



***The Protective Role of Hesperidin against Some Biochemical
and Trace Element Changes Induced by Gamma Radiation
and / or Acrylonitrile in Rats***

A thesis

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Presented By

Marwa Abd El hameed Mohamed

M.Sc. in Biochemistry, 2008

Assistant Lecturer at National Center for Radiation Research and Technology
(NCRRT)

Atomic Energy Authority (AEA)

Under supervision of

Prof. Dr./ Nadia Mohamed Abdallah

*Professor of Biochemistry
Faculty of Science
Ain Shams University*

Prof. Dr./ Nour El-Din Amin

*Professor of Biological Chemistry
National Center for Radiation
Research and Technology
Atomic Energy Authority*

Prof. Dr./ Mohamed Ragaa Mohamed

*Professor of Biochemistry
Faculty of Science
Ain Shams University*

Prof. Dr./ Ahmed Shafik Nada

*Professor of Physiology
National Center for Radiation
Research and Technology
Atomic Energy Authority*

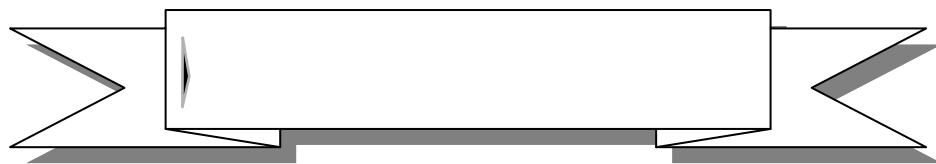
2014

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

اقالوا سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم

صدق الله العظيم

آية (٣٣) سورة البقرة



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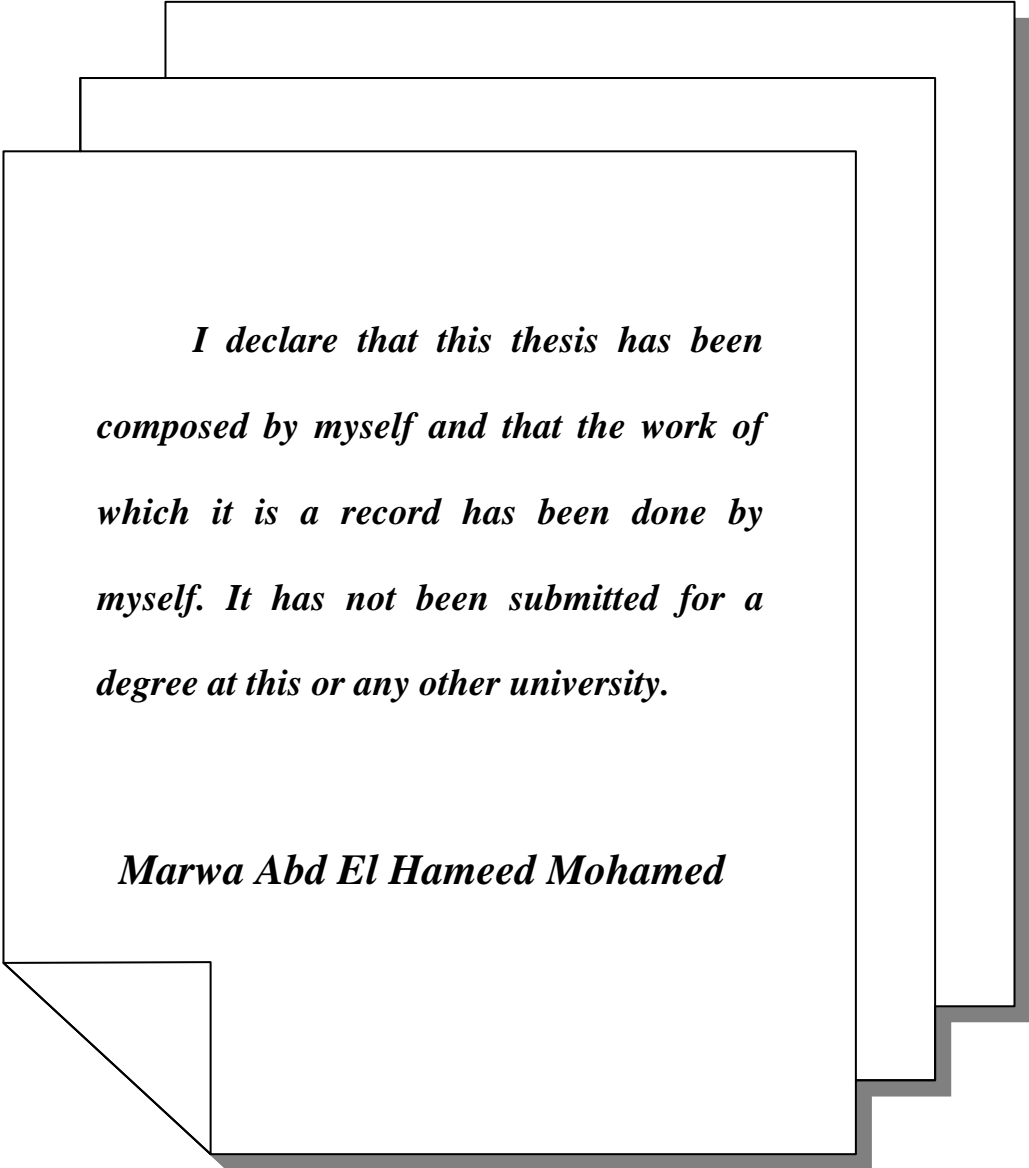
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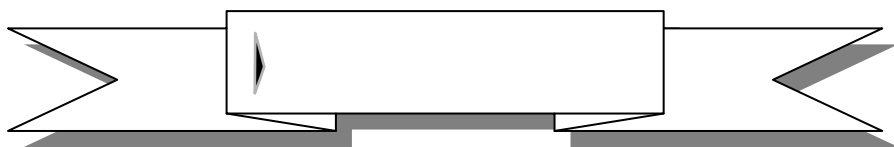
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I declare that this thesis has been composed by myself and that the work of which it is a record has been done by myself. It has not been submitted for a degree at this or any other university.

Marwa Abd El Hameed Mohamed



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List of Abbreviations

ACAT	Acetoacetyl CoA transferase
ALP	Alkaline phosphatase
ALT	Alanine transaminase
AN	Acrylonitrile
AST	Aspartate transaminase
BMD	Bone mineral density
Ca	Calcium
CAT	Catalase
CBC	Complete blood count
CCl₄	Carbon tetrachloride
Cd	Cadmium
CEO	Cyano ethylene oxide
CNS	Centrl nervous system
Co	Cobalt
Cu	Copper
DNA	Deoxyribonucleic acid
EDTA	Ethylene diamine tetra-acetic acid
EH	Epoxide hydrolase
Fe	Iron
GGT (γGT)	Gamma glutamyl transferase.
γ- ray	Gamma irradiation
GSH	Reduced glutathione
GSH-Px (GPx)	Glutathione peroxidase
GSSG	Oxidized glutathione
H₂O₂	Hydrogen peroxide
Hb	Hemoglobin
Hb A1c	Glycated hemoglobin
HCT%	Hematocrit
HDL-C	High density lipoprotein- cholesterol
Hes	Hesperidin
HMG-COA	3- Hydroxy - 3- methyl glutaryl coenzyme A reductase
LDH (LDH-X)	Lactate dehydrogenase

LDL-C	Low density lipoprotein- cholesterol
LPO	Lipid peroxidation
LPS	Lipopolysaccharide
MDA	Malondialdehyde
Mg	Magnesium
Mn	Manganese
MnSOD	Manganese – superoxide dismutase
mRNA	Messenger ribonucleic acid
MTs	Metallothioneins
NADPH	Nicotinamide adenine dinucleotide phosphate reduced
NO	Nitric oxide
RBC's	Red blood cells
RNA	Ribonucleic acid
ROS	Reactive oxygen species
Se	Selenium
SOD	Super oxide dismutase
STZ	Streptozotcin
T2DM	Type 2 diabetes mellitus.
T3	Triiodothyronine
T4	Thyroxine, tetraiodothyronine.
TBA	Thiobarbituric acid
TBARS	Thiobarbituric acid reactive substances
TC	Total cholesterol
TCA	Trichloroacetic acid
TGs	Triacylglycerols
TSC	Total scavenger capacity
UVB	Ultra violet beam
VLDL-C	Very low density lipoprotein- cholesterol
WBC's	White blood cells
Zn	Zinc

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