

Distribution of natural and anthropogenic radionuclides in soil samples in recreational zones of Moscow

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Recreational zones play an important role in human life in urban environment. The activities of natural radionuclides and ^{137}Cs were determined by low background γ -ray spectrometry in soil samples collected at two depths (0–5 and 5–20 cm) in 15 recreational zones of Moscow. The average activity concentrations of analyzed radionuclides were 519, 35.1, 29, 1.9 and 8.0 Bq/kg for ^{40}K , ^{232}Th , ^{238}U , ^{235}U and ^{137}Cs , respectively. The distribution of natural radionuclides in soil profiles is almost uniform, while the distribution of ^{137}Cs decreases with depth. A number of radiological indices, namely radium equivalent activity, external and internal risk assessment, gamma-index, annual effective dose and excess lifetime cancer risk were calculated to assess the level of radiological hazard for population. The values of calculated parameters are within the recommended safety limits, showing that soil in studied recreational zones do not pose serious threat to human health.

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