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Radiological impacts of petroleum exploration activities in ras qattara area, north western desert, egypt

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The activity concentrations and the associated radiological hazard indices of primordial radionuclides 238U, 232Th and 40K in soil samples of different depths from petroleum well in Ras Qattara area north western desert, Egypt were estimated using gamma-ray spectroscopy system using a closed end-coaxial Canberra N-type HPGe detector of vertical configuration, with 40% relative efficiency and 2.0 KeV energy resolution at 1.33 MeV photons of 60Co. The average soil activities for 238U, 232Th, and 40K were 32.07±2.75, 14.04±3.35 and 297.44±14.05 Bq/kg respectively. The average values of radium equivalent (Raeq), absorbed dose rate (Dout), annual effective dose equivalent (AEDE), annual gonadal dose equivalent (AGDE) and excess lifetime cancer risk (ELCR) were 75.04 Bq/Kg, 35.70 nGyh-1, 0.04 mSvy-1, 251.16 μSvy-1 and 0.15×10-3 respectively. Some other radiological hazard indices such as external hazard index (Hex), internal hazard index (Hin), and representative level index (I_γ) were estimated and were compared with the world average values. Average values for all radiological hazard indices in soil sample of present study are lower than the limit average values recommended by UNSCEAR 2000.

Biography

Mohamed Ahmed El-Zohry has completed his PhD at the age of 36 years from Yerevan State University (YSU). He is the lecturer of physics at the faculty of science, Sohag University. He has published more than 20 papers in reputed journals and conferences with different fields, such as theoretical nuclear physics and radioactivity physics.

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