



A Study on Distribution of Major ions and Heavy Metals in Drinking Water of Govt. Kallar. Hr. Sec. Schools in Theni, Tamil Nadu, Season wise

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ABSTRACT

Tamil Nadu is one of the water starved states in India. Nearly 73 per cent of the geographical area of the state is occupied by a variety of hard and fissured crystalline rock formations of the Archaean age like Charnockites, granites and associated rocks. The study was undertaken to assess the status of drinking water quality in the rural areas. A total number of eight groundwater samples were taken from Govt. Kallar Hr.Sec Schools in and around Theni District with necessary precaution. Water quality parameters such as Major ions like Calcium, Magnesium, Sodium, potassium, Fluoride, Nitrate, Sulphate, Chloride, Bicarbonate, pH, Total hardness (TH), Temperature, and Some heavy metals such as Cu, Zn, Fe, Ni and Cr have been analyzed during post and premonsoon season of year 2010-2012. Multivariate statistical tools like Box and Whisker plots, cluster analysis and principal component analysis were applied to evaluate the quality of drinking water. There is a relationship between chronic diseases and geologic environment. Many school students and the people consume the water for drinking purpose is affected by dental and skeletal sclerosis on account of the fluoride contamination. Ground water acquires fluoride from natural rock and excess dissolution of minerals during rainy seasons. Seasonal effect in geochemical environment is indeed a significant factor in the serious health problems of school students. This research revealed that drinking water quality is highly affected during post moon than premonsoon on account of dissolution of minerals into ground water during rainy season.

Keywords: Major ions, Heavy metals, Box and Whisker plots, cluster analysis, principal component analysis.
