Study of chemical quality of river water Gargar by graphical methods and multivariate statistical analysis

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Abstract

In most regions, rivers are not only a supplier of various uses of water, but they acts as the natural channels of transmission wastewater and sewage produced, So checking the quality of river water is important. The present study done based on analysis of water quality data at Shooshtar and Bandeqir stations located in Gargar river among 2002 to 2012 in Khuzestan province by drawing diagrams Piper and Wilcox, calculated residual sodium carbonate (RSC), the percentage of sodium occurred, and conducted to determine the trend in the data which has been used by Mann Kendall. To examine the correlation structure and the relationship between variables, method of principal component analysis (PCA) used. The results showed that the water of Gargar was kind of brackish water and it is heading to chloride. In addition, check the water quality of rivers based on RSC and Percent sodium indicated terms of the RSC water quality of stations in both is suitable for agriculture and the percentage of sodium water quality in Shushtar Station is appropriate and in Bndeghir station is unsuitable for agriculture. Study of trend quality parameters indicated Parameters Residual salts, electrical conductivity, bicarbonate, chloride and calcium have a significant ascending trend and Parameters, pH and flow rate have decreased significantly at the 99% level and along the river due to the entry of pollutants into the river and leads to reduce the water quality. In addition, The PCA results indicated the most important water quality parameters in the river Gargari, Parameters are SAR, SO4 and HCO3. baised on land use which is urban, and agriculture. Suggest that the use of fertilizer and agricultural fertilizers and sewage entering the River Shushtar Gargar, determining the cause the most three important parameters in determining the cause as the most important parameter in determining the water quality of the river.

Keywords: Qualitative analysis, Piper, Wilcox, routing, PCA.