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HYDROGEOCHEMICAL CHARACTERISTICS OF SURFACE WATER AND GROUNDWATER WITH SPECIAL REFERENCE TO FLUORIDE IN A PART OF THE MUSI RIVER FLOWING AREA, TELANGANA, INDIA.

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Abstract

Musi River flows through Hyderabad which has a metropolitan population of about 7.75 million, making it the fourth most populous city and sixth most populous urban agglomeration in India and its area covers 2219 km^2 and falls in the Survey of India toposheet No. 56 O/4. The extensive industrial and urbanization activities have resulted in the contamination of Musi River. To study the influence of contaminated river on groundwater, water samples were collected from a part of the river flow area and analyzed for major ions and other parameters. Various widely accepted methods such as sodium absorption ratio, residual sodium carbonate, soluble sodium percentage were used to classify groundwater and surface water (stream) for drinking as well as irrigational purposes. Besides this, Piper (1953) trilinear diagram has been used for hydrogeochemical facies of groundwater and surface water samples were studied. Based on results, it is demonstrated that about 20% of the samples are fluoride affected. Further, the need for water conservation and usage mechanism is identified and this area could be included as a part of the presently implemented Mission Bhagirathi.

Keywords: Groundwater, SAR, RSC, Piper Diagram, Fluoride