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Evaluation of cancer risk probability due to radionuclide distribution in a major waste-dumpsite in Ijebu Ode, Ogun State using RESRAD code

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The presence of natural radioactivity in the environment contributes to the radiation dose received by humans. Radionuclides could get into ground water through leaching and get transported to man through ingestion. Hence, it is essential to evaluate the activity levels of the primordial radionuclides (^{238}U, ^{226}Ra, ^{232}Th and ^{40}K) present in soils of dumpsites for the assessment of natural radiation dose. In the present study, a total of 15 soil samples were collected from the major waste dumpsite situated at Epe-Ijebu Ode junction. The samples were prepared for spectrometric analysis to identify and quantify the concentration of primordial radionuclides present in the soil samples using a method of gamma ray spectroscopy. RESRAD code was used to simulate the total effective dose equivalent and cancer risk. The sum of the fraction rule used for the calculations generated a value less than unity (1) which is an indication of insignificant radiological risk; the result from the study shows that no remediation will be needed in the study sites for the simulated years. Therefore, the radiological risks to the general population from waste enhanced naturally occurring radioactive materials from a major dumpsite in Ijebu-Ode are considered to be insignificant.