Ain Shams University

Faculty of Pharmacy

Pharmacognosy Department

Phytochemical and biological investigestion of *Wodeytia bifurcata* (Family Arecaceae)

A Thesis

Submitted in partial fulfillment for the requirements of Master of Science degree in Pharmaceutical Sciences

(Pharmacognosy)

Submitted by

Mostafa Basheer Elsaid Bayoume

B.Sc. of Pharmaceutical Sciences

Ain Shams University, 2007

Supervised by

Professor. Abd El-Nassar B. Singab, Ph. D.

Professor of Pharmacognosy, Dean of Faculty of Pharmacy, Ain Shams University.

Associate. Professor Mohamed R. Elgindi, Ph. D.

Associate Professor of Pharmacognosy, Faculty of Pharmacy, Head of pharmacognosy department, Egyptian Russian Univesity.

2015

Acknowledgment

All praises are due to Allah, most merciful, and the Lord of the world, who taught man what he knew not. I would like to thank Allah almighty for affording me the chance, strength and ability to complete this work.

I would like to express my thanks and gratitude to the members of the supervisor committee; Professor Abdel Nasar Sengab, head of Pharmacogonosy Department, dean of faculty of Pharmacy, Ain Shams University for his kind supervision, advice, helpful suggestions, valuable assistance, constant guidance and encouragement throughout the study. I am truly proud to be one of his students.

Associate Professor Mohamed. Elgindi, head of Pharmacogonosy Department Faculty of Pharmacy, Egyptian Russian University for his kind supervision, indispensable advice, valuable comments and brilliant ideas. He is an example to what a scientist and advisor should be. It has been an honor serving the department and working with him.

Dr. Dina M. Y. Elnaggar, Lecturer of Pharmacognosy, Faculty of Pharmacy, Al Azhar University for her valuable comments and continuous encouragement. Her constructive criticism and suggestions helped me to improve the whole work. She is an excellent example for a young researcher could be.

I would like to thank, Prof. Dr. Ihab Fetouh, Dean of Faculty of Pharmacy, Egyptian Russian University and Prof. Dr. Omayma Elgindi, head of Pharmacognosy department, Faculty of Pharmacy, Egyptian Russian University my workmate (Mostafa Hassan , Reham Hassan , Eman Eltaher , Mahmoud Ali , Marina Malak , Mohamed Elsaid, Mohamed Gareer) for their continuous support and encouragement over the course of study.

My gratitude goes to Professor Abdel Monam Atya professor of pharmacognosy who taught the ways of reading and thinking scientifically since adolescence. Many thanks to my God father Professor Reda Mostafa (Professor of surgery Ain Shams University) who supported me to join academic career.

My sister Maha Naser lecturer of pharmaceutics Ain shams University who supported me since pre graduation. Also I would like to thank Maissa Mokhtar (the president of French club at cairo) who supported and motivated me incorporeal and psychological through my master studies. Finally, I am always indebted to my parents Prof. Dr. Basheer E. Bayoume and Gehan Selim for their constant support, love and patience. Without their continued support, I would have not accomplished this effort of course, I say first and foremost thanks to Allah. (*Mostafa B. elsaid)*

Curriculum Vitae

Name: Mostafa Basheer Elsaid

Date of Birth: 15/9/1985

Place of Birth: Cairo, Egypt.

First University Degree: B.Sc. in Pharmaceutical Sciences.

Name of University: Ain Shams University.

Date of Degree: June 2007.

Abstract

Phytochemical screening of the aerial parts of *Wodeytia bifurcata*, family Arecaceae, revealed the presence of triterpenes, flavonoids, and phenolic acids. A phytochemical study of the total extract of the aerial parts of *Wodeytia bifurcata* was carried out to fractionate and separate possible compounds and proof their chemical structure using both chemical and spectroscopic methods of analysis viz ^{13}C- NMR, ^{1}H-NMR , EI-MS and UV.

Two triterpenoids were isolated from the aerial parts (of *Wodeytia bifurcata* Arecaceae cultivated in Egypt), their structures were elucidated on the basis of spectral data and were identified as: Olean-12-en-3β-ol (β-Amyrin) and (3 β)-lup-20 (29)-en-3-ol (lupeol). Four phenolic compounds were identified as Apigenin, Kaempferol, para hydroxybenzoic acid and gallic acid.

The genetic fingerprinting of the leaves of *Wodeytia bifurcata* was determined using the RAPD-PCR (Random Amplified Polymorphic DNA) technique which has been widely used in plants for the construction of genetic maps and for genotyping identification and taxonomic studies.

The methanol, butanol, n-hexane, and chloroform, extracts of the aerial parts of *Wodeytia bifurcata* showed certain biological activities: anti-inflammatory, antioxidant and cytotoxic activities against HEP-G_2 (Hepatocarcinoma).

Index

List of Tables