This review of literature study is aimed to assess the physicochemical analysis of ground water and surface water quality of different division of Rajasthan state. It is important from this point of view to observe and evaluate the suitability of water for safe drinking, domestic purposes and irrigation. The water quality parameters like pH, TDS, Total Hardness, Total alkalinity, fluoride, NO<sub>3</sub><sup>-</sup>, Chloride, Ca<sup>2+</sup> and Mg<sup>2+</sup> were studied. It is found that some water samples are not suitable for drinking purpose due to high concentration from prescribed value. The problem of safe drinking water in Rajasthan is serious due to the excess of Fluoride, Nitrate, Hardness, Total dissolved solids according review of literature in different division of Rajasthan state. A higher concentration of these ions causes disease to human beings. The high value of these parameters may have health implications, so, this ground water quality is not good for health and therefore, needs attention.

**Keywords:** Water quality, physicochemical parameter, Different Region of Rajasthan

### Introduction

Water is an important ingredient in the universe, making the earth unique and unique from all other planets. It is a most abundant and physical substance on earth. Water is essential natural resources for life and directly or indirectly connected to all process of life of human, plants, animals and environment health. 71% of the earth is covered with water and 29% is part of the land mass. Around 97% of the total water on the earth is sea and oceans water, which is salty and not potable, only 3% can be used for drinking water. About 3% of this total global pure water is roughly 68.7% water on ice caps and glaciers, 30.1% water is groundwater and 0.9% is in the form of surface water. Rajasthan is the largest state in the country having area of 3.42 Lac Sq km, having 10.4% of country's area and 5.5% of nation's population but having only 1% of country's water resources. The state has extreme geographic and climatic conditions due to unavailability of surface water and groundwater because the major source of drinking water. The state population dependent on groundwater is 91% for drinking water.<sup>1</sup> Groundwater is one of the primary sources for drinking and irrigation in Rajasthan state.<sup>2</sup> Rapid urbanization, especially in developing countries like India, has affected the availability and quality of groundwater due to its overexploitation and improper waste disposal, especially in urban areas. According to WHO organization, about 80% of all the diseases in human beings are caused by water.<sup>3</sup> The pollution of water is a serious problem today because all water resources have reached to a point of crises due to unplanned urbanization and industrialization.<sup>4</sup> It is recognized that mankind, animals and plants, all face a variety of problems arising from various kinds of environmental pollution. The excessive and improper use, over exploitation and unwise use of groundwater have depleted groundwater availability, and also made its quality inferior and

source.<sup>5</sup> Once the groundwater is contaminated, its quality cannot be restored back easily and to device ways and means to protect it.<sup>6</sup> This precious source is facing the problems of salinity, fluoride and nitrate contamination in most of the districts of the state. Based on the WHO (World health organization) guidelines for drinking-water quality, about 56% of the water sources are un-potable in the state. About 15 states of India are affected and out of which maximum effect is in Rajasthan. Fluoride and nitrate concentration is beyond the BIS standard. Although fluoride is one of the important life elements to human health and essential for normal mineralization of bones and formation of dental enamel with presence in small quantity, but at a higher concentration i.e. more than 1.5 mg/l might cause harmful effects on human health. Another contaminant which is commonly found in groundwater of Rajasthan is Nitrate. Nitrate pollution is caused by the intensive use of nitrogen fertilizers, crop irrigation with domestic wastewater and use of manure.<sup>7</sup> The physicochemical parameters should be in fixed concentration if out of these more or less than the standard limits, and then it is polluted and will be cause of disease. Water quality is essential parameter to be studied when the overall focus is sustainable development keeping mankind at focal point. Thus poor quality of water is a matter of concern for mankind and for the environment because it is a matter related to human welfare.

### Water Quality Parameters and Permissible Limit of Various Standards

Water quality is very important phenomenon for every human being, plants, animal and whole environment. It is very essential and important to test the water before it is used for drinking, domestic, agricultural or industrial purpose. Water

  
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