Assessment of Ground Water Quality and Impact on Health of Balod District in Chhattisgarh

Manoj K. Ghosh* and Sheshkumari Sahu

Department of Chemistry, Bharti Viswavidyalaya, Durg, Chhattisgarh, **INDIA**
Email: ghoshkuniversity@gmail.com

_____

ABSTRACT

Water quality assessment is a crucial part to understand the suitability of groundwater for various purposes, including commercial, irrigation, and drinking uses, across different locations in Balod district of chhattisgarh from september 2021 to Aug 2022 in seasonal variation. The purity of groundwater was evaluated by computing the water quality index(WQI), which combines various water quality criteria under one meter and provides a thorough picture of water suitability. The present study area was conducted in balod distict of chhattisgarh, where lots of borewell and borehole were used to collect groundwater samples. A comprehensive characteristic of physicochemical parameters was measured, including Potential of Hydrogen (pH), Hardness (H), biological oxygen demand (BOD), total dissolved solids (TDS), chemical oxygen demand (COD), electrical conductivity (EC), dissolved oxygen (DO), and concentrations of major ions such as calcium (Ca), magnesium (Mg). Additional, parameters like nitrate, fluoride (F), sulphate (SO$_4$), and chloride (Cl) were investigated to find out the presence of potential pollutants. In this study, ICMR and BIS standards are frequently used for monitoring. The results shows that while the water is not particularly suitable for drinking, it is nevertheless useful for household tasks, bathing, and agriculture, among other things. The physicochemical properties are changeable in different seasons, according to seasonal changes, though.

Graphical Abstract:
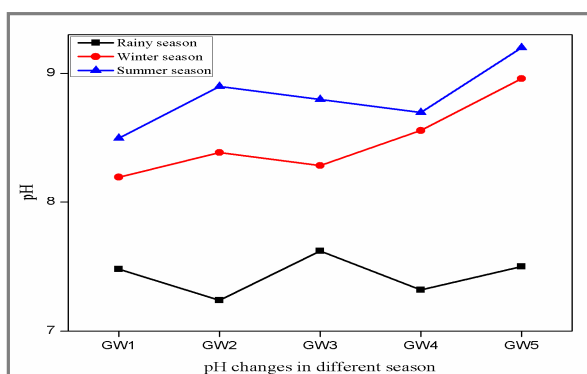
Seasonal variation of PH

Keywords: Water quality Index, Health Impact, Dysentery, Hepatitis, Groundwater.

_____