

## **GEOCHEMISTRY OF GROUNDWATER IN KALWAKURTHY AREA, MAHABUBNAGAR DISTRICT OF ANDHRA PRADESH WITH SPECIAL REFERENCE TO FLUORIDE DISTRIBUTION**

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### **Abstract**

Hydrogeochemical investigations were carried out in Kalwakurthy region of Mahabubnagar District, Andhra Pradesh, covering 290 sq km area. The study area is occupied by grey and pink granites of Archaean age. Fifty six representative groundwater samples were collected and analyzed for pH, EC, Ca<sup>+2</sup>, Mg<sup>+2</sup>, Na<sup>+</sup>, K<sup>+</sup>, CO<sub>3</sub><sup>-</sup>, HCO<sub>3</sub><sup>-</sup>, Cl<sup>-</sup>, TH, TDS, SO<sub>4</sub>, NO<sub>3</sub><sup>-</sup> and F<sup>-</sup>. The results showed that the concentrations of fluoride and nitrate in groundwater are more than the permissible limits prescribed for drinking purposes in some areas. The nitrate concentration in groundwater varies from 1.1 to 112.5mg/l. Studies reveal that nearly 40% of groundwater has more than 45mg/l of nitrate which is the permissible limit. It is observed that the nitrate concentration is more in the Kalwakurthy area. The fluoride concentration in groundwater varies from 0.36 to 2.56mg/l. The fluoride concentration exceeds the desirable limit of 1.0mg/l in 44% of groundwater. In 35% of groundwater, the fluoride concentration is more than 1.5mg/l which is the maximum permissible limit.

*Keywords:* Hydrogeochemistry, Major ions, Fluoride rich groundwater, Distribution maps, Kalwakurthy, Mahabubnagar District, Andhra Pradesh.