Faculty of Science
Zoology Department

Physiological and Molecular Studies on the Effect of Pomegranate (*Punica granatum* L.) Peel and Some of its Bioactive Components against Hyperlipidemia-Induced Atherosclerosis in Male Albino Rats

A Thesis

Submitted in Partial Fulfillment for the Degree of
Master of Science in Zoology

By

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List of Abbreviations

4AAP	4-amino-antipyrine
AC	Atherogenic coefficient
AIP	Atherogenic index of plasma
AMI	Acute Myocardial infarction
ANOVA	Analysis of variance
APA	Aminophenazone
BW	Body weight
$CaCl_2$	Calcium chloride
CAD	Coronary artery disease
CAT	Catalase
CD36	Cluster of differentiation 36
CD68	Cluster of differentiation 68
cDNA	Complementary deoxyribonucleic acid
CE	Cholesterol esterase
CO	Cholesterol oxidase
CPK-MB	Creatine phosphokinase-MB
CRI-I	Castelli's risk index I
CRI-II	Castelli's risk index II
Ct	Cycle threshold
CVDs	Cardiovascular diseases
DHBS	3,5-Dichloro-2-hydroxy benzene sulfonic acid
DHBS	3,5-dichloro-2-hydroxybenzene sulfonic acid
DTNB	5, 5`Dithiobis (2 nitrobenzoic acid)
EA	Ellagic acid
EDTA	Ethylene diamine tetra acetic acid
ELISA	Enzyme-linked immune-sorbent assay
FFA	Free fatty acid
G-6-PD	Glucose-6- phosphate dehydrogenase
GAPDH	Glyceraldehydes-3-phosphate dehydrogenase
GK	Glycerol kinase
GPO	Glycerol phosphate oxidase

GPx	Glutathione peroxidase
GR	Glutathione reductase
GSH	Glutathione reduced
GSSG	Oxidized glutathione
H_2O_2	Hydrogen peroxide
HD PPE	High dose pomegranate peel extract
HDL-C	High density lipoprotein-cholesterol
HFD	High fat diet
HK	Hexokinase
HPLC	High performance liquid chromatography
HRP	Horseradish peroxidase
i.p.	Intraperitoneal
IL-1	Interleukin-1
IL-6	Interleukin-6
KCl	Potassium chloride
KH_2PO_4	Potassium phosphate monobasic
LD PPE	Low dose pomegranate peel extract
LDH	Lactate dehydrogenase
LDL	Low-density lipoproteins
LDL-C	Low density lipoprotein-cholesterol
LOX-1	Lectin-like oxidized low density lipoprotein receptor-1
LPL	Lipoprotein lipase
MDA	Malondialdehyde
MCP-1	Monocyte chemo-attractant protein-1
M-CSF	Macrophage colony stimulating factor
mRNA	Messenger ribonucleic acid
Na_2HPO_4	Sodium phosphate dibasic
NaCl	Sodium chloride
NAD^+	Nicotinamide adenine dinucleotide
$NADP^+$	Nicotinamide adenine dinucleotide phosphate
NADPH	Nicotinamide adenine dinucleotide 3-phosphate (reduced form)
NBT	Nitroblue tetrazolium
NOx	Nitric oxide

Ox-LDL	Oxidized lowdensity lipoproteins
OD	Optical density
PBS	Phosphate buffer solution
PC	Punicalagin
PCR	Polymerase chain reaction
PE	Pomegranate extract
PFE	Pomegranate flower Extract
PJ	Pomegranate juice
PLE	Pomegranate leaf extract
PMS	Phenazine methosulphate
POD	Peroxidase
PON1	Paraoxonase 1
PP	Pomegranate peel
PPE	Pomegranate peel extract
PPPs	Pomegranate peel polyphenols
PSO	Pomegranate seed oil
qPCR	Quantitative polymerase chain reaction
RNA	Ribonucleic acid
ROS	Reactive oxygen species
RT	Reverse transcription
RT-PCR	Reverse transcription polymerase chain reaction
SD	Sprague Dawley
SEM	Standard error of means
SOD	Superoxide dismutase
SR-B	Scavenger receptor class B
STZ	Streptozotocin
TAG	Triacylglycerol
TBA	Thiobarbituric acid
TC	Total cholesterol
TMB	3,3′,5,5′-tetramethylbenzidine
TNF-α	Tumor necrosis factor alpha
VLDL-C	Very low density lipoprotein cholesterol
WFEP	Whole fruit extract of pomegranate
WHO	World health organization

XO	Xanthine oxidase

List of Tables

List of Figures