

# Levels and Risk Assessment of Heavy Metals in Soil and Vegetables from Oil Spillage Areas in Gemade Estate, Lagos State, Nigeria

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## Abstract

The levels of nineteen heavy metals have been determined in twelve soil and six vegetable samples [each for *Telfairia occidentalis* (TC) and *Vernonia amygdalina* (VA)] at Gemade Estate using Energy Dispersive X-Ray Spectrometry (EDXRF). Three identical samples in a different area were also collected and analyzed using the same procedure as control. The levels (mg/kg) were in the order Fe > Ti > Ca > Mn > K > V > Cr > Co > Ni > Zn > Sc > Y > Se > Ga > Sr > Rb > Br > As in soil samples. The concentration of the heavy metals in the vegetables, TC and VA ranged from 1.111 to 14.010 and 0.475 to 29520 mg/kg respectively with their values higher than the WHO/FEPA permissible limits and similar studies. The results indicated that no strong significant correlation and difference exists ( $r = 0.552$ ;  $p < 0.05$ ,  $t_v = 0.429$ ) between the levels of the heavy metals and control but samples from the oil spillage areas were slightly enriched in Ca, Cr, Ti, V, Fe, As (with Enrichment factors,  $EF = 1.00 - 1.437$ ) and Br, Co, Mn, Ti ( $EF = 1.00 - 2.16$ ) for soil and plants respectively. The results obtained gave the baseline concentration of these heavy metals in the samples and indicated contamination which could be of serious health concern to residents of such an environment.

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## Speaker Publications:

1. "The Effect of Body weight, Percentage Body fat and Body Mass Index on Adolescent Academic Performance"; *Nature and Science.* / 2010;8(6)
2. "Geochemical characterization of soil samples from gold mining areas using PIXE spectroscopy"; *springer/* 4924–4937(2019).
3. "Isotherm, kinetics, and thermodynamics of arsenic(III) adsorption onto activated carbon"; *Journal of Environment and Biotechnology Research*, Volume 6, Number 1, 2017.
4. "Levels and Risk Assessment of Heavy Metals in Vegetables from Hospital Waste Dumpsite using Energy Dispersive X-Ray Fluorescence Spectrometry", *Innovation and Advancement in Nanoscience and Nanotechnology*, 371010(2019)

[8th Global Summit and Expo on Pollution Control](#); Webinar- August 24-25, 2020, 2020.

## Abstract Citation:

Oyebamiji Oyedele Oketayo, Levels and Risk Assessment of Heavy Metals in Soil and Vegetables from Oil Spillage Areas in Gemade Estate, Lagos State, Nigeria, *Pollution Control 2020*, 8th Global Summit and Expo on Pollution Control; Webinar- August 24-25,2020, <https://pollutioncontrol.global-summit.com/speaker/2020/oyebamiji-oyedele-oketayo-health-and-environmental-physics-research-laboratory-department-of-physics>



## Biography:

Dr Oketayo Oyebamiji is a Senior lecturer in the field of Health and Environmental Physics. He is the head of Health and Environmental Physics Research Laboratory, Federal University Oye-Ekiti, Ekiti State, Nigeria. He has published more than 30 papers in reputed journals and has been serving as the managing Editor of *Fuoye Journal of Pure and Applied Sciences* (FJPAS) and currently the Deputy Dean of the Faculty of Science, Federal University Oye-Ekiti.