



Measure the Concentration of Alpha Particles and Gamma Rays to Assess the Risk of Cancer in Abo Griq District Soil

Mohsin Kadhim muttaleb^{1*}, Saif Mohammed Neamah¹

¹Department of physics, college of Science, University of Babylon, Iraq

Abstract : In this study, the level of natural radioactivity and the concentration of radon and thoron were measured for 10 models of Abo Griq district –Babylon soil at a depth of 5 cm and 25cm using the Gamma spectrometer system and the solid state detector. The aim of this study is to assess the health risks associated with the activity of natural radiation and the difference in concentration of radon and thoron if any. The results were that the average concentration of radioactivity for ^{40}K , ^{238}U , and ^{232}Th are $(68.251\pm0.888, 2.433\pm0.138, 2.788\pm0.139)\text{Bq/kg}$ respectively, at a depth of 5cm and $(66.224\pm0.899, 1.918\pm0.128, 4.225\pm0.173)\text{Bq/kg}$ respectively, at a depth of 25cm. And the average concentration of radon gas in soil was $(612.2 \pm 23.007)\text{Bq/m}^{-3}$ in depth 50cm and $(150.743 \pm 12.78)\text{Bq/m}^{-3}$ in depth 100cm. The results were within the limits recommended by the United Nations Scientific Committee on the Effects of Atomic Radiation.

Keywords : Radon,Thoron, soil, natural radioactivity,Gamma spectrometer.