



Research Article

GC-MS Study of *Schleichera oleosa* (Lour.) Oken

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ABSTRACT

To study the compounds present in the ethanolic extract of stem bark of *Schleichera oleosa* by GC-MS technique and compare its activities using Phyto chemical and ethno botanical databases. 1,2-Benzenedicarboxylic acid, diisooctyl ester and squalene were identified in the extract by the parameters of mass spectral analysis includes retention time, base peak area and other characteristics of the peak using NIST library. Stem bark of *Schleichera oleosa* is traditionally used for skin disorders, pain, inflammations, boils, ulcers etc. The data bases of the identified compounds also shows the similar activities.

Keywords: GC-MS, *Schleichera oleosa*.

INTRODUCTION

Schleichera oleosa is a large deciduous tree belonging to the family Sapindaceae It grows about 20 meter in height. It is rarely found in evergreen, semi-evergreen, and deciduous forests up to 1000 meter altitude. Trunk fluted, bark grey, leaves compound, flowers polygamodioecious, drupe ellipsoid, seeds enclosed in aril. Traditionally the bark of this plant is used against skin disorders, pain, inflammations, boils, ulcers etc. Seed cake are used to feed cattle¹⁻³ The present study is aimed to identify the chemical compounds present in the ethanolic extract of *Schleichera oleosa* by Gas chromatography

Mass spectroscopy (GC-MS) technique and compare its activities using data bases.

MATERIALS AND METHODS

Stem bark

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Traditionally used stem bark of *Schleicheria oleosa* was collected from Marthandam, Tamil Nadu during February 2010. The collected barks were authenticated by Research officer V.Chellathurai department of Botany, Tirunelveli, Tamil Nadu.

Processing

The authenticated barks were made into small pieces, dried under shade and powdered into coarse state by hand mill.

Table 1. Method of Instrumentation (GC-MS)

Device used	Specifications
Gas chromatography Programme	
Equipment	GC Clarus 500 Perkin Elmer
Detector	Mass detector Turbo mass gold-Perkin Elmer
Software	Turbomass 5.2
Column	Elite (5% Diphenyl/95% Dimethyl polysiloxane) 30 x 0.25mm x 0.25µm df
Carrier gas	1ml/minute, Split: 10:1
Sample injected	2µl
Injection Temperature	250°C
Total GC Running time	36 minutes
Mass spectroscopy Programme	
Library used	NIST Version-Year 2005
Inlet line temperature	200° C
Source temperature	200° C
Electron energy	70 Ev
Mass scan (m/z)	45-450
Solvent Delay	0-2 min

Preparation of the extract

The coarse powder was successfully extracted by cold percolation method using

ethyl alcohol as solvent^{4,5}. The extract obtained was dried under vacuum dryer. The extract shows reddish brown in colour, hard and brittle in nature. It yields about 8.6% w/w of ethanol extractive value.

GC-MS Study

Table 2. GC-MS Analysis of the extract

Retention Time	Peak Area	Molecular Weight	Molecular Formula	Nature of the Compound	Name of the Compound Identified
21.19	51.15	390	C ₂₄ H ₃₈ O ₄	Plasticizer	1,2-Benzenedicarboxylic acid, diisooctyl ester
25.07	48.85	410	C ₃₀ H ₅₀	Triterpene	Squalene

Ethanol extract of stem bark of *Schleicheria oleosa* was analysed for the presence of different compounds by Gas chromatography-Mass spectroscopy (GC-MS) technique. It was carried out in GC Clarus 500 Perkin Elmer equipment with Turbo mass 5.2 Software. The column was packed with 5% Dimethyl and 95% Dimethyl poly siloxane. The sample of extract was dissolved in ethanol and 2µl of the same was injected for the determination. It was run for about 36 minutes and detection was carried by Mass detector Turbo mass gold-perkin Elmer. The method followed in the instrumentation of GC-MS analysis is mentioned in Table 1.

Table 3 Activities of the compounds identified

Name of the compound	Activities
1,2-Benzenedicarboxylic acid, diisooctyl ester	Anti-microbial, Antifouling etc.
Squalene	Antiarthritics, Hypocholesterolemic, Nematicide, Hepatoprotective, Antiandrogenic, Antihistaminic, Anticoronary, Insectifuge, Antieczemic, Antiacne etc.

RESULTS AND DISCUSSION

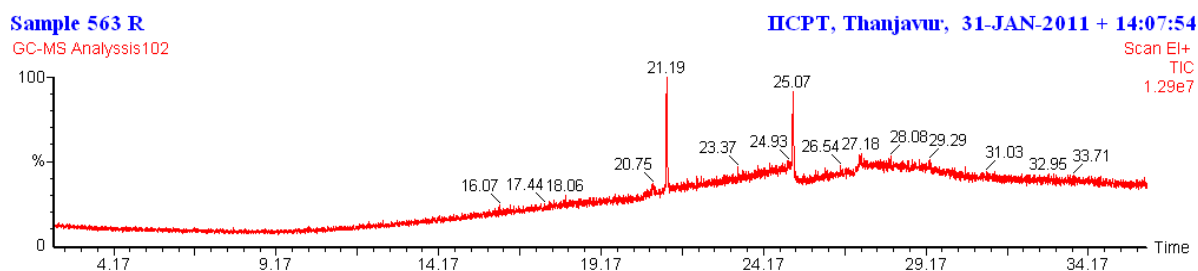


Fig 1 GC-MS analysis of ethanolic extract of stem bark of *Schleichera oleosa*

The presence of two compounds in the ethanolic extract of stem bark of *Schleichera oleosa* by GC-MS analysis has shown in Table 2 and Fig 1.

Mass spectroscopy analysis using National Institute of Standards and Technology (NIST) Library and retention time programme confirmed the presence of these two compounds. The result showed that 1,2-Benzenedicarboxylic acid, diisooctyl ester and Squalene were present in the extract. The percentage peak area obtained for 1,2-Benzenedicarboxylic acid, diisooctyl ester was 51.15% and 48.85% for squalene. The activities of the two compounds according to the Phytochemical and Ethano botanical data bases were shown in Table 3. The identified compounds viz 1,2-Benzenedicarboxylic acid, diisooctyl ester produce Anti-microbial, Antifouling activities and Squalene exhibits Antiarthritics, Hypocholesterolemic, Nematicide, Hepatoprotective, Antiandrogenic, Antihistaminic, Anticoronary, Insectifuge, Antieczemic, Antiacne etc

CONCLUSION

Schleichera oleosa plant is traditionally used for skin disorders, pain, inflammations, boils, ulcers etc. The compounds identified by the GC-MS study from the same plant also have the similar properties. From this study, we have concluded that the causative matter for its traditional properties has been confirmed by the scientific approach.

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