

HYDROCHEMICAL CHARACTERIZATION AND EVALUATION OF GROUNDWATER QUALITY IN LINGALA OF KADAPA DISTRICT, ANDHRA PRADESH, INDIA

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Abstract

Hydrochemical investigation on groundwater of Lingala of Kadapa District, Andhra Pradesh to ascertain the suitability of groundwater for drinking and public health purposes. 22 groundwater samples were collected and were analyzed for pH, EC, TDS, TH, Ca, Mg, Na, K, Cl, CO₃, HCO₃, SO₄, NO₃, and F by standard methods recommended by APHA. To ascertain the suitability of groundwater for drinking and public health purposes, hydrochemical parameters of the study area are compared with ISI (1991) standard. The results revealed that the Total Dissolved Solids (TDS) of the groundwater range from 400 to 1100 mg/l in the study area and most of the groundwater falls in hard to very hard category. The mean concentration of cations is in the order Na > Ca > Mg > K, while for anions it is HCO₃ > Cl > SO₄ > NO₃ > CO₃ > F. Groundwater in some samples is contaminated by high concentrations of SO₄, NO₃, and F. Fluoride concentration is recorded in the range of 0.15 to 1.90. 4 samples of the groundwater have more than 1.5 mg/l, of fluoride which is the permissible limit for drinking purposes. Nitrate concentration is found in the range of 5 to 125 mg/l. 3 samples of the ground water has more than 45mg/l of nitrate which is not suitable for drinking purpose. 2 samples of groundwater of the area has more than 400 mg/l of SO₄ which is maximum permissible limit. The analytical data of the groundwater in the study area indicates that groundwater is suitable for drinking purpose with few exceptions.

Keywords: Groundwater quality, Hydrochemisry, Lingala, Andhra Pradesh