Potential modulatory effect of cranberry powder extract in experimental model of fatty liver in rats

Submitted for the fulfillment of Master Degree in Pharmaceutical Sciences

(Pharmacology and Toxicology)

Thesis presented by

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بسم الله الرحمن الرحيم

” وَقُلْ رَبِّ زِدْنِي عِلْمًا ”

صدق الله العظيم

سورة طه (الأية ١١٤)

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Safaa Ahmed

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List of abbreviations

ACC	acetyl-CoA carboxylase
ADP	Adiponectin
ALT	Alanine transaminase
AMP-kinase	adenosine mono phosphate–kinase
AP-1	activator protein-1
apo B	apolipoprotein B
AST	aspartate aminotransferase
CAT	Catalase
ChREBP	carbohydrate-responsive element-binding protein
Chylo	Chylomicron
CV	central vein
CYP	cytochrome P450
DAG	Diacylglycerols
DNL	denovo-lipogenesis
ERK	extracellular receptor kinase
FA	fatty acid
FAS	fatty acid synthase
FFAs	free fatty acids
FXR	farnesoid X receptor
G6PC	glucose 6-phosphatase

GCKR	glucokinase regulatory protein
GLUT-4	insulin-dependent glucose transporter
GSH	Glutathione
GSH-Px	glutathione peroxidase
HSCs	hepatic stellate cells
IL	Interleukin
IL-6	interleukin-6
INR	international normalized ratio
InsulinR	Insulin receptor
IR	Insulin resistance
IRS	Insulin receptor substrate
IκK	inhibitor kappa B kinase
IκKb	inhibitor of kappa B kinase b
JNK	C-Jun-N-terminal kinase
LPL	lipoprotein lipase
LXR	liver X receptor
MAPK	mitogen-activated protein kinase
MetS	metabolic syndrome
MRP	multidrug resistance protein
MTP	microsomal triglyceride transfer protein
MUFA	monosaturated fatty acids

NAFLD	Non-alcoholic fatty liver disease
NASH	Non-alcoholic steatohepatitis
NF-κB	nuclear factor-kappa B
Nrf-2	Nuclear factor erythroid-2-related factor-2
ODC	ornithine decarboxylase
PACs	Proanthocyanidins
PI3K	phosphatidylinositol 3-kinase
PKCε	protein kinase ε
PPAR	peroxisome proliferator activated receptor
PT	portal triad
PUFAs	polyunsaturated fatty acids
QR	quinone reductase
RIP	Receptor interacting protein
ROS	reactive oxygen species
SCD1	steroyl CoA desaturase 1
SFA	saturated fatty acids
SGLT-1	intestinal sodium/glucose cotransporter
SOCS	Suppressor-of-cytokine-signaling
SOD	Super oxide dismutase
SREBP-1C	sterol regulatory element binding protein-1c
STAT	Signal transducer and activator of transcription

TCA	tricarboxylic acid
TG	Triglycerides
TGF-β	transforming growth factor-β
TNF-α	tumor necrosis factor-α
TRADD	TNF receptor-1 associated death domain protein
TRAF2	TNF receptor-associated factor 2
TZDs	Thiazolidinedione's
UA	ursolic acid
Ub	Ubiquitin mediated
VAT	visceral adipose tissue
VLDL	Very low density lipoprotein
α-SMA	α-smooth muscle actin

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