12<sup>th</sup> International Conference on

## **ENVIRONMENTAL TOXICOLOGY AND ECOLOGICAL RISK ASSESSMENT**

October 19-20, 2017 | Atlanta, USA

## Ecological risk assessment of heavy metals in cassava mill effluent contaminated soil in rural community in the Niger Delta, Nigeria

Sylvester Chibueze Izah, Sunday Etim Bassey and Elijah Ige Ohimain Niger Delta University, Nigeria

N igeria is the World leading producers of cassava. During processing, large volume of water is generated and discharged into the environment without any formal treatment. Cassava mill effluents typically affect the ecology of the receiving environment (soil and water) and their associated biota. It also affects the productivity of the receiving ecosystem. This study investigated the ecological risk assessment of heavy metals in cassava mill effluent contaminated soil in rural community in the Niger Delta, Nigeria. The soil samples were obtained from cassava mill effluent contaminated soil using soil auger from five locations from November 2016 to March 2017. The samples were processed, digested and analyzed using Flame atomic adsorption spectrophotometer at different wavelength depending on metal of interest. 50% of mean detected metals were considered for the location that the metals were not detected for each location. The background values of the soil were considered under two scenarios viz: geometric (BGM) and median mean (BMM). The Ecological risk index was calculated following standard procedure. Heavy metal analysis showed the presence of Iron, chromium, cobalt, manganese, lead, nickel, zinc and copper and absence of cadmium. Contamination factor were between low to moderate contamination for the detected heavy metals. The results of the potential ecological risk (ER) and Ecological risk index (ERI) of heavy metals showed low risk under both scenarios. The distribution of the heavy metals based on potential ecological risk were in the order; lead>nickel>copper>cobalt>chromium>zinc>manganese (BMM) and lead>copper>cobalt>nickel>chromium>zinc>manganese, Though, no ecological risk associated with cassava mill discharged into the environment, but the moderate contamination showed the need for treatment prior to discharge.

## Biography

Sylvester Chibueze Izah is a PhD Student supervised by Dr. Sunday Etim Bassey and Prof. Elijah Ige Ohimain at Niger Delta University, Wilberforce Island, Nigeria. He holds a Master of Science degree in Applied Microbiology (Distinction) from Niger Delta University. Between 2012 till date, he has an impressive research and publication record in the field of Applied Biology including Bioenergy, Toxicology, Applied Microbiology, Risk Assessment, Environmental Microbiology and Pollution studies (i.e water, air and soil). He has over 100 publications in both international and national journals. His research interest is focused on Bioenergy and Environmental Biotechnology, but currently his research is tending towards environmental/health risk assessment, toxicology, food microbiology and the conversion of food processing waste water into useful products while minimizing the attendant environmental effects.

chivestizah@gmail.com

Notes: