



Faculty of Women for Arts, Science and Education

Biochemistry and Nutrition Department

**Evaluation of Cactus and/or Papaya Juices
Administration on Neuro, Hepatic and Renal
Toxicity and Subfertility Induced by Chlorpyrifos in
Rats**

Thesis

Submitted for Faculty of Women for Arts, Science and Education, Ain
Shams University

In Partial Fulfillment for Doctor of Philosophy in Science
(Biochemistry and Nutrition)

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(٢٠١٩)

Acknowledgement

First and foremost, thanks **Allah** for most merciful and most gracious who gave me the ability to carry out this work.

I express my gratefulness towards my guide **Prof. Dr. Nora Mohamed Afifi El-Sheikh** Professor of Nutrition Biochemistry and Nutrition Department, Faculty of Women for Arts, Science and Education, Ain Shams University, who's excellent guidance and dedicated efforts made me think upon and understand a number of problems and solve them

sincerely, her keen interest and encouragement serves as a constant support and inspiration during the period of this work.

I would like to express heartily thankful to **Prof. Dr. Heba Adel Abd El-Hamid Barakat** Professor of Biochemistry and Nutrition, Biochemistry and Nutrition Department, Faculty of Women for Arts, Science and Education, Ain Shams University, for helping me, sincere advice and supporting me during all steps of this work.

I would like to express my sincere gratitude to **Dr. Amira Abd El-Rhman Abd El-Hamid** Lecturer of Biochemistry and Nutrition, Biochemistry and Nutrition Department, Faculty of Women for Arts, Science and Education, Ain Shams University, for helping me, to carry out this work.

I would like to express my sincere gratitude to the staff members of Biochemistry and Nutrition Department, Faculty of Women for Arts, Science and Education, Ain Shams University, for their encouragement to carry out this work.

Dedication

I take this opportunity to express my profound gratitude towards my family and a special feeling of gratitude to my loving parents whose words of encouragement and push for tenacity ring in my ears.

*Lovingly, I dedicate this work to my
respective family who has been my constant of
inspiration.*

*My dear husband thank you for your
support, love and for being close to me.*

*Last I would like to thank my friends for
their unconditional support and guidance
towards the completion.*

Abstract

The aim of the present study was to identify the bioactive components in cactus and papaya juices by GC-MS analysis. Moreover, to determine their effects on biological and biochemical parameters as well as microscopic examination on the alleviation of brain, liver, kidneys and testes cytotoxicity induced by chlorpyrifos in rats. Sixty male albino rats Sprague-Dawley strain were divided into 3 groups each of 20 rats. First group was left as control group. Second group was given chlorpyrifos 5 mg/kg b. wt. The other three groups were given cactus, papaya juices and mixture of them as 10 ml/kg b. wt., subsequently along with chlorpyrifos dose. All doses were orally administered daily for 28 successive days. At the end of the experimental period, blood samples, brain, liver, kidneys and testes were collected from each rat for biochemical analysis and microscopic examination.

compounds of cactus juice by The analysis of phenolic compounds kaempferol, GC-MS allowing to identify rutin and caffeic acid while the isorhamnetin, quercetin, identified compounds in papaya juice was caffeic acid, rutin, quercetin- γ -O-rutinoside were the most abundant phenolics traces of gallic acids. and only

Results showed that, oral administration of chlorpyrifos significantly increased the percentage of DNA fragmentation, caspase- γ level in examined tissues. Also, a significant change in examined organs function parameters and increase in oxidative and inflammatory markers was observed.

On the other hand the administration of tested juices with chlorpyrifos, reduce the percentage of DNA fragmentation, caspase- γ level and directed enzymes activity and hormones levels toward normal. In conclusion cactus and papaya juices have beneficial effects as it tends to dampen chlorpyrifos toxicity in rats.

Key words: Rats, Cholorpyrifos, Cactus, Papaya, DNA fragmentation, Caspase - γ

List of abbreviations

Abbreviation	Full name
AAP	ξ -Aminophenazone
AChE	Acetylcholine esterase
AD	Alzheimer's disease
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase
BITC	Benzyl isothiocyante

Casp- γ	Caspase γ
CAT	Catalase
CE	Carboxylesterase
CE	Carotene equivalents
COX γ	Cyclooxygenase- γ
CPF	Chlorpyrifos
CYP	Cytochrome P ξ $\circ$ $\cdot$ enzyme
DHBS	Hydroxybenzene sulfonic acid
DNA	Deoxyribonucleic acid
DPA	Diphenylamine
DV	Daily value
FSH	Follicle stimulating hormones
GAE	Gallic acid equivalents
H γ O γ	Hydrogen peroxide
HDL-C	High density lipoprotein- cholesterol
$\circ$ -HETE	$\circ$ -Hydroxyeicosatetraenoic acid
HRP	Horseradish Peroxidase
ICAM- γ	Intercellular Adhesion Molecule γ
IL- γ	Interlukein- γ
iNOS	Inducible nitric oxide synthase
LDL-C	Low density lipoprotein- cholesterol
LH	Luteinizing Hormone
LPS	Lipopolysaccharide
MDA	Malondialdehyde
NF-kB	Nuclear factor Kappa-light-chain- enhancer of activated B cells
NO	Nitric oxide
NO γ -	Nitrite
NO γ -	Nitrate
NOX- γ	NADPH Oxidase γ
OP	Organophosphorus
OTA	Orchatoxin A
PD	Parkinson's disease
PGE- γ	Prostaglandin-E γ
PON	Paraoxonase
RNS	Reactive nitrogen species
ROS	Reactive oxygen species

SP ¹	specificity protein ¹
TBA	Thiobarbituric acid
TCA	Trichloro acetic acid
TCP	٣,٥,٦-Trichloro-٧pyridinol
TMP	٣,٥,٦-Trichloro-٧-methoxypyridine
TNF- α	Tumor necrosis factor- α
WHO	World Health Organization

List of contents

Subject	Page
<i>Introduction</i>	١
<i>Aim of the study</i>	٤
<i>Review of literature</i>	٦
١- <i>Pesticides</i>	٦
١.١ <i>Definition</i>	٦
٢. <i>The effects of using pesticides:</i>	٦
٢.١ <i>The effect of pesticides on growth and metabolism of plants</i>	٦
٢.٢ <i>The effect of pesticides on human wellness</i>	٧

ॢ. Classification of pesticides	१
ॢ. १ Classification based on mode of entry	१
ॢ. १. १ Systemic pesticides	१
ॢ. १. २ Non-systemic (Contact) pesticides	१
ॢ. १. ॢ Stomach poisoning and stomach toxicants	१०
ॢ. १. । Fumigants	१०
ॢ. १. ॥ Repellents	१०
ॢ. २ Classification based on the targeted pest species	११
ॢ. ॢ Classification based on chemical composition of pesticides	११
ॢ. ॢ. १ Organochlorines	१२
ॢ. ॢ. २ Organophosphorus	१ॢ
ॢ. ॢ. ॢ Carbamates	१।
ॢ. ॢ. । Pyrethroids	१।
ॢ. । Classification based on toxicity of pesticides	
।. Structure - activity relationships of organophosphorus	१॥
॥. Metabolism of organophosphorus	१०
०. Paraoxonases	१ॠ
०. १ PON १ Antioxidant activity	२०
०. २ PON १ substrates	२१
०. २. १ Endogenous substrates	२१
०. २. २ Exogenous substrates	२१
०. ॢ Regulation of Paraoxonases	२२
०. ॢ. १ Polyphenols	२२
०. ॢ. २ Hormonal and Chemical Regulation	२ॢ
ॡ. Chlorpyrifos	२।
ॡ. १ Physico-chemical properties	२।
ॡ. २ Metabolites	२॥
ॡ. ॢ Degradation	२॥
ॡ. । The impacts of chlorpyrifos exposure	२॥
ॡ. ।. १ Neurotoxicity and Neurodegenerative Diseases	ॢ०
ॡ. ।. २ Immunotoxicity	ॢ०

<i>٧. ٤. ٣ Genotoxicity and carcinogenicity</i>	
<i>٨. Nopal Cactus</i>	٣١
<i>٨. ١ Nutritive value and bioactive compounds of Cactus</i>	٣٣
	٣٨
<i>٨. ٢ Health benefits of cactus</i>	٣٩
<i>a. Antioxidant and anti-inflammatory effects of cactus</i>	٤١
	٤٢
<i>b. Antimicrobial activities of cactus</i>	٤٣
<i>c. Hypoglycemic and hypolipidemic effects of cactus</i>	٤٣
	٤٤
<i>d. Diuretic effect of cactus</i>	٤٥
<i>e. Anticancer (apoptotic effect) of cactus</i>	٤٥
<i>f. Antiatherosclerotic effect of cactus</i>	
<i>g. Antiulcerogenic effect of cactus</i>	
<i>h. Immunomodulatory effect of cactus</i>	
<i>٩. Papaya</i>	٤٦
<i>٩. ١ Nutritive value and bioactive compounds of papaya</i>	٤٨
	٥٢
<i>٩. ٢ Health benefits of papaya</i>	٥٢
<i>a. Antioxidants and anti-inflammatory effects of papaya</i>	٥٣
	٥٤
<i>b. Hypoglycemic and hypolipidemic effects of papaya</i>	٥٥
	٥٦
<i>c. Diuretic effect of papaya</i>	
<i>d. Anticancer (apoptotic effect) of papaya</i>	
<i>e. Wound healing activity of papaya</i>	
Materials and Methods	٥٨

1. <i>Materials</i>	۵۸
1. 1 <i>Chemicals</i>	۵۸
1. ۲ <i>Fruits</i>	۵۸
1. ۳ <i>Animals</i>	۵۸
1. ۴ <i>Diet</i>	۵۸
۲. <i>Methods</i>	۶۲
۲. 1 <i>Preparation of the fruits juices</i>	۶۲
۲. ۲ <i>Analysis of bioactive components in juices by GC-MS analysis</i>	۶۲
۲. ۳. <i>Experimental design</i>	۶۳
۲. ۴ <i>Collection of blood and tissue samples</i>	۶۴
۲. ۵ <i>Biochemical analyses</i>	۶۵
۲. ۵. 1 <i>Evaluation of organs functions</i>	۶۵
۲. ۵. 1. 1 <i>Evaluation of brain function</i>	۶۵
<i>Determination of serum acetylcholine esterase activity</i>	۶۵
<i>Determination of serum dopamine level</i>	۶۷
<i>Determination of serum epinephrine level</i>	۷۰
<i>Determination of serum norepinephrine level</i>	۷۲
۲. ۵. 1. ۲ <i>Evaluation of liver function</i>	۷۴
<i>Determination of serum alanine aminotransferase enzyme activity</i>	۷۴
<i>Determination of serum aspartate aminotransferase enzyme activity</i>	۷۶
۲. ۵. 1. ۳ <i>Evaluation of renal function</i>	۷۷
<i>Determination of serum creatinine level</i>	۷۷
<i>Determination of serum urea level</i>	۷۸

۲.۵.۱.۴ Evaluation of subfertility Semen analysis for motility, count and morphology Determination of serum testosterone level Determination of serum luteinizing hormone level Determination of serum follicle stimulating hormone level	۸۰ ۸۰ ۸۰ ۸۲ ۸۴
۲.۵.۲ Determination of activities of detoxification enzymes Determination of serum cytochrome P₄₅₀ isozyme activity Determination of serum paraoxonase- 1 enzyme activity	۸۷ ۸۷ ۸۹
۲.۵.۳ Determination of inflammatory markers Determination of serum tumor necrosis factor-α level Determination of serum interleukin- 7 cytokine level	۹۲ ۹۲ ۹۴
۲.۵.۴ Determination of oxidative stress and antioxidant markers Determination of serum malondialdehyde level Determination of serum nitric oxide level Determination of serum catalase enzyme activity	۹۶ ۹۶ ۹۷ ۹۸
۲.۵.۵ Evaluation of DNA damage and indices of apoptosis Determination of DNA fragmentation in tissues of brain, liver, kidneys and testes Determination of caspase 7 level in tissues of brain, liver, kidneys and testes	۱۰۰ ۱۰۰ ۱۰۲

٢. ٦. <i>Microscopic examination for brain, liver, kidney and testes tissues</i>	١٠٤
٢. ٧. <i>Statistical analysis</i>	١٠٥
Results and Discussion	١٠٦
١. <i>Gas Chromatography analysis of bioactive components in cactus and papaya juices</i>	١٠٦
٢. <i>Effects of oral doses of cactus and/or papaya juices on some biological parameters</i>	١٠٩
٢. <i>The effects of cactus and/or papaya juices on some brain function parameters</i>	١١٨
٤. <i>The effects of cactus and/or papaya juices on some liverfunction parameters</i>	١٢٤
٥. <i>The effects of cactus and/or papaya juices on some kidney function parameters</i>	١٢٩
٦. <i>The effects of cactus and/or papaya juices on some fertility parameters</i>	١٣٤
٧. <i>The effects of cactus and/or papaya juices on some enzymes of detoxification process</i>	١٤٤
٨. <i>The effects of cactus and/or papaya juices on some inflammatory markers</i>	١٥١
٩. <i>The effects of cactus and/or papaya juices on some oxidative stress and antioxidant markers</i>	١٥٨
١٠. <i>The effects of cactus and/or papaya juices on DNA damage and apoptosis markers</i>	١٦٨
١١. <i>Microscopic examination for brain, liver, kidney and testes tissues</i>	١٨١
Summary	٢٠١
Conclusion and Recommendations	٢٠٩

References	٢١١
Arabic Summary	

List of figures

No	Title	Page
١	Routes of exposure to OP	٨
٢	General structure of OP	١٥
٣	Main reactions of phase I OP metabolism	١٧
٤	CPF structure	٢٤
٥	Schematic inhibitory of AChE by organophosphate pesticides	٢٨
٦	Cactus tree and fruit	٣٢
٧	Red, green and yellow cactus fruit	٣٣
٨	Papaya tree and fruit	٤٦
٩	The experimental groups' scheme	٦٤
١٠	standard curve of AChE activity determination	٦٧
١١	standard curve of dopamine level determination	٦٩
١٢	standard curve of epinephrine level determination	٧١
١٣	Standard curve of norepinephrine level determination.	٧٤
١٤	Standard curve for ALT activity determination	٧٥
١٥	Standard curve for AST activity determination	٧٧
١٦	Standard curve of testosterone level determination	٨٢
١٧	Standard curve of LH level determination	٨٤
١٨	Standard curve of FSH level determination	٨٦
١٩	Standard curve of cytochrome P ٤٥٠ activity determination	٨٩
٢٠	Standard curve of PON ١ activity determination	٩١
٢١	Standard curve of TNF- α level determination	٩٤
٢٢	Standard curve of IL-٦ level determination	٩٦
٢٣	Standard curve of Caspase- ٣ level determination	١٠٤
٢٤	Bioactive components in cactus juice	١٠٧
٢٥	Bioactive components in papaya juice	١٠٩
٢٦a	The percentage change in body weight gain and food intake from healthy group.	١١٢
٢٦b	The percentage change in body weight gain and food intake from CPF group.	١١٢

٢٧a	The percentage change in relative brain and liver weights from healthy group.	١١٣
٢٧b	The percentage change in relative brain and liver weights from CPF group	١١٣
٢٨a	The percentage change in relative kidneys and testes weights from healthy group	١١٤
٢٨b	The percentage change in relative kidneys and testes weights from CPF	١١٤
٢٩a	The percentage change in AChE activity and dopamine level from healthy group	١٢٠
٢٩b	The percentage change in AChE activity and dopamine level from CPF group.	١٢٠
٣٠a	The percentage change in epinephrine and norepinephrine levels from healthy group.	١٢١
٣٠b	The percentage change in epinephrine and norepinephrine levels from CPF group.	١٢١
٣١a	The percentage change in ALT and AST activities from healthy group.	١٢٦
٣١b	The percentage change in ALT and AST activities from CPF group.	١٢٦
٣٢a	The percentage change in creatinine and urea levels from healthy group.	١٣٢
٣٢b	The percentage change in creatinine and urea levels from CPF group.	١٣٢
٣٣a	The percentage change in some sperm parameters from healthy group	١٣٨
٣٣b	The percentage change in some sperm parameters from CPF group	١٣٨
٣٤a	The percentage change in some fertility hormones levels from healthy group.	١٣٩
٣٤b	The percentage change in some fertility hormones levels from CPF group.	١٣٩
٣٥a	The percentage change in detoxification enzymes from healthy group.	١٤٧
٣٥b	The percentage change in detoxification enzymes from CPF group.	١٤٧
٣٦a	The percentage change in TNF- α and IL- β levels from	١٥٣

	healthy group	
٣٦b	The percentage change in TNF- α and IL- γ levels from CPF group.	١٥٣
٣٧a	The percentage change in oxidative and antioxidant markers from healthy group.	١٦٠
٣٧b	The percentage change in oxidative and antioxidant markers from CPF group.	١٦٠
٣٨a	The percentage change in DNA fragmentation in brain and liver tissues from healthy group.	١٧١
٣٨b	The percentage change in DNA fragmentation in brain and liver tissues from CPF group.	١٧١
٣٩a	The percentage change in DNA fragmentation in kidney and testes tissues from healthy group.	١٧٢
٣٩b	The percentage change in DNA fragmentation in kidney and testes tissues from CPF group.	١٧٢
٤٠a	The percentage change in caspase ٣ level in brain and liver tissues from healthy group.	١٧٤
٤٠b	The percentage change in caspase ٣ level in brain and liver tissues from CPF group.	١٧٤
٤١a	The percentage change in caspase ٣ level in kidney and testes tissues from healthy group.	١٧٥
٤١b	The percentage change in caspase ٣ level in kidney and testes tissues from CPF group.	١٧٥
٤٢	Brain section of healthy rat showing no histopathological changes(H & E X ٤٠٠).	١٨٣
٤٣	Brain section of CPF intoxicated rat showing necrosis of neurons (blue arrow) and congestion of cerebral blood vessel (green arrow) (H & E X ٤٠٠).	١٨٣
٤٤	Brain section of cactus treated rat showing necrosis of some neurons(H & E X ٤٠٠).	١٨٤
٤٥	Brain section of papaya treated rat showing no histopathological changes(H & E X ٤٠٠).	١٨٤
٤٦	Brain section of cactus and papaya mixture treated rat showing no histopathological changes(H & E X ٤٠٠).	١٨٥
٤٧	Liver section of healthy rat showing the normal	١٨٥