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RADIOACTIVITY MEASUREMENT AND RADIOLOGICAL HAZARD ASSESSMENT OF THE COMMONLY USED GRANITE AND MARBLE IN JORDAN

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Abstract: Natural radioactivity of common commercial marble and granite types used in Jordanian dwellings are measured using highresolution gamma spectrometry. The activity concentrations of 226Ra, 232Th and 40K ranged from 8.57 ? 1.55 to 152.07 ? 3.26 Bq kg?1, 6.83 ? 1.25 to 365.43 ? 4.84 Bq kg?1 and 121.25 ? 9.10 to 1604.90 ? 31.28 Bq kg?1 in granite and from 0.53 ? 0.12 to 18.61 ? 1.60 Bq kg?1, 0.51 ? 0.19 to 4.87 ? 2.13 Bq kg?1 and 3.21 ? 0.96 to 58.09 ? 6.40 Bq kg?1 in marble, respectively. Various radiological hazard indices like gamma index, internal and external hazard indices and annual effective dose equivalent were calculated and compared with the international limits. Our results show that some granite types may pose a radiation hazard.