

Accepted Manuscript

Determination of levels of some metal contaminants in the freshwater environments of Osun State, Southwest Nigeria: A risk assessment approach to predict health threat

Yinka Titilawo, Abiodun Adeniji, Mobolaji Adeniyi, Anthony Okoh



PII: S0045-6535(18)31468-1

DOI: [10.1016/j.chemosphere.2018.07.203](https://doi.org/10.1016/j.chemosphere.2018.07.203)

Reference: CHEM 21918

To appear in: *ECSN*

Received Date: 27 February 2018

Revised Date: 9 July 2018

Accepted Date: 31 July 2018

Please cite this article as: Titilawo, Y., Adeniji, A., Adeniyi, M., Okoh, A., Determination of levels of some metal contaminants in the freshwater environments of Osun State, Southwest Nigeria: A risk assessment approach to predict health threat, *Chemosphere* (2018), doi: 10.1016/j.chemosphere.2018.07.203.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

1 **Determination of levels of some metal contaminants in the freshwater environments of**
2 **Osun State, Southwest Nigeria: a risk assessment approach to predict health threat**

3 *Yinka Titilawo^{1,3}, Abiodun Adeniji^{1,2}, Mobolaji Adeniyi⁴ and Anthony Okoh¹

4 ¹SAMRC Microbial Water Quality Monitoring Centre, University of Fort Hare, Alice 5700,
5 South Africa

6 ²Department of Chemistry, University of Fort Hare, Alice 5700, South Africa

7 ³Department of Biology/Microbiology/Biotechnology, Federal University, Ndufu-Alike, Ikwo,
8 Abakaliki, Ebonyi State, Nigeria.

9 ⁴Department of Biological Sciences, Osun State University, Osogbo, Osun State, Nigeria.

10 *Corresponding author email: olayinkatemi@yahoo.co.uk; Telephone: +27 (0) 635655022.

11 **Abstract**

12 This study evaluated levels of heavy metals and macro-elements in ten major rivers in Osun
13 State, Southwest Nigeria. Triplicate water samples collected from selected rivers were analyzed
14 for metal pollutants by atomic absorption spectrophotometry. Concentrations were obtained as
15 follows: iron: 60 – 960 $\mu\text{g L}^{-1}$; manganese: ND – 3 $\mu\text{g L}^{-1}$; chromium 0 – 2100 $\mu\text{g L}^{-1}$;
16 aluminium: 0 – 800 $\mu\text{g L}^{-1}$; copper: 0 – 1350 $\mu\text{g L}^{-1}$; zinc: 10 – 650 $\mu\text{g L}^{-1}$; calcium: 6400 –
17 232000 $\mu\text{g L}^{-1}$ and magnesium: 2000 – 71000 $\mu\text{g L}^{-1}$ but lead was not detected. While most of
18 the parameters fell within the threshold values for drinking water, iron, chromium, aluminium
19 and calcium exceeded at some locations. The pollution order of the rivers, especially with heavy
20 metals had the order: R8 > R3 > R2 > R5 > R10 > R6 > R4 > R1 > R7 > R9; which implies that
21 R8 and R3 are the most polluted. The health risk assessment results revealed that hazard quotient

Download English Version:

<https://daneshyari.com/en/article/8850341>

Download Persian Version:

<https://daneshyari.com/article/8850341>

[Daneshyari.com](https://daneshyari.com)