MINERALS DETERMINATION AND RADIOLOGICAL RISK CAUSED OF GEOLOGICAL FORMATIONS FROM IRON ROCKS IN WADI ALSAWAWIN, DUBA, SAUDI ARABIA

ALHARBI W.R

Department of Physics, Faculty science, king Abdulaziz University, Jeddah, Saudi Arabia
E-mail: Walharbi@kau.edu.sa

Abstract— Fifteen iron rocks samples collected from wadi ALSawawin, Duba, Saudi Arabia have been analyzed using XRD to to find out the mineral chemical composition. Also, by using the atomic absorption analysis the concentrations of Al,Ca,Fe,K,Mg,Bi, Pb, Th and U were analyzed. Natural radioactivity concentrations were specified using gamma-ray spectrometry based on HPGe. They ranged from 1.89±0.39 to 4.50±0.53 Bqkg-1, from 1.21±0.16 to 3.60±0.56 Bq kg-1 and from DL. to 10.33±1.32 Bq kg-1 for 226Ra, 232Th and 40K respectively. For assessing the potential radiological risks to human health , the absorbed dose rate D , radium equivalent activity Raeq, annual absorbed dose and external hazards Hex have been evaluated and compared the results with the recommended limits from UNSCEAR. All results existing within the recommended values. Which means that the area under study suitable for habitation. It can also be used rocks iron extracted from this area as construction materials.

Keywords— Atomic Absorption Spectrometer, Natural radioactivity, XRD.