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Radiation contamination in gold mine tailings soil samples using HPGe spectrometry

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An assessment of the radiation concentration in abandoned mines located near settlements in the west of Johannesburg was carried out, and the corresponding radiological indices were determined. In this study, a gamma spectrometer was used to measure the activity concentrations of radionuclides in the soil samples. The activity concentrations for ²²⁶Ra, ²³²Th, and ⁴⁰K were 338.44±3.48, 10.06±0.68, and 126.15±10.90 Bq/kg, respectively. The results revealed that the average activity concentrations at some locations exceeded the world average for some of these nuclides.

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