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Effect of ferulic acid and ellagic acid on rats exposed to gamma radiation and aluminum chloride treatment

**A thesis submitted in partial fulfillment of the requirements for
M.Sc. degree in Biochemistry**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿ قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا

إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ ﴾

صَلَّى اللَّهُ عَلَيْهِ
الْآيَةُ (32) سُورَةُ الْبَقَرَةِ

DEDICATION

**This thesis is proudly dedicated to my
beloved family**

**Thanks for your endless love, prayers,
sacrifices and support**

Enas Abdel Moniem Mohamed

*This thesis has not been submitted
to this or any other university*

Enas Abdel Moniem Mohamed

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LIST of ABBREVIATIONS

Abbreviation	Full name
4-AAP	: 4-Aminoantipyrine
Al	: aluminium
AlCl ₃	: aluminium chloride
ALP	: alkaline phosphatase
ALT	: alanine aminotransferase
ANOVA	: one-way analysis of variance
AST	: aspartate aminotransferase
ATP	: adenosine-5-triphosphate
CAT	: catalase
Cu	: copper
CuZnSOD	: copper zinc superoxide dismutase
DB	: direct bilirubin
DEA	: diethanolamine
DMSO	: dimethyl sulphoxide
DNPH	: 2,4-dinitrophenylhydrazine
DSIC	: distant cell signaling intercellular communication
DTNB	: 5, 5 dithiobis-2-2 nitrobenzoic acid
EA	: ellagic acid
ECSOD	: extracellular superoxide dismutase
EDTA	: ethylene diamine tetra acetic acid
ESPT	: N-ethyl-N-(hydroxi-3-sulphopropil)-p-toluidine
FA	: ferulic acid
Fe	: iron
GGT	: gamma glutamyl transferase
GJIC	: gap junctional intercellular communication
GK	: glycerol kinase
GPO	: glycerol phosphate oxidase

GPx	: glutathione peroxidase
GSH	: reduced glutathione
GSSG	: oxidized glutathione
Gy	: gray
H ₂ O ₂	: hydrogen peroxide
HDL-C	: high density lipoprotein cholesterol
HMG-CoA	: 3-hydroxy-3-methyl glutaryl coenzyme A
LD	: lethal dose
LDH	: lactate dehydrogenase
LDL-C	: low density lipoprotein cholesterol
LET	: linear energy transfer
LPL	: lipoproteinlipase
MDA	: malondialdehyde
MDH	: malate hydrogenase
mGy	: milligray
MnSOD	: manganese superoxide dismutase
NADPH	: nicotinamide adenine dinucleotide phosphate
NBT	: nitroblue tetrazolium
PBS	: phosphate buffered saline
PCC	: protein carbonyl content
POD	: peroxidase
RIAR	: radiation-induced adaptive response
RIBE	: radiation-induced bystander effect
RNS	: reactive nitrogen species
ROS	: reactive oxygen species
Se	: selenium
SEM	: standard error of mean
SOD	: superoxide dismutase
TB	: total bilirubin
TBA	: thiobarbituric acid
TBARS	: thiobarbituric acid reactive substances
TC	: total cholesterol

TCA	: trichloroacetic acid
TG	: triglycerides
TNB	: 5-thio-2-nitrobenzoic acid
VLDL-C	: very low density lipoprotein cholesterol
Zn	: zinc
γ	: gamma

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