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A Study of Environmental Radioactivity Measurement of selected Kaolin Mining Fields in Kwara, Nigeria

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This article reports in-situ measurements of the gamma dose rates and the activity concentrations ^{238}U , ^{232}Th and ^{40}K , at about 1m above earth over kaolin mining fields in Ilorin-south and Ilorin-west, Kwara, Nigeria. A calibrated high precision and great accuracy RS-125 Super-Spec gamma spectrometer was utilized to perform radioactivity measurements on both minefields. Readings were recorded in 90 randomly selected sample points. For Ilorin-south mining site, 50 sample points were recorded together with their standard error while 40 randomly selected sample points were considered for Ilorin-west mining site. Descriptive statistical investigations of the results were carried out to examine the statistical correspondences between the measured quantities. The results of the activity concentrations showed that the locations are enhanced with ^{40}K compared with ^{238}U and ^{232}Th . The mean values of the estimated radiological hazard parameters are mostly within the recommended global averages. The measured outcomes are presented for further evaluation that can offer understandings on the state of radiological risks of Fufu, Akerebiata and their environments from the perspective of radiation protection. The results in this current work can be used as a significant baseline radioactivity data of these mining fields for future epidemiology and monitoring purposes.

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