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An Overview of Evaluation of Heavy metals pollution index and suitability studies for drinking, agricultural criteria and also study of removal of contamination by using nano particles-A case study of Dobbaspet industrial area surrounding region, Bangalore rural part.

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ABSTRACT

Population growth, urbanization, industrialization, and modernization around the Dobbaspete industrial region are producing sewage disposal issues as well as contamination of surface and ground water. Climate change, rock weathering, mining, industry, plastic debris, glass bottles, and soil leaching all contribute to the contamination of natural water, resulting in major water pollutants. In which kakh of pollution may cause infections, viruses, and health risks such as typhoid, cholera, diarrhoea, dysentery, and water borne diseases, among others. Humans require clean and safe water in order to live a productive life. To obtain this information, examine the following physico-chemical properties of water: PH, Electrical conductivity, total dissolved solids, total hardness, alkalinity, calcium, magnesium, sodium, potassium, chloride, sulphate, nitrate, and fluorides. Turbidity, BOD, COD, acidity, and iron, to name a few... The results were compared to BIS standards and WHO guidelines for physicochemical characteristics. Pollution avoidance and water reuse should be used in conjunction with nutrient recycling in managed rural agriculture, according to the experts.

Key Words: **:** Drinking water quality assessment, physico-chemical parameters urbanization,

INTRODUCTION

Water that is clean and safe is essential for good health and a productive life. The most essential factor in influencing the health of individuals and rural communities is the quality of the water supplied. The issue is. This is especially true in emerging cities like Dobbaspete, where water treatment is lacking in most of the nearby industrial areas. As a result, sewage pollutes surface and ground water, household waste, industrial and agricultural effluents, storm water, municipal waste, organic and inorganic, toxic pesticides, and other compounds including simple nutrients to extremely poisonous substances. Drinking water pollution causes a wide range of ailments and is the most prevalent and pervasive health risk linked with drinking water. The purpose of this study is to determine the physicochemical and microbiological quality of drinking water obtained from various natural sources, such as bore wells and taps, in and around the Dabbaspete industrial region of Bangalore Rural district. The main purpose of this study is to examine the drinking water quality indicators in order to verify that the water is safe to drink and use in agricultural Cretiera.

PHYSICO-CHEMICAL PARAMETERS

Testing water before it is utilized for drinking, residential, agricultural, or industrial purposes is extremely important. Different physicochemical parameters must be tested on water. Water contains a variety of pollutants, including floating, dissolved, suspended, microbiological, and bacteriological impurities. Physical tests for temperature, pH, turbidity, TDS, and other physical characteristics should be conducted, while chemical tests for BOD, COD, dissolved oxygen, alkalinity, hardness, and other characteristics should be conducted.

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OBJECTIVE AND SCOPE

The utility of groundwater is determined by its quality. Typically, industrial areas encounter numerous challenges as a result of industrial effluent discharge. It has an impact on the soil, sediment, and groundwater quality in the area. Preventive actions must be implemented to ensure a source of uncontaminated groundwater for drinking and agricultural use in order to meet society's water needs. With the above parameters in mind, this study attempted to analyze groundwater quality in and around Dobbaspet's industrial sector.

The study's goals are as follows:

1. Determination of several groundwater quality parameters in the Dobbaspet industrial area
2. Chemical and physico-chemical parameters
3. Interpreting the results using appropriate graphs such as Wilcox diagrams and USSL diagrams
4. to determine whether it is suitable for irrigational methods
5. Using graphs such as the Gibbs Diagram to examine the region's rock-water interaction
6. Hadrochemicalfacies in groundwater are depicted in a trilinear figure.
7. Carrying out a correlation analysis to determine the interdependencies of various factors.
8. Heavy metal analysis and biological tests
9. Evaluation of the research area's soil.
10. Nanoparticles are used to remove excess contaminants.

METHODOLOGY

• For the Physicochemical assessment, water samples will be obtained from the study region.

• A GPS sensor will be used to record the locations of water samples.

• Water samples will be collected in 1-liter polythene cans and transported to the lab for physicochemical testing.

• Water samples will be tested for physical and chemical parameters such as pH, Electrical Conductivity, Total Hardness, TDS, Calcium, Magnesium, Sodium, Potassium, Iron, Carbonates, Sulphate, Bicarbonates, Nitrate, Fluorides, Heavy Metals such as Zinc, Copper, Lead, and others using BIS:10500-2012 standards.

• Water sample data will be interpreted by using correlation and drawing appropriate graphs such as Trilinear diagrams, Gibbs diagrams, USSL diagrams, and Wilcox diagrams.

• Using nanomaterials to treat tainted water from industrial waste

EXPERIMENTAL

Bharathipura, Channathimmayanapalya, Nidavand, Pemanahalli, Thimmanayakanahalli, Thattekere, Chandanahosahalii, Thandya, Honenahalli, Bharagenahalli, and Kengalkempalli collected a total of 50 water samples (surface water samples, groundwater samples, bore wells, and taps) at Dobbaspete and nearby villages, industries in The inductively coupled plasma method was used to analyze heavy metals. A pH meter was used to detect the pH of water samples, and a conductivity meter was used to measure conductivity (Systronics).

DISCUSSION

Physical, biological, and chemical changes in water quality are reflected in physical, biological, and chemical conditions, which are influenced by physical and anthropogenic activities. Some substances, such as iron, ammonia, nitrates, and arsenic, are harmful to human health. Waterborne disease transmission is still a big concern, despite international efforts and contemporary technology being used to produce safe drinking water.

The pH of receiving water is affected by a wide range of pollutants, including point and non-point natural sources of water pollution from industry, agriculture, and home behaviors. Water with a pH of less than 6.5 can cause metal pipes to corrode, releasing harmful metals such as Zn, Pb, Cd, and Cu, whereas water with a pH of more than 8.0 can interfere with the disinfection process.

Water hardness is primarily caused by dissolved calcium and, to a lesser extent, magnesium.

Natural sources of calcium and magnesium include sewage and industrial waste. Scum production and the need for extra soap to make lather are the main effects of hardness.

Chloride can be used as a pollution indicator. Natural sources, sewage, industrial effluents, and saline intrusion in urban runoff all contribute to chloride in drinking water. High chloride concentrations in combination with nitrate or ammonium usually indicate that the water has been contaminated by household natural sources. Metals in the distribution system are corroded by high chloride concentrations, especially in low-alkalinity waters.

CONCLUSION

The results of the physiochemical examination of water samples were compared to national standards, WHO guidelines, and BIS standards. It is critical to conserve natural water sources in order to supply clean drinking water free of solid, organic, and toxic waste contamination. Drinking water quality monitoring is a serious concern in both urban and rural locations.

To maintain and improve the drinking water supply system, strategies such as natural resource protection, treatment, and distribution management should be implemented. Nanotechnology presents the potential of long-term benefits in the form of lower pricing for purifying the world's freshwater supplies and the large expenditures that will follow with safe access to drinkable water in locations where acceptable consumption and sanitation facilities are currently scarce.

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