

Radiological Health Risk Assessment of Agricultural Soils Around Selected Quarry Sites in Selected States, Nigeria

Soil samples in the agricultural farmland surrounding selected quarry sites in Ondo and Ekiti states was assessed to measure the concentration of ^{238}U , ^{232}Th , ^{40}K using NaI (TI) detector and estimating radiological parameters in order to determine the possible radiation effects to the farmers and member of the public consuming the farm products. Analysis of the result revealed that the average contents of the measured radioelements were 15.19, 31.92 and 1354.15, 16.55, 38.60 and 1185.44, 24.66, 34.25, 1385.89 and 18.10, 37.66, 1242.67 Bq/kg for Iyin, Ita ogbolu, Aaye and Ikere quarry sites, accordingly. The absorbed dose rate in the soil samples ranges from 64.91 nGy/h in Iyin quarry site to 146.88 nGy/h in Aaye quarry site with the mean value of 86.06 nGy/h for the four study locations. The concentration of ^{40}K , the absorbed dose rate, the indoor and outdoor annual effective dose and the excess lifetime cancer risk were higher than the world limit in the study area, predisposing the member of the public in these locations to hazard of radiation exposure. There is the need for constant monitoring of the quarry sites, provision of radiation protective shield for workers mining at the sites, awareness of radiation risks to the farmers and members of the public around the quarry sites.

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