

الاستهلال

قَالَ تَعَالَى: ﴿أَقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ ﴿١﴾ خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ ﴿٢﴾

أَقْرَأْ وَرَبُّكَ الْأَكْرَمُ ﴿٣﴾ الَّذِي عَلَّمَ بِالْقَلَمِ ﴿٤﴾ عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ ﴿٥﴾

سورة العلق (الآيات ١-٥)

صدق الله العظيم

Dedication

I dedicate this work to my

parents

husband and daughters

brothers and sisters

Acknowledgements

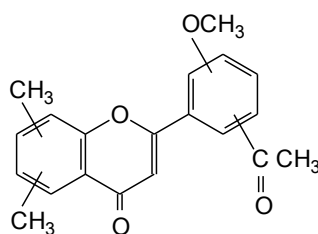
I would like to thank **Almighty Allah** for giving me the will to complete this work.

A lot of people have contributed, in many ways, to the success of this work and as part of my appreciation to their contribution I would like to express my profound gratitude to each of them. I would like to thank Prof.. Mohamed Abdel Karim for his help and patience through the difficult periods I encountered during this research. I would always remember and appreciate your valuable contributions and suggestions during the course of this research.

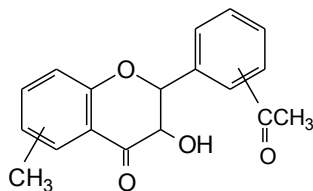
I thank my husband-Dr. Bala - who provided me with invaluable support, encouragement and advice in many aspects during my academic career. My sincere thanks to those who helped me in any way during this work.

Abstract

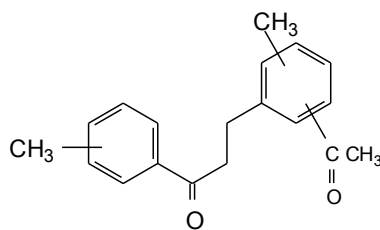
This study was carried out to investigate the major flavonoids of *Coriandrum sativum* leaves, *Bauhinia rufescens* roots, stem bark of *Albizza amara* and to assess the antimicrobial activity of the isolated flavonoids. The flavonoids were extracted with ethanol and the crude extract was purified by paper chromatography where three flavonoids have been isolated. Compound A was isolated from *Coriandrum sativum* leaves, compound B from *Bauhinia rufescens* roots and compound C from stem bark of *Albizza amara*. The structures of these flavonoids have been partially characterized by some spectral tools (UV, IR and $^1\text{H NMR}$).



Compound A



Compound B

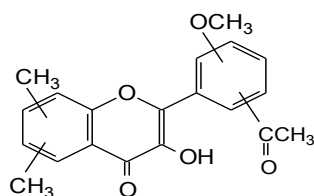


Compound C

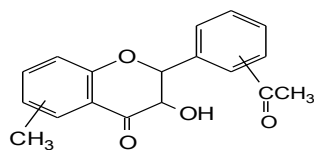
Compound A which was isolated from *Coriandrumsativum* was evaluated for antimicrobial activity against six standard pathogenic bacteria. The compound showed significant anticandidal activity. It also exhibited significant antibacterial activity against *Pseudomonas aeruginosa* and *Bacillus subtiles* and good activity has been detected against other test organisms. The crude extract from *Bauhinia rufescens* roots showed better inhibitory effect compared to compound B. While the crude extract showed significant antibacterial and antifungal properties. Compound B exhibited moderate antibacterial activity and weak antifungal properties.

المستخلص

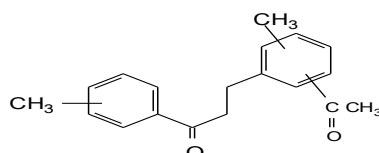
أجريت هذه الدراسة لاستخلاص الفلافونويدات الرئيسية من أوراق نبات الكسبرة، جذور الكولكول ولحاء العرد. كذلك تمت اختبار هذه المركبات كمضادات ميكروبات. تم فصل الفلافونيد A من اوراق الكسبرة ، الفلافونيد B من جذور الكولكول اما الفلافونيد C فقد فصل من لحاء العرد. وقد تم توصيف تراكييب هذه الفلافونيدات جزئيا عن طريق مطيافية الاشعة فوق البنفسجية . مطيافية الاشعة تحت الحمراء ومطيافية الرنين النووي المغنطيسي.



Compound A



Compound B



Compound C

وفي اختبار مضاد للميكروبات، أظهر المستخلص الايثانولي الخام لنبات الكسبرة فعالية مثبتة للميكروبات اعلى بالمقارنة مع المركب الفلافونيدي النقي المفصول من هذا النبات- المركب A . اما المركب الفلافونيدي الذي تم فصله من نبات الكولكول فقد ابدى نشاطا ملحوظا ضد الميكروبات قيد الاختبار .

Table of Contents

No	Title	Page N0
	الإستهلال	
	Dedication	
	Acknowledgment	
	Contents	
	List of tables	
	Abstract	
	المستخلص	
	List Of Tables	
	List Of Figures	
Chapter One		
1	Introduction	
1.1.	General overview	1
1.2	Occurrence of flavonoids in diet	5
1.3.	Biological potential of flavonoids	6
1.3.1	Flavonoid intake and risk of chronic diseases	8
1.3.2.	Flavonoids as antiinflammatory agents	11
1.3.3.	Inhibition of histamine release	13
1.3.4.	Antidiabetic effect	13
1.4.	Flavonoids isolated from Sudanese plants	14

1.5.	Structural elucidation of flavonoids	27
1.5.1	The Infrared spectroscopy	28
1.5.2	The Ultraviolet / Visible spectroscopy	29
1.5.3	Mass spectrometry	34
1.5.4	Nuclear magnetic resonance spectroscopy	34
1.6.	The target species	36
1.6.1.	Bauhinia Rufescens	36
1.6.2	Coriandrum sativum	37
1.6.3	Albizia amara	38
	Aim of this study	41
Chapter two		
2	Materials and methods	42
2.1	Materials	42
2.1.1.	Plant material	42
2.1.2	Materials for paper chromatography	42
2.1.3	Test organisms	42
2.1.4	Equipments	43
2.1.5	Solvents	43
2.2	Methods	43
2.2.1	Extraction of flavonoids	43
2.2.2	Phytochemical screening	44
2.2.3	Antimicrobial assay	46
2.2.4	Isolation of flavonoids	46

2.2.5	Structural elucidation of flavonoids	47
2.2.5.1	UV-Visible Spectroscopy	47
2.2.5.1.1	Shift Reagents	48
2.2.5.3	Infrared (IR) Analysis	49
2.2.5.4	Nuclear Magnetic Resonance Spectroscopy of (NMR)	49
Chapter three		
3	Results and Discussion	50
3.1	Compound A	51
3.1.1	IR spectrum of Compound A	51
3.1.2	UV of Compound A	52
3.1.3	¹ HNMR spectrum of compound A	66
3.2	Compound B	56
3.1.2	spectrum of compound B	56
3.2.2	¹ HNMR spectrum of compound B	59
3.3.	Compound C	60
3.3.1	UV spectrum of compound C	60
3.3.2	¹ HNMR spectrum of compound C	62
3.4.	Antimicrobial assay	64
3.5	Conclusion	65
3.6	Recommendations	66
	referencers	

List Of Tables

No	Title	Page N0
1	Phytochemical of <i>CoriandrumStivum</i> and <i>Albizzaamara</i>	50
2	Antimicrobial activity of compound	63
3	Diameters of inhibition zones(mm)	64

List Of Figures

No	Title	Page N0
3.1	The IR spectrum of compound A	61
3.2	UV spectrum of compound A	62
3.3	Sodium methoxide spectrum of compound A	63
3.4	Sodium acetate spectrum of compound A	64
3.5	Aluminium chloride spectrum of compound A	65
3.6	¹ HNMR spectrum of compound A	66
3.7	UV spectrum of compound B	66
3.8	Sodium methoxide spectrum of compound B	67
3.9	Sodium acetate spectrum of compound B	67
3.10	Aluminium chloride spectrum of compound B	68
3.11	¹ HNMR spectrum of compound B	68
3.12	UV spectrum of compound C	70
3.13	Sodium methoxide spectrum of compound C	70
3.14	Sodium acetate spectrum of compound C	71
3.15	Aluminium chloride spectrum of compound C	71
3.16	Boric acid spectrum of compound C	71
3.17	¹ HNMR spectrum of compound C	72