

عنوان مقاله:

Measurement of Natural Radioactivity in Certain Types of Nut Samples in Iraq

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خلاصه مقاله:

Introduction: The present study was conducted to measure the specific activities of ^{226}Ra , ^{232}Th and ^{40}K , in some samples of nuts collected from the local markets in Iraq. In addition, this study sought to calculate the annual effective dose of gamma ray to children and adults. **Material and Methods:** The quantification of radionuclides was accomplished by gamma spectrometry NaI (TI) detector. **Results:** According to the results, the specific activity of ^{226}Ra ranged from 1.39 ± 0.53 to 13.33 ± 1.19 Bq/kg with a mean value of 6.71 ± 1.34 Bq/kg. However, regarding ^{232}Th and ^{40}K , their specific activities had the range values of 0.29 ± 0.09 to 2.43 ± 0.25 and 232.06 ± 8.42 to 376.47 ± 6.26 Bq/kg with the mean values of 1.68 ± 0.50 and 308.57 ± 17.76 , respectively. Furthermore, the mean values of the total annual effective radioactive dose in 10-year-old children and adults were 7.43 ± 0.86 and 54.48 ± 6.32 $\mu\text{Sv/y}$, respectively. **Conclusion:** As the findings indicated, the values obtained for the specific activity of natural radionuclides samples under study were far below the world standard for the ingestion of naturally occurring radionuclide provided by the United Nations Scientific Committee on the Effects of Atomic Radiation (2000) report. The results indicated that the estimated total annual effective radioactive dose in all samples was lower than the value of annual dose limit of 1 mSv/y for public exposure, which is determined by the International Commission on Radiological Protection. Based on the results for each sample, it can be concluded that nut consumption do not expose the Iraqi population to any health risk.

کلمات کلیدی:

Iraq, gamma-ray spectrometry nuts, Radioactivity Risk assessment

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