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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 $\langle \sup 226 \langle \sup Ra, \sup 232 \langle \sup Th, and \sup 40 \langle \sup K$ 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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