Faculty of women for Arts, Science
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ASSESSMENT OF THE EFFECTIVE ROLE OF ARABIC GUM AND VITAMIN E ON KIDNEY AND LIVER INJURY INDUCED BY FOOD FLAVOUR CINNAMALDEHYDE IN YOUNG MALE ALBINO RATS

A thesis submitted
In partial fulfillment of the requirements for
the degree of (M. Sc.) in Zoology
By

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(وَأَنزَلَ اللَّهُ عَلَيْكَ الْكِتَابَ
وَالْحِكْمَةَ وَعَلَّمَكَ مَا لَمْ تَكُن
تَعْلَمُ ۚ وَكَانَ فَضْلُ اللَّهِ
عَلَيْكَ عَظِيمًا)

صدق الله العظيم

سورة انساء- الآية (١١٣)

Dedication

TO my Husband,

TO my Mother,

TO my brothers,

And
TO my sisters,

Wishing them all the best.

QUALIFICATIONS

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ABSTRACT

Cinnamaldehyde (CNMA) as a food additive is present in low concentrations in human food. It is commercially prepared by the condensation reaction of benzaldehyde and acetaldehyde and chemically related to toxicologically more active compounds. Accordingly attempts have been undertaken to protect the body from such toxicity as Gum Arabic (GA) which is a natural product and Vitamin E(VE) as antioxidants. To meet this goal, sixty young adult male albino rats were used to study the therapeutic role of GA and/or VE on liver and kidney injury induced by overdose of CNMA.

Sixty rats were divided into six groups each comprising 10 rats: Control group orally received distilled water, fifty CNMA rats orally received dose 73.5 mg/kg b. wt. of CNMA dissolved in distilled water daily for 3 months then they were divided into: CNMA rats at zero time, CNMA group at 30 days followed without any treatment for another 30 days as a recovery period, CNMA+GA therapeutic group orally administered GA at a dose 7.5 g/kg b. wt. daily for another 30 days, CNMA+VE therapeutic orally administered VE at a dose 1g/kg b. wt. daily for another 30 days, CNMA+mixture therapeutic group orally administered mixture of GA and VE at doses 7.5 g/kg b. wt. and 1g/kg b. wt. of GA and VE respectively daily for another 30 days.

At the end of experimental period, biochemical, histological and molecular studies were assessed. Biochemical analysis of serum showed that induction with CNMA without treatment revealed a significant decrease in total protein and albumin levels and a significant increase in urea, creatinine levels and serum alanine aminotransferase (ALT), aspartate aminotransferase (AST) and γ-