VIRTUAL EVENT

International Conference on
Management of Naturally Occurring Radioactive Material (NORM) in Industry
19–30 October 2020   #NORM2020

Contribution ID: **36**   Type: **Poster**

ASSESSMENT OF BASELINE RADIONUCLIDES IN SOIL AND FOOD CROP SAMPLES AROUND PHOSPHATE DEPOSIT IN OSHOSUN, OGUN-STATE.

Records of the baseline concentrations of radionuclides in relevant environmental matrices such as soil, water, and food materials are required before the commencement of mining operations. Baseline data serves as a guide for future environmental impact monitoring and assessment. Deposits of phosphate mineral have been found in Oshosun, a town in Ifo Local Government Area of Ogun State, Nigeria. An assessment of the radiological exposures in Oshosun was carried out before the commencement of mining. A total of thirty-one soil samples and fourteen foodstuffs were collected. They were oven-dried at 110 0C to constant weight, pulverized and sieved. Quantities of the samples, soil (250 g) and foodstuffs (150 g) were sealed in cylindrical sample holders and kept for about 28 days to attain a secular equilibrium between 226Ra and its decay products before analysis using gamma-ray spectrometry. The energy and efficiency calibrations were carried out using a certified method by IAEA. The radiation dose rate was calculated from the measured activity concentrations of 40K, 226Ra and 232Th using Residual Radioactivity (RESRAD) model. The mean activity concentrations of 40K,226Ra and 232Th for soil and foodstuffs were 245.4± 6.3, 146.4±14.7, 68.9 ±4.5 and 140.4±11.6, 47.3±7.6, 28.4±1.9 Bq/kg respectively. The calculated mean annual effective doses due to external exposure to soil and internal exposure to foodstuffs were 0.14 and 0.45 mSv/y respectively. The mean activity concentrations of naturally occurring radionuclides in the samples were below global averages. These baseline values serve as a new set of data and references for monitoring and assessing radiological exposures after the commencement of mining operations in the area.

Author: Dr OGUNREMI , AYORINDE (YABA COLLEGE OF TECHNOLOGY, YABA LAGOS)

Co-authors: Prof. IDOWU, OLUFEMI ABIOLA (FEDERAL UNIVERSITY OF AGRICULTURE, ABEOKUTA); Prof. MUSTAPHA, AMIDU OLALEKAN (FEDERAL UNIVERSITY OF AGRICULTURE, ABEOKUTA)

Presenter: Dr OGUNREMI , AYORINDE (YABA COLLEGE OF TECHNOLOGY, YABA LAGOS)

Session Classification: Session IV - Characterization in Industrial Facilities and in the Environment

Track Classification: NORM Characterization, Measurement, Decontamination