

Hydrochemistry and water quality index application in
the assessment of groundwater quality in Oyo State,
Nigeria

Timothy Oyebamiji Ogunbode*

Faculty of Basic Medical and Health Sciences,
Bowen University,
Iwo, Nigeria

Email: taogunbode@gmail.com

*Corresponding author

Omowumi Temitayo Akinola

Department of Biological Sciences,
Bowen University,
Iwo, Nigeria

Email: omowumi.akin@gmail.com

Abstract: Groundwater quality assessment and the application of WQI in Oyo State, Nigeria were studied. Twenty five of the 33 LGAs in the State were selected while five villages were randomly selected from each for this purpose. Samples were collected from each of the villages and analysed. The results revealed that the groundwater is generally fit for human consumption by World Health Organisation standard. Weighted average water quality index analysis showed that the groundwater in the 24 LGAs fell in the 'excellent water' while one fell in the 'good water' category indicating its potability. Multivariate analysis showed that four pairs of water quality variables (EC and TDS, EC and NO_3^- , TDS and NO_3^- , Na^+ and K^+) have positive correlations. Only EC and TDS correlate positively with WQI results and so positively influenced WQ analysis results. Regular investigation is recommended for the optimal relevance of WQI in water quality management.

Keywords: water quality index; WQI; groundwater; Oyo State; correlation; hydrochemistry; WQI mapping; Nigeria.

Reference to this paper should be made as follows: Ogunbode, T.O. and Akinola, O.T. (2019) 'Hydrochemistry and water quality index application in the assessment of groundwater quality in Oyo State, Nigeria', Int. J. Hydrology Science and Technology, Vol. 9, No. 6, pp.657–674.

Biographical notes: Timothy Oyebamiji Ogunbode is a Lecturer/Researcher in the Department of Environmental Management and Crop Production, Bowen University, Iwo, Nigeria. He is a PhD degree holder in Geography with specialisation in Environmental Resources Management and Geographic Information System. His areas of research also include hydro-climatology and Water Resources. He is a member of Association of Nigerian Geographers (ANG) and European Association of Geographers (EAG).

