

تقييم بيوكيميائي علي دور N . استيل سيستين والسليمارين
في حماية الكبد من السمية الناتجة عن العلاج بالهأراسيتامول

رسالة مقدمة من الطالبة

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ماجستير في علوم البيئة - معهد الدراسات والبحوث البيئية - جامعة عين شمس - 2006

لاستكمال متطلبات الحصول علي درجة دكتوراه فلسفة
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قسم العلوم الأساسية البيئية
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**BIOCHEMICAL ASSESSMENT ON THE ROLE OF N-ACETYL
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Submitted By

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A thesis submitted in Partial Fulfillment
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The Requirement for the Doctor of Philosophy Degree
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Department of Environmental Basic Sciences
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2015

APPROVAL SHEET

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ABSTRACT

The present study was designed to evaluate the role of silymarin as natural hepatoprotective to prevent the toxicity of liver due to acute and long treatment of experimental animals with paracetamol (PCM). Also to compare its efficiency with chemical antidote N- acetyl cysteine (NAC).

The study was conducted through analysis of certain biochemical parameters including determination of plasma liver enzymes (ALT, AST, GGT and LDH), as well as plasma concentration of T. protein, T. bilirubin, urea, creatinine and uric acid. Moreover, the changes of some antioxidant parameters in liver homogenate (SOD, GPx, GST, catalase and GSH content) beside the concentration of MDA. In addition, we studied the effect of these subjects in the liver and kidney histological change.

The results of the current study revealed that administration of paracetamol (600mg/kg body weight) showed highly significant increase in the plasma activities of ALT, AST, GGT, LDH, the concentration of T. Bilirubin urea, creatinine uric acid and MDA in addition to decrease in T. protein . It also showed a highly significant decrease in the activities of SOD, GPx, GST, catalase and GSH content of liver homogenate. The previous changes increase by increasing the duration of treatment with PCM.

The treatment with N-Acetylcysteine (140 mg/kg) (NAC) + PCM slightly improve the above results. While the treatment with silymarin (100 mg/kg) alone or in combination with NAC (+ PCM) improved the recorded results. This findings confirmed by the histopathological studies for both liver and kidney.

So, silymarin treatments leads to alleviate the harmful effects induced by PCM as a stimulant of radical detoxification and silymarin as an antioxidant. Therefore it can be used in the future as complementary medicine in emergency treatment of overdose PCM.

Key words : Paracetamol ,Silymarin, N-Acetyl cysteine, Hepatoprotective agents Liver function, Kidney function , Glutathione-S-transferase , Lipid peroxidation , Histology.

CONTENTS

List of Abbreviation-----	I
List of Tables-----	II
List of Figures -----	III
List of Pictures -----	V
INTRODUCTION AND AIM OF THE WORK-----	1
REVIEW OF LITERATURE-----	4
I -Liver and its function-----	4
2 - Milk thistle -----	5
1-Synonyms-----	8
2-2- Species identity-----	9
2-3- Botanical descriptions of Milk thistle-----	9
2-4- History of traditional cultivation and usage-----	10
2-5- Chemical constituents of Milk thistle -----	11
2-6- Biosynthesis of flavonolignans in Silybum marianum-----	12
2-7- Mechanism of action of Milk histle- -----	14
2-8- Biological and pharmacological activities of Milk thistle -----	16
2-8-1- Antioxidant properties -----	16
2-8-2- Hepatoprotection-----	16
2-8-2-1-Alcoholic liver disease -----	17
2-8-2-2- Liver fibrosis-----	17
2-8-2-3- Liver tissue regeneration -----	18
2 -8-3- Anti-inflammatory effect-----	18
2 -8-4- Immunomodulation-----	19
2 -8-5 Liver lipidaemic control-----	19
2 -8-6 Antitumor and anticarcinogenic effects-----	19
2 -8-7 Neuroprotection-----	20
2 -8-8 Miscellaneous and adverse effects-----	20
2 -8-8 -1- Miscellaneous effects -----	20
2 -8-8 -2- Adverse effects -----	21
3 -N-Acetyl Cysteine -- -----	22
3 -1- Historical use of N-acetylcysteine -----	22
3 -2-Chemistry -----	22
3 -3- Pharmacology-----	22
3 -4- Biological activities of NAC-----	23

Contents

3 -5 Anti –oxidant effects of NAC-----	24
3 -6- Mechanism of action of NAC-----	25
3- 7- Clinical application of N- acetyl cystiene-----	27
3-7-1-Pulmonary diseases -----	27
3-7-2-Kidney dysfunction -----	27
3-7-3-Cancer/Chemoprevention-----	28
3-7-4- Heart diseases-----	28
3-8-Adverse reactions-----	28
4- Paracetamol-----	29
4-1-History of paracetamol-----	29
4-2-Synonyms-----	29
4-3-Structure and reactivity-----	29
4 -4- Mechanism of action of paracetamol-----	31
4 -5- Metabolism of paracetamol-----	32
4 -6-Side effects of paracetamol-----	35
4 -7- Toxicity of paracetamol-----	36
4-8 - Biochemical Mechanisms of Toxicity-----	41
Material and methods-----	43
1-Material-----	43
1-1-Experimental animals -----	43
1-2 Chemicals and Drugs-----	45
1-3- Blood samples-----	46
1-4- Liver samples -----	46
2- Methods-----	46
2-1-Parameters to be investigated-----	46
2-1-1-Liver function tests -----	46
2-1-1-1.Determination of plasma Alanine Amino Transaminase (ALT/GPT) - -----	46
2-1-1-2.Determination of plasma Aspartate Amino transaminase (AST/GOT) -----	48
2-1-1-3.Determination of plasma γ - Glutamyl Transferase (GGT)-----	50
2-1-1-4.Determination of plasma lactate dehydrogenase (LDH)-----	51
2-1-1-5.Determination of plasma total protein-----	52
2-1-1-6. Determination of plasma bilirubin content-----	53
2-1-2 - Kidney function tests-----	54
2-1-2-1.Determination of plasma urea concentration (BU)-----	54

Contents

2-1-2-2. Determination of plasma creatinine concentration -----	56
2-1-3-3. Determination of plasma Uric Acid Levels-----	57
2-1-3- Liver homogenate and antioxidant parameters-----	58
2-1-3-1.Determination of plasma Glutathione –S–Transferase enzyme (GST) -----	58
2-1-3-2. Determination of reduced Glutathione content (GSH) -----	59
2-1-3-3.Determination of Glutathione peroxidase activity (GPx)-----	61
2-1-3-4. Determination of plasma lipid peroxidation level in liver homogenate-----	63
2-1-3-5. Determination of superoxide dismutase activity (SOD) -----	64
2-1-3-6. Determination of Catalase activity-----	66
2-2 - Histopathological studies for liver and kidney tissues -----	68
3-Statsitcal analysis-----	68
RESULTS-----	69
DISCUSSION -----	98
Summary -----	116
References -----	118
Arabic summaries -----	

List of abbreviations

LIST OF ABBREVIATIONS

COX	Cyclooxygenase
CPCSEA	Committee for the Purpose of Control and Supervision on Experiments on Animals
CYP	Cytochrome P450
DNA	Deoxyribonucleic acid
GRF	Gluomular filtration rate
GST	Glutathione-S- transferase
GSH	Glutathione
GSSH	Oxidized glutathione
GPX	Glutathione peroxidase
H2O2	Hydrogen peroxide
HO-	Hydroxyl radical
HMOX	Heme oxygenase
IL-6	Interleukin-6 inhibitors
IL-13	Interleukin-13 gene
LDH	Lactate dehydrogenase
MPT	Mitochondrial permeability transition
NAC	N-Acetyl cysteine
Nrf2	Nuclear factor erythroid 2-related factor 2
NAPQI	N-acetyl-p-benzo-quinone imine
NASH	Non-alcoholic anti-inflammatoryhepinites
NSAIDs	Non-steroidal anti-inflammatory drug
P.ALT	Plasma Alanine Transaminase
P.AST	Plasma Aspartate Transaminase
PCM	Paracetamol
p.GGT	Plasma Gamma-Glutamate Transaminase
PPM	Part per million
PUFAs	Polyunsaturated fatty acids
ROS	Reactive oxygen species
RNA	Ribonucleic acid
SOD	Superoxide dismutase
TNF	Tumour necrosis factor

LIST OF TABLES

Table	Title	Page
Table (1)	Effect of either silymarin or N-Acetylcysteine treatment on plasma liver enzymes ALT and AST (U/l) activities of rats received paracetamol(PCM).	70
Table (2):	Effect of either silymarin or N-acetylcysteine treatment on plasma liver enzymes GGT and LDH (U/l) activities of rats received paracetamol (PCM)	71
Table (3):	Effect of either silymarin or N-acetylcysteine treatment on plasma total protein (g/d l) and total bilirubin (mg/dl) level on rats received paracetamol (PCM).	75
Table (4):	Effect of either silymarin or N-acetylcysteine treatment on plasma urea, creatinine and uric acid (mg/dl) concentration on rats received paracetamol (PCM).	78
Table (5):	Effect of either silymarin or N-acetylcysteine treatment on liver Glutathione–S-transferase (GST) ($\mu\text{mol}/\text{min}/\text{mg}$ protein), Glutathione content (GSH) ($\mu\text{mol}/\text{mg}$ protein) and Glutathione peroxidase(GPx) ($\mu\text{mol}/\text{min}/\text{mg}$ protein) on rats received paracetamol (PCM).	81
Table (6)	Effect of both silymarin and N-acetylcysteine treatment on liver lipid peroxidation ($\mu\text{M}/\text{min}/\text{mg}$ protein), Superoxide dismutase (U/min/mg protein) and catalase enzyme ($\mu\text{mole}/\text{min}/\text{mg}$ protein) activity on rats received paracetamol (PCM).	84

LIST OF FIGURES

Figures	Title	Page
Figure (1)	Chemical structures of silymarin Components	11
Figure (2)	Proposed Biosynthetic Pathway to Silybin in <i>Silybum marianum</i>	13
Figure (3)	N-Acetyl Cysteine (NAC) ($C_5H_9NO_3S$)	23
Figure (4)	Metabolic conversion of NAC	25
Figure (5)	Synthesis of paracetamol from phenol	30
Figure (6)	Paracetamol degradation into toxic and non- toxic metabolites	33
Figure (7)	Metabolic pathways of paracetamol	34
Figure (8)	Schematic representation depicting the role of metabolism in acetaminophen toxicity.	37
Figure (9)	Oxidation of paracetamol according to the N-hydroxyacetaminophen pathway.	38
Figure (10)	Oxidation of paracetamol by means of the phenoxy radical.	39
Figure (11)	Redox cycling of N-acetyl- p-benzoquinone imine.	40

List of Figures

Figures	Title	Page
Figure (12)	Schematic representation depicting the role of mitochondrial permeability transition in paracetamol toxicity.	42
Figure (13)	% change of plasma ALT and AST activities in all groups.	72
Figure (14)	% change of GGT and LDH activities in all groups.	73
Figure (15)	% change of total protein and total bilirubin content in all groups.	76
Figure (16)	% change % change of urea, creatinine and uric acid concentration in all groups	79
Figure (17)	% change of liver GSH and GPx in all groups	82
Figure (18)	% change of liver catalase and super oxide dismutase activities and lipid peroxidation level in all groups	85

LIST OF PICTURES

Picture	Title	Page
Picture (1)	A photograph illustrating a section of rat liver from group I (control group) (H and E X 400) .	88
Picture (2a)	A photograph illustrating a section of rat liver from group II (receiving paracetamol) (H and E X 400).	88
Picture (2b)	A photograph illustrating a section of rat liver from group II (receiving paracetamol) (H and E X 400) .	89
Picture (3)	A photograph illustrating a section of rat liver from group III (receiving Silymarin) (H and E X 400) .	89
Picture (4)	A photograph illustrating a section of rat liver from group IV (receiving N- Acetyl cystine) (H and E X 400) .	90
Picture (5)	A photograph illustrating a section of rat liver from group V (receiving Paracetamol + Silymarin) (H and E X 400)	90
Picture (6)	A photograph illustrating a section of rat liver from group VI (receiving Paracetamol+N- Acetyl cystine) (H and E X 400).	91
Picture (7)	A photograph illustrating a section of rat liver from group VII (receiving Paracetamol+ Silymarin + N-acetyl cystine) (H and E X 400).	91
Picture (8)	A photograph illustrating a section of rat kidney from group 1 (control group) (H and E X 400).	93