

**International Conference on Occupational Radiation Protection:
Strengthening Radiation Protection of Workers –Twenty Years of Progress
and the Way Forward**

Contribution ID: 36

Type: **Poster**

Radioactivity levels and the assessment of the associated health hazards at Um Bogma Area, Sinai, Egypt

Radioactivity levels and the assessment of the associated health hazards at Um Bogma Area, Sinai, Egypt
W. M. Abdellah , S.U.El-Khameesy, A. A. Alshamy, H.M.Diab , N. M. Ali

Abstract

As a part of the national survey to evaluate some strategic elements such as U, Mn, Fe, Ca and Zn, we have undertaken a quantitative study to fulfill this target. The concentration of some these elements have high values up to 50%, 18.4%, 10.9% and 4.8% for Fe, Mn, Ca and Zn respectively [1]. Um Bogma area has an open industrial field and is considered to be one of the most rich region in natural resources in Egypt. Therefore, safety rules for workers should be precisely estimated and strictly applied. The concentrations and distributions of natural radionuclides for sedimentary twenty two rock samples from Um Bogma which subdivided into four localities [Abu Zarab (AZ), Sad Elbanat (SB), Talet Selim (TS) and Allouga (AG)] have been measured using gamma spectroscopy technique. The average concentration values of ^{238}U , ^{232}Th , and ^{40}K in the surveyed samples are (696.06 ± 5.9) Bq kg⁻¹ for ^{238}U , (45.4784 ± 1.9) Bq kg⁻¹ for ^{232}Th and (362.13 ± 8.5) Bq kg⁻¹ for ^{40}K . The ratios ^{238}U (^{226}Ra)/ ^{40}K and ^{238}U (^{226}Ra)/ ^{232}Th have been utilized to determine the ^{238}U level of content in the investigated area. Also, these measurements are very important to detect the harmful effects associated with the existing high radioactivity levels in Um Bogma area, Sinai. The radiation hazard parameters, such as absorbed dose rate, the annual effective absorbed dose rate, external hazard index, internal hazard index, and the representative level index were calculated from the measured concentrations of natural radioactivity.

Keywords: X-Ray, Natural radioactivity, Radionuclides, Hazards parameters, Sinai.

Speakers email

wmsra@yahoo.com

Speakers affiliation

Dr.

Name of Member State/Organization

Member state

Primary author: Dr ABDELLAH, Waleed (Egypt Nuclear and Radiological Regulatory Authority)

Co-authors: Prof. EL KAMESY , S. U. (prof.); Dr ALSHAMY, A. A. (Egyptian nuclear material Authority); Dr ALI, N. M. (Faculty of Science, Ain Shams University); Prof. DIAB, H. (Egyptian Atomic Energy Authority)

Presenter: Dr ABDELLAH, Waleed (Egypt Nuclear and Radiological Regulatory Authority)

Session Classification: Session 7. Occupational radiation protection in the workplaces involving exposure to naturally occurring radioactive material, radon, and cosmic rays

Track Classification: 5. Occupational radiation protection in the workplaces involving exposure to naturally occurring radioactive material, radon and cosmic rays