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GEOCHEMICAL PARAMETERS FOR ASSESSMENT OF GROUNDWATER QUALITY AROUND URBAN AND SUBURBAN AREAS OF DAUSA CITY IN RAJASTHAN, INDIA

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Abstract

For management of water resources, quality of groundwater is as important as its quantity. In order to know the ground quality and / or its suitability for domestic and irrigation purposes around urban and suburban area of Dausa city in Rajasthan, 20 groundwater samples were collected and analyzed for various parameters in where gological units are alluvium, quartzite and granite gneisses. Groundwater type that predominated in the study area was assessed on the basis of hydro-chemical indices. Chemical indices like percent sodium (Na%), Sodium Adsorption Ratio (SAR), Residual Sodium Carbonate (RSC), Permeability Index (PI) and Chloroalkaline Indices (CAI) were calculated. Sodium hazard values revealed that about 70% of water samples are not suitable for irrigation. Residual sodium carbonate values revealed that 90% of water samples were not suitable for irrigation purposes due to the occurrence of alkaline white patches and low permeability of soil. PI values also revealed that the groundwaters are generally not suitable for irrigation. The positive values of chloroalkaline indices in 90% water samples indicate absence of base-exchange reaction (chloroalkaline disequilibrium) and remaining 10% samples of negative values of the ratio indicate base-exchange reaction (chloroalkaline equilibrium). Further triangular piper diagram for geochemical classification and hydrochemical processes of groundwater indicates that most of the waters are Na^+- HCO_3^- type. All the chemical constituents in study area are on higher side due to local geochemical formations and at few places due to agricultural and domestic activities, so the quality of groundwater is poor.

Keywords: Geochemical parameters, Groundwater quality, Urban and suburban area of Dausa city, Rajasthan.

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