

ENVIRONMENTAL TOXICOLOGY AND ECOLOGICAL RISK ASSESSMENT

October 19-20, 2017 | Atlanta, USA

Ecological risk assessment of selected elements across spatial distribution in sediments of the river Nun in the Niger Delta region of Nigeria

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The ecological risks of some fractionated toxic elements (Pb, Cu, Cr, Cd, Zn and Ni) were assessed in sediments of the river Nun within the Niger Delta region of Nigeria. Twelve sediments were collected randomly within the main channels and shoreline of the river system to reflect the oil and gas activities that characterize the river system, while two sediments were collected several kilometers away from the point sources to serve as control. The samples were prepared and analyzed using atomic adsorption spectrometry. Ecological risk index was calculated following standard procedure. The mean of the control values was used as background reference levels. Contamination factors of study metals revealed moderate contamination, the index of geo-accumulation depicted from not polluted to moderately polluted, potential ecological risk index showed low potential ecological risk while the sum of pollution index revealed low level of contamination for Cr and Zn, moderate level of contamination for Pb, Cu and Ni, with high degree of contamination for Cd. However, results of the sum of pollution index may not be limited to activities of the numerous oil and gas companies in the region as the river is prone to the indiscriminate and uncontrolled discharge of municipal wastes and the activities of illegal oil refineries along some of its estuaries.

Biography

Ayobami Aigberua is a PhD student supervised by Dr. Timi Tarawou at Niger Delta University, Wilberforce Island, Nigeria. He holds MSc in Analytical and Environmental Chemistry (Distinction) from Niger Delta University between 2012 till date. He has quite number of impressive research and publication record in the field of Applied Environmental/Analytical and Biological Research including, Environmental Treatment Techniques, Risk Assessment and Pollution studies (i.e water, sediment and soil). He has three publications in both international and national journals with another three in press. His research interest had previously focused on environmental biotechnology and pollution treatment techniques, but, currently his research is tending towards heavy metal speciation studies in bottom sediments of Nigerian rivers, most prone to environmental pollution and the attendant release of mobile and labile inorganic metals to the aquatic biota, environmental/health risk assessment and aquatic food toxicity. His research interest is also focusing on the effect of indiscriminate discharge of numerous effluent types across the water ways especially in the Niger Delta region of Nigeria.

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