شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

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التوثيق الالكتروني والميكروفيلم

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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Biochemical Studies on the Effect of *Ulmus Pumila* Leaves Extract on Chemically-Induced Breast Cancer in Rats

Thesis

Submitted for Degree of Doctor of Philosophy in Biochemistry

Submitted By

Amal Gouda Hussien Abd El-Hameed

(M.Sc. in Biochemistry, 2014)

Under Supervision of

Prof. Dr. Ibrahim H. Borai
Professor of Biochemistry
Faculty of Science
Ain Shams University

Prof. Dr. Mahmoud M. Said
Professor of Biochemistry
Faculty of Science
Ain Shams University

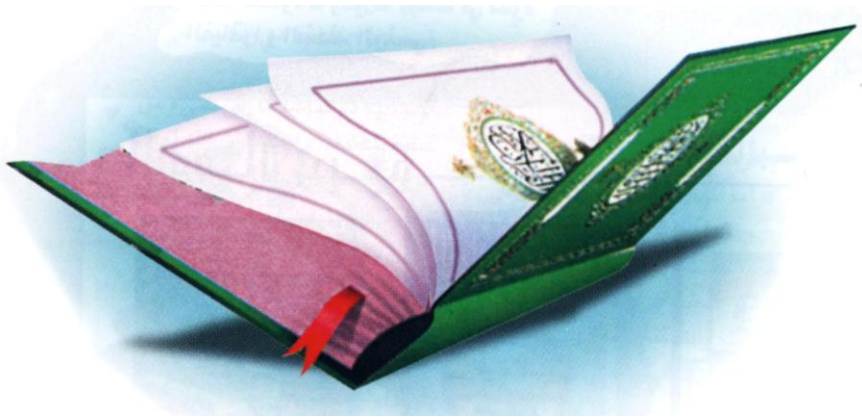
Prof. Dr. Mamdouh M. Ali
Professor of Biochemistry
Biochemistry Department
National Research Centre

Prof. Dr. Khaled Mahmoud Hanfi
Professor of Biochemistry
Pharmacognosy Department
National Research Centre

Faculty of Science – Ain Shams University
Biochemistry Department
2019

بسم الله الرحمن الرحيم

وَقُلِ اعْمَلُوا فَسَيَرَى اللَّهُ
عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ



صدق الله العظيم

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Amal Gouda Hussien Abd El-Hameed

Declaration

This thesis has not been submitted for a degree at this or any other university

Amal Gouda Hussien

Dedication

To my dear father, beloved mother, my sisters

&

My husband and my lovely son (Abd El-Rahman) for their love, encouragement, help and prayers that made my study possible and to them I owe everything.

Biochemical Studies on the Effect of *Ulmus Pumila* Leaves Extract on Chemically-Induced Breast Cancer in Rats

Amal Gouda Hussien
Faculty of Science, Ain Shams University

Abstract

Breast cancer is the most prevalent cancer and foremost global public health problem. There are little drugs to inhibit cancer metastasis or prevent its angiogenesis, current medications are as yet insufficient to generally treat this disease due to adverse side effects drug resistance and non-specificity, and therefore, there is a constant need for the development of novel and improved chemotherapeutic agents for the prevention and treatment of cancer. Therefore, the object of the present study was to evaluate the chemopreventive effect of *Ulmus Pumila* leaves extract on breast tumorigenesis induced in experimental animals by N-methyl-N-nitrosourea (MNU), in an attempt to inhibit, reverse or restrict the development of breast cancer and inhibit its metastasis and angiogenesis. A total of ninety female Wistar rats were divided into six groups; normal control group, UPME-treated group: rats were orally treated daily with (1/10 of the LD_{50} of UPME, 141.6 mg/kg) for four consecutive weeks, tumor group: breast cancer was induced in female rats by the intraperitoneal (i.p.) injection of two doses of freshly prepared MNU at a dose of 50 mg/kg bw, prophylactic group: rats were orally pretreated daily for four consecutive weeks with 1/10 of the LD_{50} of UPME before induction of breast cancer, protective group: rats were orally treated daily with 1/10 of the LD_{50} of UPME starting with the first (i.p.) injection of MNU and continued till the end of the experiment (25 weeks) and therapeutic group: rats were orally treated daily for four consecutive weeks (starting from the age of 25 weeks) with 1/10 of the LD_{50} of UPME after induction of breast cancer. Obtained results revealed that UPME treatment significantly

decreased liver enzymes (ALT, AST and ALP) activities, kidney function (creatinine and urea levels), uPA, HPA, bFGF, Bcl-2 and Cox-2 levels, on the other hand TAC level was increased, as compared to tumor group. This improvement in biochemical results were also supported with morphological changes, as well as histopathological impairment was minimalized in UPME treated groups. The ameliorative effect of UPME in therapeutic group was more effective than that in protective and prophylactic groups which indicated that UPME had chemotherapeutic potential on breast cancer induced rats. This indicated that the present extract has the capacity of inhibiting inflammation, halting angiogenesis, stimulating apoptosis, prohibiting tumor growth, and arresting matrix degradation and subsequently the tumor invasiveness and metastasis with improvement in the histopathological alterations. Furthermore, the improvement in therapeutic group was more pronounced than that in, protective and prophylactic groups, indicating that UPME may act as a therapeutic agent more than being a prophylactic agent. In conclusion UPME could be developed as a promising chemopreventive agent for breast cancer through normalizing the biochemical parameters and improving the morphological and histological investigations, but this vital extract could have more therapeutic action than prophylactic action.

Keywords: *Ulmus Pumila*, Breast Cancer