

Abstract

The study is primarily focused on the assessment of groundwater quality in the Yatta Plateau of Kitui County. The study focused on the spatial temporal distribution of key chemical parameters namely pH, TDS, Colour, Total hardness, Turbidity, Conductivity, Total alkalinity, Fluoride and Iron. Groundwater samples were collected four times from the six target boreholes found on the plateau in the period between March 2015 and March 2016. The sampling programme covered two dry seasons and two wet seasons. Key physicochemical parameters were analysed using standard laboratory methods. The water samples were analyzed at the Water Resources Management Authority (WARMA) Water Quality Testing Laboratory in Nairobi. The results of the study show that there is no direct relationship between rainfall and variations of groundwater quality in the Yatta plateau. The influence of water abstraction on water quality was also limited. The dominant influence on groundwater quality in the Yatta Plateau was found to be the geological characteristics of the area. It was however found that there was spatial-temporal variability in different groundwater quality parameters that were analysed. The study recommends integrated groundwater resources management including continuous water quality monitoring in the Yatta Plateau in Eastern Kenya.