

بسم الله الرحمن الرحيم

قال تعالى :

﴿قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ﴾

صدق الله العظيم

سورة البقرة الآية (32)

Dedication

To my parents
And
family.

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ABSTRACT

In this study the seeds and leaves of the plant *Eugenia jambolana*, a traditional plant collected from Elkadaro area, Khartoum state, Sudan, was extracted with ethanol and water and the leaves were also hydrodistilled for volatile oil. Antimicrobial activity was conducted for the crude extracts and the isolated compounds.

Phytochemical screening showed positive results for flavonoids, tannins, steroids for both extracts and positive for alkaloids for only ethanolic extract of the seeds.

Three compounds designated F₁, F₂ and F₃ were isolated utilizing chromatographic techniques from the ethanolic extract of the seeds, the ethyl acetate extract and the aqueous ethanolic extract of the leaves, respectively. Tentative structures were deduced for F₁, F₂ and F₃ from IR, UV and MS as *p*-methoxyl benzoic acid (F₁), 6-acetyl 3', 5'-dimethoxy 5-hydroxy flavone (F₂) and 7-acetyl 4'-ethoxy 3', 5', 6-trimethoxy -dihydroflavonol (F₃), respectively.

F₁

F₂

F₃

The seeds and the leaves crude extracts were found active when assayed against five bacterial and two fungi microorganisms. For pure structures F₁ showed activity only against *Bacillus subtilis* and *Staphylococcus aureus* bacteria, while F₂ and F₃ possessed more antibacterial and antifungal activity.

The volatile oil from the dry leaves of *E. jambolana* showed a complex mixture when analyzed by GC-MS. Thirty two compounds, most of them are terpenoids were identified when comparing their mass spectra with the spectrometer

library. The identity of 10 compounds was confirmed by analyzing the MS fragmentation pattern.

الخلاصة

في هذه الدراسة بذور وأوراق نبات الزونيا المستخدم بصورة واسعة في العلاج الشعبي جمع من منطقة الكدرو في السودان تم استخلاصه بواسطة الايثانول والماء وتم استخلاص الزيت الطيار من الأوراق بواسطة التقطير المائي . درست فعالية التضاد الجرثومي للمستخلصات والمركبات المفصولة. تم إجراء المسح الكيميائي على البذور و الاوراق ووجد أن البذور تحتوي على فلافونويدات, تانينات, سترويدات ومركبات صابونية وقلويدات وكذلك الأوراق تحتوى على هذه المكونات ماعدا القلويدات. ثلاث مركبات فينولية رمز لها F_1 , F_2 , F_3 تم استخلاصها بواسطة كروماتوغرافيا الطبقة الرقيقة من المستخلص الايثانولي للبذور , مستخلص خلات الايثيل للأوراق والمستخلص المائي للأوراق على التوالي. وتم تحديد الصيغ الكيميائية لهذه المركبات عن طريق مطيافية الاشعه تحت الحمراء وفوق البنفسجية وطيف الكتلة وقد اتضح ان المركب F_1 عبارة عن الحمض بارا بنزويك وأن المركب F_2 عبارة عن فلافون. و أتضح أن المركب F_3 عبارة عن داي هيدروفلافونول .

F_1

F_2

F_3

ولقد وجد أن مستخلصات البذور والأوراق لها فعالية اتجاه خمسة أنواع من البكتريا ونوعين من الفطريات. المركب F_1 له فعالية فقط اتجاه نوعين من البكتريا *Bacillus subtilis* و *Staphylococcus aureus* بينما المركب F_2 و F_3 له فعالية أكثر اتجاه البكتريا و الفطريات.

وجد أن الزيت الطيار المستخلص من الأوراق يتكون من خليط من المركبات التي تم تحليلها بواسطة تقنية كروماتوغرافيا الغاز المتصلة بطيف الكتلة (32 . GC-MS) مركب قد تم التعرف عليها , غالبيتها تربينات وتم تحليل طيف الكتلة لعشره مركبات منها.

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