



Factor Analysis of Ground Water Quality and Its Interpretation

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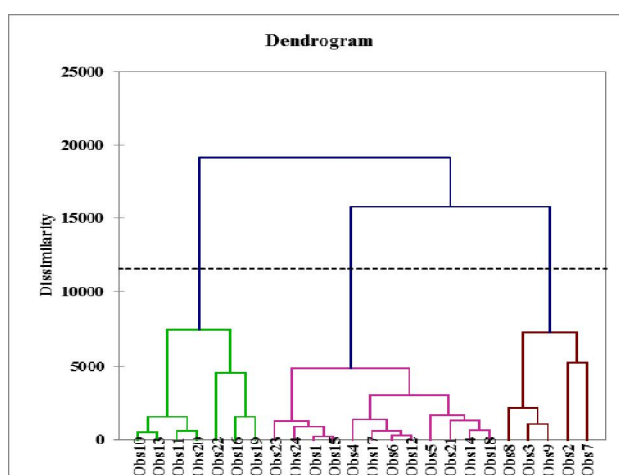
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ABSTRACT

In this study, the factor analysis techniques are applied to ground water quality data sets obtained from the different villages of Kanker North Bastar, Chhattisgarh India. The data obtained were standardized and subjected to Factor extraction to simplifying its interpretation and to define the parameters responsible for the main variability in water quality. The objective is to evaluate the mutual correlations among the various water quality parameters to reveal the primary factors that affect reservoir water quality, and the differences among the various water quality parameters. The factor analysis resulted in three factors explaining more than 60% of the total variation in ground water quality data set. The first factor indicates the variation in water quality is due to anthropogenic sources and second factor shows variation in water quality due to organic sources that are taking place in the system. Finally, the results of factor analysis reflect a good look on the water quality monitoring and interpretation of the ground water. Multivariate statistical techniques are potential tools and provide greater precision for identifying contaminant parameters linkages with groundwater chemistry in the area.

Graphical Abstract:



Dendrogram for 21 samples from cluster analysis in Q-mode

Keywords: Factor Analysis, Ground water, Water quality, Sources of pollution