

DETERMINATION OF ABSORBED DOSE RATE AND EFFECTIVE DOSE EQUIVALENT DUE TO NATURAL RADIONUCLIDE PRESENT IN SOIL IN OYO AND OSUN STATE, SOUTH-WESTERN NIGERIA

G. A ISOLA, O. M. ONI M. K. AKINLOYE & A. O. AWODUGBA

Department of Pure and Applied Physics, Ladoke Akintola University of Technology, Ogbomoso, Oyo State, Nigeria

ABSTRACT

There has been great concern about the health risks associated with exposure to natural radioactivity present in soil, thus in this work, the natural radioactivity contents in surface soil of Oyo and Osun state in South-Western Nigeria; which is commonly used as building material and farming were analyzed. The analysis was carried out by means of gamma ray spectrometry using NaI(Tl) scintillation as the detector coupled to PGT, multichannel analyzer 2100R. The radioisotopes identified in the samples of the materials include those of the series headed by ^{238}U and ^{232}Th as well as the singly occurring isotope ^{40}K . The mean activity concentrations of these radionuclides were found to be 23.39 ± 3.20 , 19.37 ± 2.60 and 165.14 ± 7.10 Bq/kg for ^{226}Ra , ^{232}Th and ^{40}K respectively. The mean absorbed dose rate, annual effective dose equivalent and the collective effective dose equivalent were determined from the measured activity concentration of the radionuclide respectively. The results obtained are lesser than the requirement for materials used in bulk amounts

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