



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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جامعة عين شمس التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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كلية العلوم – قسم الكيمياء



Chromatographic isolation and characterization of certain bioactive chemical ingredients of *Phyllanthus emblica* and *Magnolia grandiflora* extracts and assessment of their potentials as antiviral and anticancer agents

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B.Sc.(Chemistry) 2001

M.Sc. (Chemistry) 2016

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ABSTRACT

Student Name: Tamer Samy Mohamed

Title of the thesis:

"Isolation Chromatographic isolation and characterization of certain bioactive chemical ingredients of *Phyllanthus emblica* and *Magnolia grandiflora* extracts and assessment of their potentials as antiviral and anticancer agents."

Degree: Degree of PhD of Science

The current study aims to evaluate the antioxidant, anticancer and antiviral activities of *Phyllanthus emblica* and *Magnolia grandiflora* leaves, as well as characterization of bioactive chemical constituents. The total phenolic and flavonoid contents of plant extracts were determined using Folin-Ciocalteu's and aluminium trichloride assays, respectively. The antioxidant activities were evaluated by DPPH free radical scavenging assay, ferric reducing assay and total antioxidant capacity, the anticancer activity was evaluated via MTT assay, while the antiviral activity was evaluated using cytopathic effect (CPE) inhibition and anti-HCV assays. Moreover, the chemical profiling of extracts was performed using reversed phase high-performance liquid-chromatography method. Our finding revealed that *P. emblica* and *M. grandiflora* are rich in glycosides, flavonoids, phenolics, terpenoids and tannins, these constituents acting a vital role for treatment of different diseases. The *n*-butanol fraction exhibited the highest total phenolic and flavonoid contents with values *P.emblica*: 654.78 mg GAE /g ext and 110.14 mg RE / g ext, *M. grandiflora*: 447.67 mg GAE /g ext and 109.21mg RE / g ext respectively. Also, it possessed the most effective antioxidant activities, for *P.emblica* (DPPH; IC₅₀=19.59 µg/mL, RPAA; 0.948 mg AAE /g ext., and TAC; 543.62mg AAE /g ext.) and for *M. grandiflora* (DPPH; IC₅₀=22.19 µg/mL, RPAA; 0.914mg AAE /g ext., and TAC; 671.16 mg AAE /g ext.) and anticancer activity against HepG-2 and MCF-7 cell lines with an IC₅₀ of 25.63 and 22.80µg/mL, and with an IC₅₀ 8.24 and 15.59 µg/mL respectively. Moreover, *P. emblica* and *M. grandiflora* extracts exhibited anti-HCV activity. The HPLC finger print results of the extracts showed 14 peaks superimposed to the standards. Separation and purification of the compounds in the most active extract was done using a combination of column chromatography and thin layer chromatography. Structure elucidation of pure isolates was achieved via IR, UV, ¹H & ¹³C-NMR

Keywords: Antiviral, Antioxidant, Anticancer, *Phyllanthus emblica*, *Magnolia grandiflora*, HPLC, Secondary metabolites.

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ACKNOWLEDGEMENT

FIRSTLY, Ultimate Thanks to "Allah"

I wish to express my deepest thanks and in recognition to *prof. Dr. Maher Abdel Aziz El-Hashash*, for his encouragement and continuous support during this study, reviewed the final work, and adding his beautiful magic touch on this study. It is a great honor to work under his supervision.

Greatest thanks are extended to *Prof. Dr. Laila Abdel Ghany Refahy*, professor of Medicinal Chemistry, Department Biochemistry and molecular biology and Medicinal chemistry, Theodor Bilharz Institute, for his kind help in the preparation of this manuscript, patience guidance, expert labors advice which are altogether beyond what I could expect.

I would like also to thank *Prof. Dr. Mahmoud Hassan Moaz Romeih*, professor of biochemistry and molecular biology, Department of Biochemistry and molecular biology and Medicinal chemistry, Theodor Bilharz Institute, for his continuous supervision, valuable advises and always encouragement.

My warm thanks are expressed to *Prof. Dr. Manal Mortady Hamed*, professor of Medicinal Chemistry, Department of Biochemistry and Molecular biology and Medicinal chemistry, Theodor Bilharz Institute,, for great help and constructive criticism and sincere initiating power this work was brought to light.

I would like to express my deepest gratitude and sincere appreciation to *Dr. Hend Okasha Ahmed*, Researcher of biochemistry and molecular biology, Department of Biochemistry and Molecular Biology and Medicinal chemistry, Theodor Bilharz Research Institute,, because of her valuable cooperation and continuous support during the work .

Many deep thanks to *Prof. Dr. Ayman Ayoub Abdel-Shafi*, Professor of Inorganic Chemistry & Head of Chemistry Department, Faculty of Science, Ain Shams University, for his friendly cooperation.

I am so much indebted to my family, for not only being a strong pillar in my life but also for being the most comfortable shoulder to lean on and for their support from the start until the end of my study.

Many deep thanks to my colleagues in Medicinal Chemistry Department, for their friendly cooperation.

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