“Protective effect of marine animal extracts on carbon tetrachloride induced hepatotoxicity in mice”

“A Thesis Submitted for the degree of Master of Science As a partial fulfillment for requirements of the Master of Science”

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بسم الله الرحمن الرحيم

" وَقُل رَّبِّ أَدْخِلْنِي مُدْخَلَ صِدْقٍ وَأَخْرِجْنِي مُخْرَجَ صِدْقٍ وَاجْعَل لِّي مِن لَّدُنكَ سُلْطَانًا نَّصِيرًا "

صدق الله العظيم
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Chiton (*Acanthopleura vaillantii*)

LIST OF ABBREVIATIONS

Alb	: Albumin.
ALT	: Alanine aminotransferase.
A	: Artery
AST	: Aspartate aminotransferase.
B.W	: Body weight.
BD	: Bile duct.
CCl_4	: Carbon tetrachloride.
CCl_3^*	: Trichloromethyl free radical.
CCl_3OO^*	: Trichloromethyl peroxyl radical.
CAM	: Chick embryo chorioallantoic membrane.
Conc.	: Concentration.
CV	: Central Vein.
CYP	: Cytochrome P-450
DILI	: Drug-induced liver injury.
DMBA	: 7,12-di methyl benz(a)anthracene.
DNA	: Deoxyribonucleic acid.
DOX	: Doxorubicin
DPPH	: diphenyl-β-picrylhydrazyl
EA	: Ethyl acetate
EAC	: Ehlrich ascites carcinoma

EC	: Endothelial cell
ECM	: Extracellular matrix.
Fig(s).	: Figure(s).
GC/MS	: Gas chromatography mass spectrometry.
GMA	: Glycol methacrylate
HepG2	: Liver hepatocellular carcinoma cells.
HSCs	: Hepatic stellate cells
Hx & E	: Haematoxylin and Eosin.
IC_{50}	: Inhibition concentration.
IFN	: interferon
IL	: Interleukin.
I.P.	: Intraperitoneal(ly).
K	: Kupffer cell(s).
LD	: Lethal dose.
LD_{50}	: Median lethal dose.
MMPs	: Matrix metalloproteinases.
NASH	: Non-alcoholic steatohepatitis.
N	: Two Nuclei
NK	: Natural killer cell.
NKT	: Natural killer T cell.
NO	: Nitrous oxide
PAS	: Periodic acid-Schiff
PV	: Portal vein

RER	: Rough endoplasmic reticulum
ROS	: Reactive oxygen species.
RT	: Retention times.
S	: Sinusoids
SD	: Standard deviation.
SPSS	: Statistical Package for Social Science.
TBRI	: Theodor Bilharz Research Institute.
TGF-α,-β	: Transforming growth factor -α,-β.
TIMPs	: Tissue inhibitors of matrix metalloproteinases.
TTX	: Tetrodotoxin.
TNF	: Tumor necrosis factor.