

Abstract

A total of 56 samples of raw building materials (26 rocks and 30 sand samples) each weighing 500g were randomly sampled along the riverine for the alternate rainy and dry seasons. Gamma-ray spectrometric analysis of rocks sampled during the rainy season reports an average activity concentration of ^{226}Ra , ^{232}Th and ^{40}K of 22 ± 1.1 BqKg⁻¹, 46 ± 2.3 BqKg⁻¹, and 659 ± 33 BqKg⁻¹ respectively, while the sand collected during the same season revealed a mean activity of 27 ± 1.4 BqKg⁻¹, 49 ± 2.5 BqKg⁻¹ and 824 ± 41 BqKg⁻¹ for ^{226}Ra , ^{232}Th and ^{40}K respectively. A repeat study during dry season reported higher activities for ^{226}Ra , ^{232}Th , and ^{40}K for most samples. The corresponding dose rates and radiological indices estimated from specific activities of ^{226}Ra , ^{232}Th and ^{40}K showed an upward trend as seasons changed from rainy to dry. However, both seasons reported radiation doses below the permissible limits.