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Radioactivity and dose assessment of naturally occurring radionuclides in terrestrial environments and foodstuffs: a review of Bahi district, Tanzania

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Radioactivity and dose assessment of naturally occurring radionuclides in terrestrial environments and foodstuffs: a review of Bahi district, Tanzania

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ABSTRACT

In this review, the online searchable research articles were scrutinized for the data presented in line with radioactivity and dose estimates from both terrestrial environments and foodstuffs from Bahi district and other parts of Tanzania. The data on natural gamma ray dose rates from Bahi localities were observed with variations among researchers. The observed ranges of radioactivity concentrations (Bq kg⁻¹) in soil were ²²⁶Ra (28.5–57.4), ²³²Th (38.1–521.3), and ⁴⁰K (562.9–665.0). Deep closed water wells with installed pumps from Ilindi and Bahi Mission reported radioactivity concentration of ²³⁸U 3.08 Bq L⁻¹ and Ilindi swamps reported radioactivity concentrations of ²²⁶Ra 15.35 Bq L⁻¹, whereas radioactivity concentrations of ²³⁸U in cereals were within the annual tolerable limits of 0.001–0.02 Bq kg⁻¹. The quantity and accessibility of published studies, as well as the diversity of the data, point to the necessity for additional studies to be carried out in order to obtain comprehensive baseline data.

KEYWORDS:

Radioactivity; Radionuclide; Uranium; Norms; Bahi district