شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

# بسم الله الرحمن الرحيم


HANAA ALY

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# جامعة عين شمس

# التوثيق الإلكتروني والميكروفيلم

# قسم

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

# يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

كليه 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

Thesis Submitted by

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B.Sc.(Chemistry) 2001

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**For the requirement of Ph.D.Degree of Science in Chemistry**

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كليه العلوم – قسم الكيمياء

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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; $IC_{50}$=19.59 µg/mL, RPAA; 0.948 mg AAE /g ext., and TAC; 543.62mg AAE /g ext.) and for *M. grandiflora* ( DPPH; $IC_{50}$=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 $IC_{50}$ of 25.63 and 22.80µg/mL, and with an $IC_{50}$ 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, $^{1}H$ & $^{13}C$-NMR

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

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