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STUDY THE EFFECT OF PURSLANE, GARDEN ROCKET AND CRESS SEEDS ON ACUTE RENAL INJURY OF RATS

By

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B.Sc. Home Economics,Nutrition and Food Science Dept., Al-Azhar University (2011)

Thesis

Submitted to Nutrition and Food Science Dept., in Partial Fulfillment of the Requirements for the Master Degree in Home Economics, major Nutrition and Food Sciences.

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2014

جامعة الأزهر
كلية الاقتصاد المنزلي
قسم التغذية وعلوم الأطعمة

دراسة تأثير بذور الرجلة والجرجير وحب الرشاد على الإصابة الحادة لكلى الفئران

رسالة مقدمة من

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استكمالا للحصول على درجة الماجستير في الاقتصاد المنزلي
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٢٠١٤

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

"وَلَسَوْفَ يُعْطِيكَ رَبُّكَ فَتَرْضَى"

صدق الله العظيم

سورة الضحى الآية رقم{٥}

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Acknowledgement

First of all, I raise my heart full of praise to ALLHA, the most merciful, gracious and compassionate for blessing on me. Without the aid of ALLHA, this work couldn't be done.

I am deeply grateful and thanks from my heart to my family ***especially my father,*** *who give me strong support and endless love that made able to overcome difficulties facing up during the completion of this work, and without his encouragement I couldn't finish this Work and* ***my dear sister and a brother.***

I would like to express my deep thanks and truly grateful to ***Dr. Eman EL-- Sayed Abd EL-Hady*** *Associate Professor of Nutrition and Food Science, Head of Nutrition and Food Science Dept., Faculty of Home Economics, Al-Azhar University for her help and this advise during this work. Indeed, her continuous assistance during work, writing and producing the thesis were very valuable.*

My sincere gratitude and indebtedness are due to ***Dr. Nabila yahia Mahmoud*** *associate professor of Nutrition, Nutrition and Food Science Dept., Faculty of Home Economics, Al Azhar University, for kind excellent, Co-operation, direct supervision sincere help and follow up of progress of this work up.*

I wish to express my great indebtedness and sincere thanks ***to Prof. Dr Fatma Elzhraa Amin EL-Shrif.*** *Prof. of Nutrition, Nutrition and Food Science Dep., Previous Dean Faculty of Home Economics, Minufiya University for her acceptance for discuss this thesis.*

I wish to express my great indebtedness and sincere thanks to ***Prof. Dr Ashraf Abd El-Aziz.,*** *Prof. of Nutrition, Nutrition and Food Science Dep., Dean of Faculty of Home Economics, Helwan University, for his acceptance for discuss this thesis.*

I offer my thanks to ***dean of Faculty of Home Economics, Al-Azhar University and post graduate department*** *for their help and encouragements through this study.*

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ABSTRACT

This study was conducted to acquaintance the effect of pueslane, garden rocket and cress seeds usage on biological evaluation, biochemical analysis and histopathological examination of kidneys on experimental rats suffered from acute renal injury.Forty eight mature male albino rats weighing 150±10g was used. After the adaptation period, rats were divided randomly into two main groups; the first group (negative control (C-)): 6 normal rats fed on basal diet and the second group (n= 42 rats) were injected in their hind limbs with glycerol dissolve in saline solution (50% w/v) at (10ml/kg body wt.) to induce acute renal injury. Rats were divided into seven subgroups (each group consisted of 6 rats and fed on basal diet) as following: the first subgroup was left as a positive control, the second was fed on 5% purslane seeds diet, the third was fed on10% purslane seeds, the fourth was fed on 5% garden rocket seeds diet, the fifth was fed on 10% garden rocket seeds, the sixth fed on 5% cress seeds diet and the seventh was fed on 10% cress seeds. All the above mentioned experimental groups were maintained on their corresponding diets for 28 days. At the end of experiment rats were sacrificed and collected blood samples for analysis. Biological evaluations: feed intake, body weight gain % and feed efficiency ratio and relative organs weight were recorded. Biochemical analysis**:** kidney function indicators, some liver enzymes, lipid profile, serum sodium and potassium levels were estimated. Histopathological change for kidney was examined. Also, the chemical composition of purslane, garden rocket, cress seeds was estimated. The results indicated to; purslane seeds (5% & 10%), garden rocket seeds (5%, 10%) and cress seeds(5% & 10%) induced appreciable homeostasis for liver and kidney functions, lipid profile, sodium and potassium levels also for kidney tissue changes. According to the results, purslane, garden rocket and cress seeds could be used for ameliorated acute renal injury.

Key words: purslane, garden rocket, cress seeds, biological evaluations, kidney function, liver enzymes, serum sodium and potassium levels, histopathological changes of kidney.

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PHOTOS

LIST OF ABBREVIATIONS

Abbreviation	Meaning
(+ve) control	Positive control group
(-ve) control	Negative control group
/	Per
A.O.A.C	Association of Official Analytical Chemists
AIN	Acute interstitial nephritis
AKI	Acute kidney injury
ALP	Alkaline phosphatase
ALT (GOT)	Alanine Aminotransferase
ANOVA	Analysis of Variance
ARF	Acute renal failure
AST (GOT)	Aspartate Aminotransferase
ATN	Acute tubular necrosis
AUB	Abnormal uterine bleeding
BUN	Blood urea nitrogen
BWG	Body weight gain
C_{Cr} or CrCl	Creatinine clearance rate
CK	Creatine kinase
CKD	Chronic kidney disease
CLA	Conjugated Linoleic Acid
CRD	Chronic renal disease
CT	Computed tomography
CVVH	Continuous veno venous hemofiltration
DOX	Doxorubicin
DXN	Doxorubicin
EER	Ethanolic Eextract of 'Rocket'
FER	Feed efficiency ratio
FI	Feed intake
Fig.	Figure
g	Gram
GER	Glucoerucin
GFR	Glomerular Filtration Rate

GLS	Glucosinolates
GM	Gentamicin
GSH	Glutathione
HDL-C	High –density lioprotein cholesterol
IFN- γ	interferon-γ
IV	Intravenous
KSA	Kingdom Saudi Arabia
LDH	Lactate dehydrogenase
LDL-C	Low–density lioprotein cholesterol
LPS	Lipopoly saccharide
LS	Lepidium sativum
LSTA	*L. sativum* seed total alkaloid
MDA	Malondialdehyde
MEPO	Methanolic extract of *portulaca oleracea*
NSAIDs	Non-steroidal anti-inflammatory drugs
PO	*Portulaca oleracea*
PUFA	Polyunsaturated fatty acid
RNS	Reactive nitrogen species
ROS	Reactive oxygen species
RRT	Renal replacement therapy
SD	Stander Deviation
SOD	Superoxide dimutase
SPSS	Statistical programe of social studies
VLDL-C	Very low–density lipoprotein cholesterol
γ-GT	*Gamma*-glutamyl transpeptidase
ω-3	Omega 3
ω-6	Omega 6