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**EVALUATION OF NATURAL RADIONUCLIDES FOR MICA AND QUARTZ
IN EASTERN DESERT OF EGYPT, USING GAMMA-RAY SPECTROMETRY**

By applying high-resolution γ -ray spectroscopic system, the various radionuclides of mica and quartz samples have been identified quantitatively. The specific activity of ^{226}Ra , ^{232}Th and ^{40}K in 25 mica samples collected from 5 locations and 15 quartz samples from 3 locations of geographical areas located in G. Kadabora in Central Eastern Desert of Egypt, were determined by gamma ray spectrometry with a high-purity germanium (HPGe) detector. This subject is important in environmental radiological protection, since mica and quartz are widely used as raw materials in different industries. The results of analysis for ^{238}U , ^{232}Th and ^{40}K specific activities were found to be higher than the permissible level for all mica and quartz samples. The radium equivalent activities in Bq/kg, dose rate in nGy/hr, external and internal hazards in nGy/yr and also ($^{232}\text{Th}/^{238}\text{U}$) ratios Clark's value s are calculated. From this study, it is clear that G. Kadabora, Central Eastern Desert, Egypt can be considered unsafe to use as raw materials.

Keywords: natural radioactivity, mica and quartz, external hazard index.