

## Contents

Contents	i
List of tables	iv
List of figures	v
Acknowledgements	vi
Abstract (English)	vii
Abstract (Arabic)	ix
<b>CHAPTER ONE</b>	
<b>INTRODUCTION</b>	
1.1 General introduction	1
1.1.1 Plant material	2
1.1.2 Extraction	2
1.1.3 Extraction of fixed oil	3
1.1.3.1 Solvent extraction	4
1.1.4 Methods of separation and isolation	4
1.1.5 Methods of identification	4
1.2 <i>Ximenia americana</i> L.	5
1.2.1 Classification	5
1.2.2 Common names	5
1.2.3 Botanical description	6
1.2.4 Ecological and distribution	6
1.2.4.1 Natural habitat	6
1.2.4.2 Requirements	8
1.2.4.2.1 Soil requirements	8
1.2.4.2.2 Propagation methods	8
1.2.4.2.3 Growth cycle	8
1.2.4.3 Geographical distribution	8
1.2.4.4 Important uses	9
1.2.4.4.1 Food	9
1.2.4.4.2 Fuel	9
1.2.4.4.3 Tannins or dyestuff	9
1.2.4.4.4 Lipids	9
1.2.4.4.5 Essential oils	9
1.2.4.4.6 Alcohol	10
1.2.4.4.7 Folk medicine	10
1.2.5. Chemical constituent of <i>X. americana</i>	11

1.3 Lipids	11
1.3.1 Fats and oils	11
1.3.2 Hydrogenation of oils	15
1.3.3 The determination of the position of double bonds in fatty acids	15
1.3.4 Oil properties	17
1.3.4.1 Physical properties	17
1.3.4.2 Chemical properties	18
1.4 Aims and objectives	21
<b>CHAPTER TWO</b>	
<b>RESULTS AND DISCUSION</b>	
Extraction from <i>X. americana</i> seeds	22
Oil content	22
Physical properties of <i>X. americana</i> . Seeds oil	22
Chemical properties of <i>X. americana</i> . Seeds oil	25
Structure elucidation of <i>X. americana</i> seeds oil	31
Extraction from <i>X. americana</i> . fruits pulp	36
Structure elucidation of compound R <sub>1</sub>	40
Structure elucidation of compound R <sub>2</sub>	46
Structure elucidation of compound R <sub>3</sub>	47
<b>CHAPTER THREE</b>	
<b>MATERIALS AND METHODS</b>	
3.1 Materials	52
3.1.1 Plant materials	52
3.1.2 Chemicals	52
3.1.3 Chromatographic methods	53
3.1.3.1 Preparation of plates for TLC and application of sample	53
3.1.3.2 Preparation of chromatographic column	53
3.1.3.3 Preparation of sample for column chromatography and its application	54
3.1.4 Infrared (IR) Spectrophotometers	54
3.1.5 Ultraviolet (UV) Spectrophotometers	54
3.1.6 Nuclear Magnetic Resonance (H <sup>1</sup> -NMR) Spectrophotometers	54
3.1.8 Mass (MS) Spectrophotometers	54
3.1.9 General apparatus	54
3.1.10 Preparation of reagents	55
3.1.10.1 Phytochemical reagents	55
3.1.10.2 Preparation of chemical reagents	57
3.1.10.3 Spray reagents	58

3.2 Methods	58
3.2.1 Preparation of plant material	58
3.2.2 General extraction procedure	58
3.2.3 Chromatographic methods	60
3.2.4 Phytochemical screening	61
3.2.4.1 Test for alkaloids	61
3.2.4.2 Test for saponins	61
3.2.4.3 Test for tannins	62
3.2.4.4 Test for flavonoids	62
3.2.4.5 Test for cardiac glycosides	62
3.2.5 Chemical tests	63
3.2.5.1 Elemental analysis	63
3.2.5.2 Nitrating tests	64
3.2.5.3 Baeyer test	64
3.2.5.4 Reduction of Benedicts reagent	64
3.2.5.5 Reduction of Tollens reagent	64
3.2.6 Determination of physical properties of <i>X. americana</i> seeds oil	65
3.2.7 TLC study of <i>X. americana</i> seeds oil	66
3.2.8 Chemical tests of <i>X. americana</i> . seeds oil	68
3.2.9 Spectroscopic analysis	71
Conclusion and recommendation	73
<b>CHAPTER FOUR</b>	
References	74

<b>List of tables</b>	
Table (1.1) <i>X. americana</i> requirement for propagation	8
Table (1.2) Natural occurring saturated acid	13
Table (1.3) Unsaturated fatty acid	14
Table (2.4) Viscosity measurement of <i>X. americana</i> seeds oil	23
Table (2.5) <i>X. americana</i> seeds oil properties	28
Table (2.6) Properties of some oils	30
Table (2.7) Physical properties of compounds R <sub>1</sub> , R <sub>2</sub> and R <sub>3</sub>	36
Table (2.8) Colour reagents of compounds R <sub>1</sub> , R <sub>2</sub> and R <sub>3</sub>	37
Table (2.9) Chemicals tests of compounds R <sub>1</sub> , R <sub>2</sub> and R <sub>3</sub>	38
Table (2.10) Phytochemical screening of compounds R <sub>1</sub> , R <sub>2</sub> and R <sub>3</sub>	39
Table (3.11) Compounds classes and reagents for their detection	61
Table (3.12) Staining methods for TLC	67
Table (3.13) Conditions used in the UV analysis	72

<b>List of figures</b>	
Fig (1.1) <i>X. americana</i> fruits before use	7
Fig (2.2) viscosity of <i>X. americana</i> seeds oil versus temperature	24
Fig (2.3) UV spectra of <i>X. americana</i> seeds oil	33
Fig (2.4) IR spectra of <i>X. americana</i> seeds oil	34
Fig (2.5) MS spectra of <i>X. americana</i> seeds oil	35
Fig (2.6) UV spectra of compound R <sub>1</sub>	42
Fig (2.7) IR spectra of compound R <sub>1</sub>	43
Fig (2.8) H <sup>1</sup> -NMR spectra of compound R <sub>1</sub>	44
Fig (2.9) MS spectra of compound R <sub>1</sub>	45
Fig (2.10) UV spectra of compound R <sub>2</sub>	48
Fig (2.11) IR spectra of compound R <sub>2</sub>	49
Fig (2.12) UV spectra of compound R <sub>3</sub>	50
Fig (2.13) IR spectra of compound R <sub>3</sub>	51
Fig (3.14) Scheme for general extraction	59

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## ABSTRACT

*Ximenia americana* tree, family Oleaceae is widely distributed in the tropical, subtropical, savanna rich and poor region in Africa, Asia, south America, north America and Europe. The tree used in traditional medicine for fever, headaches, eye lotion and cold.

In this study some the fixed oil was extracted from the seeds of *X. americana* by solvent extraction technique (soxhlet). The study covers the percentage yield, physical and chemical properties of the oil were studied. The highest oil yield obtained was 51% w/v. The physical properties of the oil were, found to be refractive index (1.477), density (0.937), boiling point (157 °C) and the viscosity can be measured as 42 at 70 °C and 227.58 at 25°C. The chemical properties of the oil were: iodine value (47.59), acid value (0.2805), peroxide value (30), saponification value (11.43), ester value (9.82), and the ratio value (35) and molecular weight of 604 and composed of  $C_{40}H_{76}O_3$ . The major component of the oil was tentatively identified as 14,14 – Dimethyl – 18 – hydroxy octatriocontanoic.

The results of the study showed that; the oil has high viscosity and low rancidity, but on the other hand the study reveal that the oil is not edible oil because it contains amount of tea seed oil and high peroxide value.

A modification of the general extraction technique used to isolate some compounds from the seed coat (fruit pulp) of the plant origin has been devised. Accordingly, three compounds (designated  $R_1$ ,  $R_2$  and  $R_3$ ) were isolated, and purified using column and thin – layer chromatography. Further spectroscopic analysis using MS and  $H^1$ - NMR for compound  $R_1$  indicate that it has a molecular weight of 578 and has a molecular formula of  $C_{35}H_{62}O_6$ . Compound  $R_1$  was tentatively identified as 4– Methyl – 28,29

– dihydroxy butatriocontaneic acid. Compounds R<sub>2</sub> and R<sub>3</sub> was isolated in meager amounts that could not be subjected to further studies. Phytochemical screening and thin – layer chromatographic study of these compounds showed that, all these compounds have the same behavior and belong to the class of hydroxy unsaturated acids.



تنتشر شجرة الحميض الأبيض في المناطق الاستوائية ، شبه الاستوائية ، السافانا الغنية والسافانا الفقيرة في كل من آسيا ، أفريقيا ، أوروبا وأمريكا الشمالية والجنوبية . ولهذه الشجرة موضع الدراسة استخدامات عديدة في الطب الشعبي حيث تستخدم في علاج الحمي ، الصداع وغيرها

في هذه الدراسة تم استخلاص زيت من بذرة نبات الحميض الأبيض باستخدام تقنية الاستخلاص حيث تمت دراسة الخواص الفيزيائية والكيميائية لهذا الزيت . وجد أن (soxhlet) بالمذيب بواسطة جهاز بذرة هذا النبات تعطي ناتج حوالي 51% زيت .

الخواص الفيزيائية للزيت كانت كالآتي : معامل الانكسار  $n_D^{20}$  1.477 ، الكثافة 0.937 ودرجة الغليان 157 درجة مئوية . أما الخواص الكيميائية فهي : العدد اليودي 47.59 ، العدد الحمضي 28.05 ، رقم البيروكسيد 30 ، عدد التصلب 11.43 ، عدد الاستر 9.82 وتم التعرف على الوزن الجزيئي للزيت بواسطة طيف وأعطي الاسم 14،14- ثنائي ميثيل - 18 - هيدروكسي أوكتاترايو  $C_{40}H_{76}O_3$  الكتلة وهو 604 ويتكون من كوتانوليك كما أظهرت النتائج أن الزيت الناتج عالي اللزوجة ، واطئ التزنج ولكنه غير طالح للأكل لاحتوائه

على كمية من مكون مثل الموجود في بذرة الشاي وهو سام بالإضافة إلى ارتفاع رقم البيروكسيد الجزء الخارجي المغلف للبذرة عبارة عن ثمرة لنبات الحميض الأبيض . أسفرت النتائج عن فصل ثلاثة مركبات من وذلك لاستخدام تقنية الاستخلاص العامة وتمت تنقية هذه المركبات  $R_1$ ،  $R_2$ ،  $R_3$  هذه الثمرة أعطيت الرموز بواسطة كروماتوغرافيا العمود وكروماتوغرافيا الطبقة الرقيقة .

تم استخلاصهما بكميات قليلة لم تمكن من إجراء مزيد من الدراسات عليهما  $R_2$  و  $R_3$  لمركبان 3 تم التعرف عليه بواسطة طيف الرنين النووي المغناطيسي وطيف الكتلة حيث وجد أن له  $R_1$  أما المركب وأعطي الاسم 4 - ميثيل - 28.29 - ثنائي هيدروكسي  $C_{35}H_{62}O_6$  وزن جزيئي يسوي 578 ويتكون من . بيوتاترايو كوتانوليك .

أظهر المسح الكيميائي وكروماتوغرافيا الطبقة الرقيقة أن هذه المركبات تنتمي إلى طائفة الأحماض الهيدروكسيلية الغير مشبعة .

بسم الله الرحمن الرحيم

## **Phytochemical Study of Ximenia Americana. L Seeds**

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