



Radionuclide Concentration in Some Environmental Samples from Red Sea Coast And its Associated Health Hazards

A Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَقُلْ رَبِّ زِدْنِي عِلْمًا

In the Name of Allah, the Most Gracious, the Most
Merciful

“..And Say: My Lord! Increase me in Knowledge”

“TAHA/114, the Glorious QurAn”

To

Mother,
Father,
Brothers,
Sisters,
And
Dear Wife.

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CONTENTS

Acknowledgement	.i
Abstract	.ii
Summary	.iii

Chapter 1

Introduction and Literature Review

1.1 Introduction	1
1.2 Principles of Radioactive Transformations	2
1.3 Radioactivity in the Environment	5
1.4 Natural Background Sources	5
1.4.1 Cosmogenic Radionuclides	6
1.4.2 Terrestrials Sources of Radiation	7
1.5 Natural Decay Series	8
1.5.1 Uranium-238 Series	9
1.5.2 Actinium Series	10
1.5.3 Thorium-232 Series	11
1.5.4 Potassium-40	12
1.6 Technologically Enhanced NORM	13
1.7 Man-made Radionuclides in the Environment	14
1.8 Path Ways of Radionuclides in the Environment	15
1.9 Literature Review	17
1.10 Outdoor Radon Concentration	24
1.11 The Aim and Scope of this Study	26

Chapter 2

Theoretical Aspects

2.1 Interaction of Gamma Rays with Matter	28
2.1.1 Photoelectric Absorption	29
2.1.2 Compton Scattering	31
2.1.3 Pair Production	33
2.1.4 Combined Effect	34
2.2 Gamma Rays Attenuation	35
2.3 Radiation Detection and Measurements	37
2.4 Radiation Detectors	38
2.4.1 Semiconductor Detectors	39
2.4.1.1 Germanium Detector	43
2.4.1.1.1 Detector Efficiency	45
2.4.1.1.2 Detector Energy Resolution	46
2.4.1.2 Solid State Nuclear Track Detectors	48
2.4.1.2.1 Track Formation Mechanism	48
2.4.1.2.2 CR-39	49
2.5 Biological Effects of Radiation	51
2.6 Radiation Exposure	51
2.6.1 Internal Exposure	52
2.6.2 External Exposure	53
2.6.3 Gamma and X-Ray Exposure	54
2.7 Radiation Dose	54
2.7.1 Absorbed Dose (D)	55
2.7.2 Equivalent Dose (H_T)	56
2.7.3 Effective Dose (H_E)	57
2.8 Radiation External Hazards	60
2.8.1 Radium Equivalent Activity (Ra_{eq})	60

2.8.2 Absorbed Dose Rate (D_{air})	60
2.8.3 Effective Dose Rate (E_{air})	61
2.8.4 External Hazard Index (H_{ex})	61
2.9 Radiation Internal Hazards (H_{in})	62

Chapter 3

Experimental Work

3.1 General Features of the Studied Area	63
3.2 Samples Collection	64
3.3 Samples Preparation	64
3.4 Devices and Methodology	65
3.5 Gamma Ray Spectrometry	65
3.5.1 Electronic System	66
3.5.2 Detector	69
3.5.3 Shielding	69
3.5.4 Set up of the used Gamma Ray Spectrometer	71
3.6 System Calibration and Characterization	72
3.6.1 Energy Calibration	72
3.6.2 Peak Form and Energy Resolution	73
3.6.3 Efficiency Calibration	74
3.6.3.1 Absolute Efficiency Calibration Method	74
3.6.3.2 Relative Efficiency Calibration Method	76
3.7 Activity Calculation	80
3.7.1 Error Calculations	82
3.7.2 Detection Limits	83
3.8 Quality Control for HPGe Detector Efficiency Calibration	84
3.9 Radon Measurements using CR-39	86
3.9.1 Etching Methodology and its Optimum Conditions	87

3.9.2 Counting of Tracks	88
3.9.3 Calibration of CR-39 Detector	89
3.9.4 Measurements of Radon Exhalation Rates	90
3.9.5 Measurements of Effective Radium Content	91
3.9.6 Measurements of Emanation Power (a)	92

Chapter 4

Results and Discussions

4.1 Part I: Analysis of NORM in Soil samples	93
4.1.1 Radioactivity Concentration Rational Contour Maps	97
4.1.2 Elemental Correlations for NORM in Soil Samples	101
4.1.3 Radium Equivalent Activity	104
4.1.4 Ambient Dose Rates from NORM in Soil Samples	105
4.1.5 Effective Dose Equivalent from Soils	107
4.1.6 Radiation Hazards Indices	110
4.1.7 Quality Control for HPGe Detector Efficiency Calibration	113
4.2 Part II: Laboratory Measurements of Radon Activity	116
4.2.1 Radon Exhalation Rates	116
4.2.2 Effective Radium Content	118
4.2.3 Emanation Power	119
Conclusions	121
References	123
Arabic Summary	
Arabic Abstract	

List of Tables

Table	Title	Page
(1.1)	Natural radioactive series	8
(2.1)	Radiations effects used in the detection and measurement of radiation	38
(2.2)	Radiation weighting factors W_R (formerly termed quality factor) (ICRP, 2007)	56
(2.3)	Tissue weighting factors (ICRP, 2007)	58
(2.4)	Recommended dose limits (ICRP, 2007)	59
(3.1)	Absolute efficiency and yield of selected gamma transitions used in activity calculations	76
(3.2)	Relative intensities of gamma-rays emitted by ^{226}Ra in equilibrium with its daughters	77
(3.3)	Relative efficiency of selected gamma-rays transitions used for activity calculations	80
(3.4)	Characteristics of IAEA-326 reference soil sample	85
(4.1)	The activity concentrations of ^{238}U (^{226}Ra), ^{232}Th and ^{40}K given in (Bq kg^{-1})	94
(4.2)	Elemental correlation between different radionuclides in soil samples	102
(4.3)	Values of Ambient dose rate and Effective dose equivalent from soils	105
(4.4)	External and internal hazard indices, representative level index and the total hazard index values for soil samples	111
(4.5)	Counting efficiencies values using relative and absolute efficiency procedures	113
(4.6)	IAEA-326 measured activities using both relative and absolute efficiency methods	114
(4.7)	Track density, areal exhalation rate and mass exhalation rate values of the soil samples	117
(4.8)	Effective radium content and emanation power values of the soil samples	120

List of Figures

Figure	Title	Page
(1.1)	A schematic diagram of U-238 series	9
(1.2)	A schematic diagram of U-235 series (Actinium)	11
(1.3)	A schematic diagram of the Th-232 series	12
(1.4)	Decay scheme of ^{40}K (Lederer et al, 1977)	13
(1.5)	Environmental path ways of radiation	16
(2.1)	Effects of photon energy and atomic mass number of absorbing medium on dominant γ -ray interaction	29
(2.2)	A schematic representation of the photoelectric absorption	30
(2.3)	The ideal photo-peak created by mono-energetic gamma-rays	31
(2.4)	A schematic representation of Compton scattering process	32
(2.5)	A schematic representation of pair production process	33
(2.6)	linear attenuation coefficient of germanium	35
(2.7)	The different energy bands of insulators and semiconductors	40
(2.8)	Schematics of semiconductor types of HPGe p or n type at the top, Cross sections Perpendicular to the cylindrical axis of the crystal are shown at bottom (Knoll, 2000)	44
(2.9)	Definition of detector energy resolution	48
(2.10)	Comparison between the resolution of NaI (Tl) Scintillator and that of the HPGe detector for the same source	48
(2.11)	A photomicrograph showing etched tracks in a CR-39 (a poly- carbonate) plastic track detector (Khan and Khan, 1989)	50
(3.1)	Map of the studied area showing the locations of the collected soil samples	63
(3.2)	Arrangement of the HPGe detector with liquid nitrogen dewier and lead Shield	70

(3.3)	Block diagram showing the set up of the used gamma ray spectrometry system	71
(3.4)	The energy calibration curve of HPGe detector using standard point sources	72
(3.5)	Efficiency curve of HpGe detector using reference samples containing multiple isotopes	75
(3.6)	Relative efficiency curve of HPGe detector using ^{226}Ra point source	78
(3.7)	Intensity from energy spectra is integral (sum over channels)	80
(3.8)	Typical gamma spectrum of the measured isotopes	82
(3.9)	Arrangement of the CR-39 detector in a cylindrical glass container used as an emanation chamber	86
(3.10)	Schematic construction of the used etching equipment for track revelation	88
(4.1)	The mean specific concentrations of ^{238}U (^{226}Ra) for all studied regions	95
(4.2)	The mean specific concentrations of ^{232}Th for all studied regions	95
(4.3)	The mean specific concentrations of ^{40}K for all studied regions	96
(4.4)	The mean specific concentrations of ^{238}U (^{226}Ra), ^{232}Th and ^{40}K for all studied regions	96
(4.5)	Contour map showing the distribution of ^{238}U (^{226}Ra) concentrations (Bqkg^{-1}) in the studied area	98
(4.6)	Contour map showing the distribution of ^{232}Th concentrations (Bq kg^{-1}) in the studied area	99
(4.7)	Contour map showing the distribution of ^{40}K concentrations (Bqkg^{-1}) in the studied area	100
(4.8)	Correlation between ^{238}U (^{226}Ra) and ^{40}K concentrations in soil samples	103
(4.9)	Correlation between ^{40}K and ^{232}Th concentrations in soil samples	103
(4.10)	Correlation between ^{238}U and ^{232}Th activities concentrations in soil samples	104

(4.11)	Mean values of radium equivalent activity for all studied regions in (Bq/kg)	105
(4.12)	Mean values of the absorbed dose in all studied regions	107
(4.13)	Contour map showing the distribution of Radium equivalent (in Bq kg ⁻¹) in the soils of the studied area	108
(4.14)	Contour map showing the distribution of ambient dose rate (nGy h ⁻¹) in the soils of the studied area	109
(4.15)	Contour map showing the distribution of the total hazard index (H _{ex} +H _{in}) in the studied area	112
(4.16)	Correlation of radium content and exhalation rate for soil samples	119

Abstract

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The specific concentration and activity levels of six main coastal regions (all lies along the Western Coast of Suez Gulf) where studied. Twenty-two soil samples were collected from the investigated regions. These regions are Ain Sokhina, Al Zafrana, Ras Gharib, Ras Shokeir, Gebel El Zeit and Hurghada. Using HPGe γ -ray spectrometry, analysis of the collected samples has been carried out to determine the concentrations of ^{226}Ra , ^{232}Th and ^{40}K in samples. Moreover, radon exhalation rates, effective radium content and radon emanation power were measured by using SSNTDs in the form of CR-39. The obtained average concentrations values of ^{226}Ra , ^{232}Th and ^{40}K were lower than the national and worldwide average values also the average radium equivalent activity value was below the defined limit of 370 Bq/kg. The external and internal hazard indices were found to be less than 1, indicating low radiation doses. Also, it was found that samples have exhalation rates comparable with the worldwide average values. In general the activity levels of the studied regions are within the worldwide average and the public received doses within the safe limit of exposure.

KEYWORDS: Natural activity; HPGe; radon; CR-39; Suez Gulf.