

**QUALITY CHARACTERIZATION OF WATER RESOURCES OF
WESTERN PART OF HUNSUR TALUK, MYSORE DISTRICT,
KARNATAKA, INDIA USING MULTIVARIATE
ANALYSIS TECHNIQUES**

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Abstract:

In the management of water resources, quality of water is as important as its quantity. Hydrochemical assessment of water quality of surface and groundwater for 58 samples was conducted during post-monsoon season of 2007 from strategic locations in Husnur Taluk. Water quality data were used in conjunction with multivariate statistical technique to identify the key variables. Four components were extracted for surface water which account for 83.85% of the total variance. The first component shows high loading of three variables, SO_4 , Cl and Na, which play an important role in the hydrochemical variation of water quality in surface water. From groundwater samples 4 components were extracted which account for 90.56 % of the total variance. Among the four variables extracted in the first component, TDS shows the highest loading indicating its role in the water quality characterization in groundwater. The main variables causing the high TDS loading is due to the Na, Cl and SO_4 variables. The 'single dominance' nature of the fourth component in PCA indicates non-mixing or partial mixing of different types of groundwater. The findings of the cluster analysis are presented in the form of dendrogram of the sampling stations (cases) which reveals three major groups.

keywords: Multivariate Analysis, Bartlett's test, Varimax rotation.