A pharmacological study of the potential antifibrotic effect of *Biochanin A* on experimentally induced liver fibrosis

A thesis submitted for the fulfillment of the requirements of the
Master Degree in Pharmaceutical Sciences
(Pharmacology & Toxicology)

By

Randa Mamdouh Aly Ahmed Breikaa

B.Pharm.Sc., Ain Shams University (2009)
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Under the supervision of

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بِسۡمِ ٱللَّهِ ٱلرَّحۡمَٰنِ ٱلرَّحِيمِ

صدق الله العظيم

سورة طه

Pre-requisite Post-Graduate Courses

Besides the work presented in this thesis, the candidate has attended the following courses:

General courses:

1. Instrumental analysis
2. Physical chemistry
3. Computer skills
4. Biostatistics

Special courses:

1. Pharmacology
2. Toxicology
3. Neuropharmacology
4. Molecular pharmacology
5. Selected topics in pharmacology & toxicology

She has successfully passed examination in these courses with general grade EXCELLENT.

Head of Pharmacology & Toxicology Department
Prof. Ebtehal El-Demerdash Zaki

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Randa M. Breikaa

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List of Abbreviations

ALP	Alkaline phosphatase
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase
BCA	Biochanin A
CAT	Catalase
CCl_4	Carbon tetrachloride
COX-2	Cyclooxygenase-2
CYP	Cytochrome P450
CYP1A1	Cytochrome P450 1A1
CYP2E1	Cytochrome P450 2E1
DMSO	Dimethylsulfoxide
ECM	Extracellular matrix
GSH	Reduced glutathione
H and E	Hematoxylin and Eosin
HSCs	Hepatic stellate cells
ICG	Indocyanine green
IL	Interleukin
iNOS	Inducible form of nitric oxide synthase
LD_{50}	Median lethal dose
MDA	Malondialdehyde
MMPs	Matrix metalloproteinases

NF-κB	Nuclear factor kappa B
NO	Nitric oxide
NOx	Total nitrite/nitrate
OD	Optical density
ROS	Reactive oxygen species
RQ	Relative quantitation
RT-PCR	Real time-polymerase chain reaction
SOD	Superoxide dismutase
SULT	Sulfotransferase
TAC	Total antioxidant capacity
TBARS	Thiobarbituric acid reactive substances
TC	Total cholesterol
TG	Triglycerides
TGF-β	Transforming growth factor-beta
TIMP	Tissue inhibitor of metalloproteinase
TNF-α	Tumor necrosis factor-alpha
TP	Total proteins
α-SMA	Alpha smooth muscle actin

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