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GC-MS ANALYSIS OF ETHANOLIC EXTRACT OF LEAVES OF *ELEAGNUS LATIFOLIA* WILLD

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ABSTRACT

Objective: The *Eleagnus Latifolia* Wild are worldwide distributed plant which native mainly to subtropical regions of Asia, North America, southeastern Europe. Has different utilized in people medication as calming, muscle relaxant, antipyretic, pain relieving, astringent and antiulcer operator. **Methods:** *Eleagnus Latifolia* was gathered from B. Maduvangarai, Tamil Nadu, India. The leaves were gathered and extricate arranged from ethanol by hot nonstop permeation technique in soxhlet contraption for 24 hours. The ethanolic extract was collected and analyzed using Perkin -Elmer Gas Chromatography-Mass Spectroscopy for the identification of active biochemical constituents present in the leaves of *Eleagnus Latifolia* Willd. **Results:** GC-MS analysis of ethanolic extract *Eleagnus Latifolia* of leaves of showed 12 bioactive compounds, the highest compound was named .Alpha.-D-Mannofuranoside, Methyl and lowest was named Distearyl Sulfide. **Conclusion:** In the present study, we concluded that the phytochemical constituents of ethanolic extract of leaves of *Eleagnus Latifolia* by Gas Chromatography and Mass Spectrometry (GC-MS), to furnish the scientific information to evolve potential phytomedicine.

KEYWORDS

Herbal plants, GC-MS, *Eleagnus Latifolia* Therapeutic, Diseases and Phytomedicine.

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INTRODUCTION

India is the biggest producer of medicinal herbs and is appropriately called the botanical garden of the world. Herbal plants play a most important role in humans to treat various life threatening diseases. *Elaeagnaceae* are worldwide distributed plant which native mainly to subtropical regions of Asia, North America, Southeastern Europe and Australia. The use of *elaegnus* has been known for a long time, in addition to fresh consumption,

many species of elaeagnus are widely used in juice, herbal tea, wine, soup, sauce, dessert, candy, pudding, ice cream topping, fruit leather, jam and jelly. Alongside their edible values, many species of elaeagnus including *Elaeagnus triflora*, *Elaeagnus umbellate*, *Elaeagnus pungens*, *Elaeagnus angustifolia*., elaeagnus x ebbingei and elaeagnusmultiflora has multiple used in folk medicine as anti-inflammatory, muscle relaxant, antipyretic, analgesic, astringent and antiulcer agent. Many *Elaeagnus* species have shown as rich in many bioactive components and known as strongly tanniferous as well as many other compounds including indole alkaloids, sinapinic acid, flavonols, pentacyclitriterpenes and l-quebrachit. *Wild Elaeagnus* plants provides wildlife cover and introduce many environmental benefits for biodiversity maintenance and revegetation process. Many species has ability to fix atmospheric nitrogen and has very important role for the process of soil erosion prevention. The product of numerous individuals from this sort is an extremely rich wellspring of nutrients and minerals, particularly in nutrients a, c and e, flavanoids and other bio-dynamic mixes. It is likewise a genuinely decent wellspring of basic unsaturated fats, which is genuinely surprising for a natural product. It is being examined as anourishment that is equipped for lessening the occurrence of malignant growth and furthermore as a methods for ending or switching the development of diseases.

GC-MSIS a hyphenated system which is very suitable method and the most commonly used technique for the identification and determination purpose. The unidentified biological compounds in a complex mixture can be evaluated by interpretation and also by matching the spectra with reference spectra.

MATERIAL AND METHODS

Collection and Identification of *Eleagnus Latifolia*

Eleagnus Latifolia was collected from B. Maduvangarai, Chidambaram Taluk, Cuddalore

District, Tamil Nadu, India. Ordered distinguishing proof was produced using Natural Overview of Restorative Plants Unit Siddha, Administration of India, Palayamkottai.

Extraction and Isolation of *Eleagnus Latifolia*

The aerial parts of *Eleagnus Latifolia* were dried under shade, segregated, pulverized by a mechanical grinder and passed through a 40 mesh sieve. The powdered plant materials were put away in a sealed shut compartment. The above powdered components were continuously extracted with ethanol in a Soxhlet apparatus using a 24 hours continuo shot percolation method. The extract was concentrated on a rotary evaporator and subjected to freeze drying in a lyophilize until a dry powder was obtained.

Gas Chromatography – Mass Spectroscopy Analysis

Clarus 680 GC was passed down in the analysis to engaged a fused silica column, packed with Elite-5MS (30 m × 0.25 mm ID × 250µm df, 5% biphenyl 95% dimethylpolysiloxane) and the components were distinct using Helium as carrier gas at a constant flow of one ml/min. The injector temperature was set at 260°C throughout the chromatographic run. The 1µL of extract sample infuse into the instrument the oven temperature was as follows: 60°C (2 min); pursue by 300°C at the rate of 10°C min⁻¹; and 300°C, where it was held for six minutes. The mass indicator conditions were, move line temperature 240°C, particle source temperature 240°C, and ionization mode Electron impact(EI) at 70 eV, a sweep time 0.2 sec and output interim of 0.1 sec. The pieces from 40 to 600 Da. The ranges of the parts were contrasted and the database of range of realized segments put away in the GC-MS NIST (2008) library.

Identification of phytocomponents

Evaluation on GC-MS was conducted using the database of National Institute Standard and Technology (NIST) having more than 62,000 patterns. The spectrum of the unknown compounds was correlated with the spectrum of known compounds stored in the NIST library. The

structure, name and molecular weight of the components of the test substances were confirmed.

RESULTS AND DISCUSSION

GC-MS analysis of ethanolic extract of leaves of *Eleagnus Latifolia* revealed various compounds with help of NIST library. Totally 12 most abundant compounds with their retention time, molecular formula, molecular weight and peak area were listed in Table No.1 and GC-MS chromatogram of the 12 peak of the compounds detected was shown in Figure 1. The components found in the ethanolic extract of leaves of *Eleagnus Latifolia* Willd. Alpha.- D-Mannofuranoside, Methyl [39.270], Tetradecanoic Corrosive, 5, 9, 13-Trimethyl-, Methyl Ester [17.360], Estra-1, 3, 5(10)- Trien-17. Beta.- Ol [5.317], Sulfurous Corrosive, Octadecyl 2-Propyl Ester [13.515], HEPTACOSANE, 1-Chloro [6.337], 2h-1-Benzopyran-6-Ol, 3, 4-Dihydro-2, 8-Dimethyl-2-(4, 8, 12-Trimethyltride [2.257], Spiro(2-Oxabicyclo[2.1.0]Pentane)- 3, 2'- Oxetane, 1, 5, 5, 3', 3', 4', 4'-

Heptamethyl [2.586], Silane [(3.Beta.)- Gorgost-5-En-3-Yl] Oxy] Trimethyl [2.352%], Lupeol [2.524%], R-Acetoxyethyl-1, 3, 3-Trimethyl-4t-(3-Methyl-2-Buten-1-Yl)- 1t-Cyclohexanol [3.141%], 2, 4, 4-Trimethyl-3-Hydroxymethyl-5a-(3-Methyl-Yet 2-Enyl)-Cyclohexene [3.085%].

The above 12 bioactive compounds were identified from *Eleagnus Latifolia* through GC-MS many of them shows a potential therapeutic activity against various diseases.

Table No.1: Phytocomponents identified in ethanol extract of leaves of *Eleagnus Latifolia*

S.No	RT	Name of the Compound	Molecular formula	Molecular weight	Peak Area %
1	18.860	Alpha.-D-Mannofuranoside, Methyl	C ₇ H ₁₄ O ₆	194	39.270
2	20.006	Tetradecanoic Acid, 5, 9, 13-Trimethyl-, Methyl Ester	C ₁₈ H ₄₀ O ₂	284	17.360
3	20.496	Estra-1, 3, 5(10)-Trien-17. Beta.-Ol	C ₁₈ H ₂₄ O	256	5.317
4	21.176	Sulfurous Acid, Octadecyl 2-Propyl Ester	C ₂₁ H ₄₄ O ₃ S	376	13.515
5	21.836	Heptacosane, 1-Chloro	C ₂₇ H ₅₅ Cl	414	6.337
6	22.532	Distearyl Sulfide	C ₃₆ H ₇₄ S	538	2.255
7	24.272	2h-1-Benzopyran-6-Ol, 3, 4-Dihydro-2, 8-Dimethyl-2-(4, 8, 12-Trimethyltride	C ₂₇ H ₄₆ O ₂	402	2.257
8	24.433	Spiro(2-Oxabicyclo[2.1.0]Pentane)-3,2'-Oxetane, 1, 5, 5, 3', 3', 4', 4'-Heptamethyl	C ₁₃ H ₂₂ O ₂	210	2.586
9	27.119	Silane, [(3.Beta.)-Gorgost-5-En-3-Yl]Oxy]Trimethyl	C ₃₃ H ₅₈ O _{SI}	498	2.352
10	27.854	Lupeol	C ₃₀ H ₅₀ O	426	2.524
11	27.854	R-Acetoxyethyl-1,3,3-Trimethyl-4t-(3-Methyl-2-Buten-1-Yl)-1t-Cyclohexanol	C ₁₇ H ₃₀ O ₃	282	3.141
12	29.094	2,4,4-Trimethyl-3-Hydroxymethyl-5a-(3-Methyl-But-2-Enyl)-Cyclohexene	C ₁₅ H ₂₆ O	222	3.085

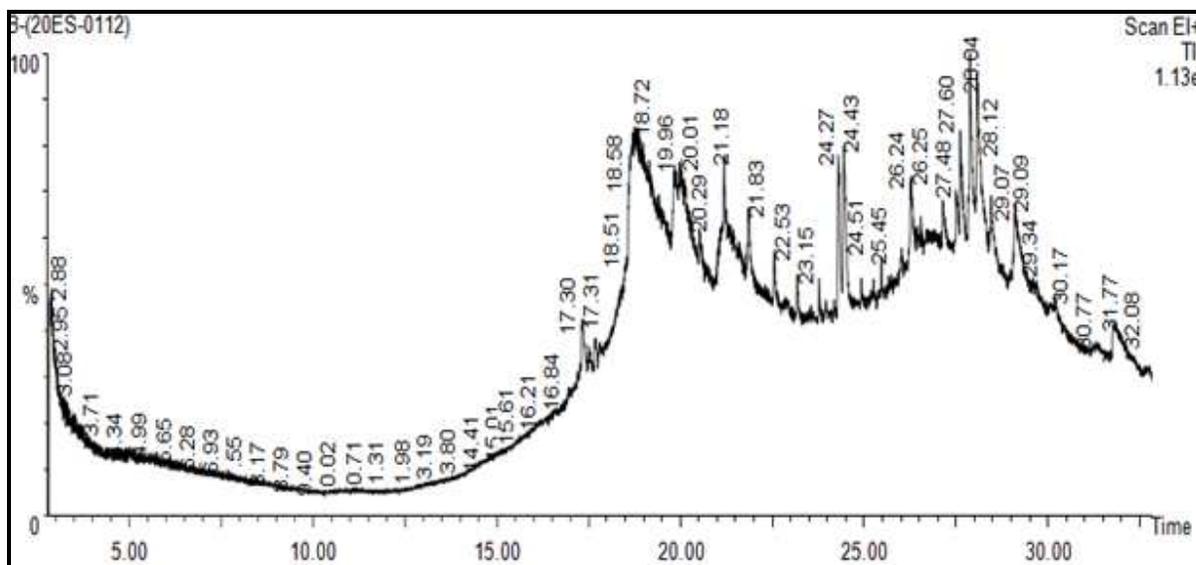


Figure No.1: GC-MS Chromatogram of ethanolic extract of leaves of *Eleagnus Latifolia*

CONCLUSION

The indication of grouped bioactive constituents identified after GC-MS examination utilizing the ethanolic concentrate of *Eleagnus Latifolia willd.* Justifies the utilization of leaves for countless ailments by customary expert. Therefore it is recommended as a plant of phytopharmaceutical value. GC-MS analysis is the first step towards comprehension the nature of active components in the above plant. The isolation of accountable bioactive components and their biological activity are essential for future studies.

AUTHORS CONTRIBUTION

All the authors contributed equally to the paper.

CONFLICT OF INTERESTS

No conflict of interests.

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