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Measurement of Natural and Artificial Radioactivity in Soil at Some Selected Thanas around the TRIGA Mark-II Research Reactor at AERE, Savar, Dhaka

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ABSTRACT

The activity concentration of natural and fallout radionuclides in the soil at some selected Thanas around the TRIGA Mark-II Research Reactor at Atomic Energy Research Establishment (AERE), Savar, Dhaka were measured by using a high purity germanium detector (HPGe). The study revealed that only natural radionuclides were present in the samples and no trace of any artificial radionuclide was found. The average activity concentration of ^{238}U , ^{232}Th and ^{40}K were found to be $37.8 \pm 5.6 \text{ Bq.kg}^{-1}$, $58.2 \pm 11.0 \text{ Bq.kg}^{-1}$ and $790.8 \pm 153.4 \text{ Bq.kg}^{-1}$ respectively. The radium equivalent activity (R_{eq}), absorbed dose rate (D), external radiation hazard index (H_{ex}) and internal radiation hazard index (H_{in}) were also calculated to find out the probable radiological hazard of the natural radioactivity.

KEYWORDS

Natural Radionuclide, Artificial Radionuclide, HPGe Detector, TRIGA Mark-II Research Reactor, Activity Concentration

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