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^{238}U and ^{232}Th concentrations measured in different medical drugs by using solid state nuclear track detectors and resulting radiation doses to the skin of patients

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Urban populations in Morocco receive free medical drugs as prescribed by doctors in district health centres. To explore the exposure pathway of ^{238}U, ^{232}Th and their decay products to the skin of patients, these radionuclides were measured in various medical drugs by using solid state nuclear track detectors (SSNTDs).The measured concentrations range of ^{238}U and ^{232}Th in the medical drug samples of interest vary from (4.3±0.3) mBq l-1 to (11.1±0.7) mBql^{-1} and (0.49±0.03) mBql^{-1} to (1.3±0.1) mBql^{-1}, respectively. A new dosimetric model, based on the concept of specific alpha-dose and alpha-particle residual energy, was developed for evaluatingradiation doses to skinfollowing the applicationof different medical drugs by patients. The maximum total equivalent effective dose to skin due to the ^{238}Uand ^{232}Th series from cutaneous application of different medical drugs by patients was found to be 2.8 mSv y^{-1}cm^{-2}.

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