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Assessment of hydro-geochemistry and groundwater quality of Rajshahi city in Bangladesh**Md Golam Mostafa, S M Helal Uddin and M R Hasan**
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The study was carried out to understand the hydro-geochemistry and ground water quality in the Rajshahi city of Bangladesh. A total of 240 groundwater samples were collected in two years, i.e., 2009 and 2010 covering pre-monsoon, monsoon and post-monsoon seasons. Aquifer soil samples were collected from 30 locations during the monsoon in 2010. The physical parameters were pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Total Hardness (TH) and total alkalinity. The chemical parameters included major cations, anions and the heavy metals. The results revealed that the groundwater was slightly acidic to neutral in nature. The total hardness was found to be in the category of hard to a very hard in all the water samples. The bicarbonate and calcium concentration in the groundwater exceeded the permissible limits may be due to the dissolution of calcite of alluvial soils. The concentrations of calcium, iron, manganese, arsenic and lead were far above the permissible limit in most of the shallow tubewell samples indicating the level of contaminants were likely to cause harm to human health. The study found that the major hydro-chemical facies was identified to be calcium-bicarbonate-type (CaHCO_3) water. The rock- water interaction was the major geochemical process controlling the chemistry of groundwater in the study area. The study results revealed that the quality of the groundwater in Rajshahi city area was of great concern and not suitable for human consumption without adequate treatment.

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