## SEDIMENT NATURAL RADIOACTIVITYAND HEAVY METALS ASSESSMENT FROM THE BEACHS OF RAS-GHARIB, RED SEA, EGYPT

Mostafa M.Y.A.<sup>1,3</sup>, Zakaly H.M.H.<sup>1,2</sup>, Uosif M.A.M.<sup>2</sup>, Madkour H.<sup>4</sup>, Issa S.<sup>2,5</sup>, Tammam M.<sup>2</sup>

Ural Federal University, Yekaterinburg, Russia
Faculty of Science, Al-Azhar University, Assuit branch, Egypt
Physics Department – Faculty of Science, Minia University, Minia, Egypt
National Institute of Oceanography and Fisheries, Hurghada, Egypt.
Faculty of Science, Tabok University, Tabok, Saud Arabia
E-mail: mostafa 85@mail.ru

Natural <sup>238</sup>U, <sup>232</sup>Th and <sup>40</sup>K activity in sediment samples from beaches along Ras-Gharib coast has been estimated. Ras-Gharib is a famous coastal city located on Red sea, Egypt. Eighteen sediment samples from 3 beaches were collected and measured with NaI (Tl) gamma spectrometry.

Natural <sup>238</sup>U, <sup>232</sup>Th and <sup>40</sup>K activity in sediment samples from beaches along Ras-Gharib coast has been estimated. Ras-Gharib is a famous coastal city located on Red sea, Egypt. Eighteen sediment samples from 3 beaches were collected and measured with NaI (Tl) gamma spectrometry. The average specific activities are 28±1.9, 24±2.8, and 382±21.4 Bq kg<sup>-1</sup> for <sup>238</sup>U, <sup>232</sup>Th and <sup>40</sup>K respectively. These values are less than the worldwide average of 33, 45 and 412 Bq kg<sup>-1</sup> recommended by UNSCEAR reports [1]. Absorbed dose rate the annual effective dose are calculated 34 nGyh<sup>-1</sup> and 42 µSvy<sup>-</sup> <sup>1</sup> respectively. Eight heavy metals (Fe, Mn, Ni, Co, Zn, Cu, Pb and Cd) have been measured and analyzed by atomic absorption spectrometer (AAS). In some samples, the concentration for the investigated heavy metals exceeds the permissible limits recommended by the Canadian Environmental Quality Guidelines. This indicated that the degree of metals pollution is caused by anthropogenic activities (Terrigenous sediments transported to the marine environment by some wadis in the General Beach area, oil spills as a result of exploration and extraction in General Company of Petroleum) and/or by natural impacts. In general, beaches along the Ras-Gharib coast is safe from natural radioactivity.

1. El-Taher A, Zakaly HMH, Elsaman R. 2018. Applied Radiation and Isotopes. 131:13–22.