

ESTIMATION OF NATURAL RADIOACTIVITY LEVELS IN BEACH SANDS FROM LAGOS, SOUTH-WESTERN NIGERIA

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ABSTRACT

Analysis was done on sand samples collected from six prominent beaches in Lagos coastline of Nigeria that are used as tourist centre for holiday makers and other activities. Recently there has been great concern about the health risks associated with exposure due to natural radioactivity present in our environment. This study investigates the levels of hazards associated with the primordial radionuclides in the unstoppable beach sands. In this context, analysis for natural radioactive isotopes such as ^{238}U , ^{232}Th and ^{40}K in beach sands assayed were carried out using gamma ray spectroscopy NaI(Tl) scintillation detector. The results show the specific activities in the range 31.58 ± 5.20 . to 11.64 ± 2.53 , 53.50 ± 5.40 to 17.6 ± 3.70 and 182.50 ± 3.17 to 67.80 ± 1.6 respectively. The outdoor gamma dose rates were determined by Alarm Dosimeter Geiger counter portable device and measurements were taken in air for two minutes at 1m from the ground. The mean value of absorbed dose rate, annual effective dose, radium equivalent activity, internal and external hazard indices determined due to activity concentrations are: 31.17 ± 4.51 , 38.23 ± 5.53 and 67.15 ± 9.66 , 0.24 and 0.18 respectively. No fallout was detected. The results are within the values found in literature and show that the natural radionuclides in samples of the beach sand do not pose any significant risk to tourists and other holiday makers. Sand from the beaches is also safe for use as construction material, shown the relevance in terms of the radiological quality of the beaches from both human and environmental safety.

KEYWORDS: Natural Radioactivity, Human and Environmental

