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Studies On Physico-Chemical Parameters of Ground Water Quality of Yadgir District of Karnataka

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***Abstract*: Studies on Physico-chemical parameters of ground water quality of Yadgiri district of Karnataka have been taken up to evaluate its suitability for Drinking purpose. Ground water samples well be collected from different Villages of all three talukas of Yadgir district. The quality analysis will be worked out, parameters likes pH, Chloride, Total hardness, Calcium hardness, Magnesium hardness, Dissolved Oxygen, Fluoride, Sulphate, TDS and Alkanity. The water quality Index, Geo-Chemical, GIS, Remote Sensing, Adsorption studies and statistical studies will be carried out.**

***Keywords*: ground water quality, physico-chemical parameters, water quality index, statistical studies, geo-chemical.**

1. Introduction

India is endowed with a rich and vast diversity of natural resources, water being one of them. “Water is nature’s most wonderful, abundant and useful compound”. Groundwater is an important source of water supply throughout the world.

The quantity and the suitability of groundwater for human consumption and for irrigation are determined by its physical, chemical and bacteriological properties.

Its development and management plays a vital role in agriculture production, for poverty reduction, environmental sustenance and sustainable economic development. Groundwater is used for domestic, industrial, water supply and irrigation all over the world.

Rapid urbanization, especially in developing countries like India, has affected the availability and quality of groundwater due to its over exploitation 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. Once the groundwater is contaminated, its quality cannot be restored back easily and to device ways and means to protect it.

Water quality index is one of the most effective tools to communicate information on the quality of water to the concerned citizens and policy makers. It, thus, becomes an important parameter for the assessment and management of groundwater.

2. Materials and Methods

Yadgir is located at 16.77°N 77.13°E. It has an average elevation of 389 meters (1,276 ft). The town is spread over an area of 5.6 square kilometres (2.2 sq mi). Yadgir district borders Jewargi Taluk and Gulbarga Taluk to the north, Chitapur Taluk to the east, lingsur Taluk to the west. The Bhima River flows through the town.

As of the 2001 India census, Yadgir had a population of 1,172,985 people, 51% male and 49% female. Yadgir has an average literacy rate of 53%, lower than the national average of 59.5 percent. The male literacy rate was 63% while the female literacy rate was only 43%, slightly worse than the national literacy gap in gender. 22 percent of the population was under six years of age.

The samples will be collected covering pre-monsoon post-season. The grab samples are collected. Two liters of water samples are collected from each sampling point in a white plastic can and immediately transported to the laboratory for analysis. All the samples were tested in the laboratory to determine physico-chemical parameters such as Chloride, Alkalinity, Dissolved Oxygen, pH, Total Hardness, Calcium, Magnesium, Sulphate, and Fluoride. The methods adopted for the determination of the above parameters are as shown in table 1.

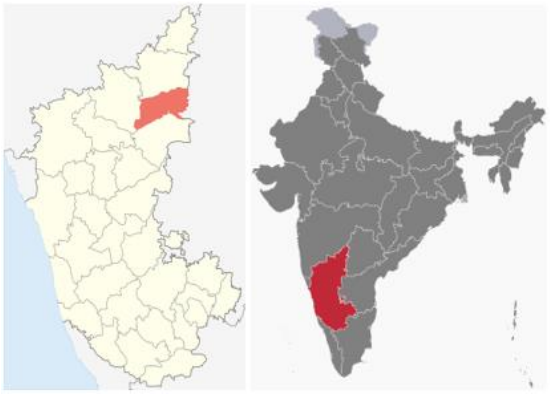

Fig. 1. Study area

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Table 1

Parameter	Method/Instrument adopted
Ph	pH meter pH 700
Total Hardness	EDTA Titrimetric method
Sulphate	Turbidimetric method
Dissolved Oxygen	Winkler's method
Chloride	Argentometric method
Alkalinity	Titrimetric method
Fluoride	SPANDS method

3. Conclusion

Ph, Conductivity, Alkalinity, and Turbidity are found to be within the permissible limits, over the entire study area. Chlorides and iron are also found to be in acceptable limits.

Hardness, calcium and sulphates are found to be more than the permissible limits in the wards covering the entire port area.

Nitrates are found to be in permissible limits except in ward no. 45.

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