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RESEARCH ARTICLE

ANALYTICAL CHEMISTRY

SOME BIOACTIVE CONSTITUTENTS OF GC-MS ANALYSIS OF BULBOPHYLLUM KAITENSE RECHIB. STEM ESTERN GHATS OF INDIA.

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ABSTRACT

The bioactive constituents present in stem parts of *Bulbophyllum kaitense*. Rechib belongs to the family Orchidaceae. Six compounds in ethanolic extract. were identified by gas chromatography (GC-MS). This analysis revealed that *Bulbophyllum kaitense* Rechib stems contain mainly n-Hexadecanoic acid (57.93%) α -bisabolol (6.99%) 2,4,5-Trihydroxypyrimidine (2.62%) .It is the first report of identification of bio active constituents from stem parts of *Bulbophyllum kaitense* Rechib by GC-MS



KEY WORDS

Bulbophyllum kaitense rechib. Bioactive, GC-MS Analysis n-Hexadecanoic acid.

INTRODUCTION

Almost exclusively using traditional medicines in treating all sorts of disease are the plants traditional medicines in treating all sorts of diseases the plants traditional Chinese medicine widely utilizes for aphrodisiac and nervine tonic. A few of them have been subjected to phytochemical and pharmacological studies in India work has been carried out on chemical analysis of some medicinally useful orchids. *Eulophia campestris*, *Orchis latifolia*, *Vanda roxburghii* are some important Orchid from ayurvedi of is reported to be source of jivanti. *Cypripedium parviflora* is widely used as aphrodisiac and nervine tonic in western Herbalism recent works have reported isolation of anthocyanins, stilbenoids and triterpenoids from orchids, *Bulbophyllum gymopus* works have reported isolation of phenanthrene (Amiritpal sing and Sanjiv Duggal. 2009) *Bulbophyllum kaitense* this as an epiphytic family Orchidaceae. Endemic to south india. The plant is not very common in south india. The plant is dense mats on tress and rock. Its native is india occurs in the forest of estern ghats from Kollihills above 1300 m. Sympodial epiphytes with uninodal pseudobulbs, on the rhizome terminating the pseudobulbs. Inflorescence umbellate scape pseudobulbs greenish. Subfusiform not angled 2 cm long 4-5 cm part on the zone leaves 9-13 cm long flowers without mentum. Sepal Unequal petals shorter then lateral sepals .The plants have been used in the indigenous medicine such as ayurvada and local traditional medicinal practices the stem is used for the treatment of certain anticancer, Antioxidant, Anti inflammatory, Nematicide, pesticide, Lubricant, Antiandrogenic and Antimicrobial activity .The

stem property in curring of different diseases. This part was selected for the study. Hence the present investigation was carried out to determine the possible bioactive chemical constituents from *Bulbophyllum kaitense* .Stem

MATERIALS AND METHODS

PLANT MATERIAL

The plant material *Bulbophyllum kaitense*. Rechib were collected from Eastern Ghats of kollihills in Namakkal District of TamilNadu, India. The Botancial identify of the plant was confirmed by Ret, Dr. S.John Britto, The Director, The Rapinat Herbarium and centre for molecular systematic, St.Joseph's college (Campus) Tiruchirappalli-620020. TamilNadu, India.The plant voucher number: RHT.872.

PLANT SAMPLE EXTRACTION:

20 gm powdered plant material is soaked in 50 ml of absolute ethanol over night and then filtered through whatmann filter paper No.41 along with 2gm Sodium Sulfate to remove the sediments and traces of water in the filtrate. Before filtering, the filter paper along with Sodium Sulphate is wetted with ethanol the filtrate is then concentrated by bubbling nitrogen gas into the solution and reduces the volume to 1ml the extract contains phytocomponents.

GC-MS ANALYSIS

GC-MS analysis was carried out on a GC clarus 500 perkin Elmer System comprising a AOC-20i autosampler and Gas Chromatograph interfaced to a mass spectrometer (GC-MS)

instrument employing the following conditions. Column Elite-5MS fused Silica capillary column (30mmX0.25mmX0.25 μ m, composed of 5% Diphenyl / 95% Dimethyl polySiloxane), operating in electron impact mode at 70eV; Helium(99.999%) was used as carrier gas at a constant flow of 0.1ml min and an injection volume of 2 μ l was employed (split ratio of 10:1) injector temperature 250°C; ion- source temperature 280°C. The oven temperature was programmed from 110°C (isothermal for 2min), with an increase of 10°C/min, to 200°C, then 5°C/min to 280°C, ending with a 9min isothermal at 280°C mass spectra were taken at 70eV; a scan interval of 0.2 seconds and fragments from 40 to 450 Da. Total GC running time is 36min

IDENTIFICATION OF COMPONENTS

Interpretation on mass spectrum 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 components was compared with the spectrum of the known compounds stored in the NIST library. The name, molecular weight and structure of the components of the test materials were ascertained.

RESULT AND DISCUSSION

Six bioactives of *Bulbophyllum kaitense*. Rechib stem by GC-MS analysis. The active Principles with their retention time (RT), molecular formula, molecular weight (MW) and concentration (%) are presented in (Table 1, 2, and fig 2) n-Hexadecanoic acid (57.93%) α -bisabolol (6.99%) 2,4,5-Trihydroxypyrimidine (2.62%)

Table.1

Activity of Phyto-Components identified in the ethanolic extract of *Bulbophyllum kaitense*. Stem by GC-MS

No.	RT	Name of the compound	Molecular Formula	MW	Peak Area %	Nature of compound	**Activity
1.	2.81	Propane, 1,1-diethoxy-	C ₇ H ₁₆ O ₂	132	24.34	Ether compound	No activity reported
2.	4.22	2,4,5-Trihydroxypyrimidine	C ₄ H ₄ N ₂ O ₃	128	2.62	Alkaloid compound	Antimicrobial Antiinflammatory Antioxidant
3.	10.31	α -Bisabolol	C ₁₅ H ₂₆ O	222	6.99	Sesquiterpene alcohol	Antimicrobial Antiinflammatory Anticancer
4.	14.63	n-Hexadecanoic acid	C ₁₆ H ₃₂ O ₂	256	57.93	Palmitic acid	Antioxidant, Hypocholesterolemic Nematicide, Pesticide, Lubricant, Antiandrogenic, Flavor, Hemolytic 5-Alpha reductase inhibitor

5.	28.71	6H-Benzofuro[3,2-c][1]benzopyran-6a(11aH)-ol, 3,9-dimethoxy-, (6aR-cis)-	C ₁₇ H ₁₆ O ₅	300	8.11	Aromatic compound	Color pigment
6.	33.17	5 α -Pregnan-20-one, 12 α -hydroxy-, acetate	C ₂₃ H ₃₆ O ₃	360	24.34	Acetate compound	No activity reported

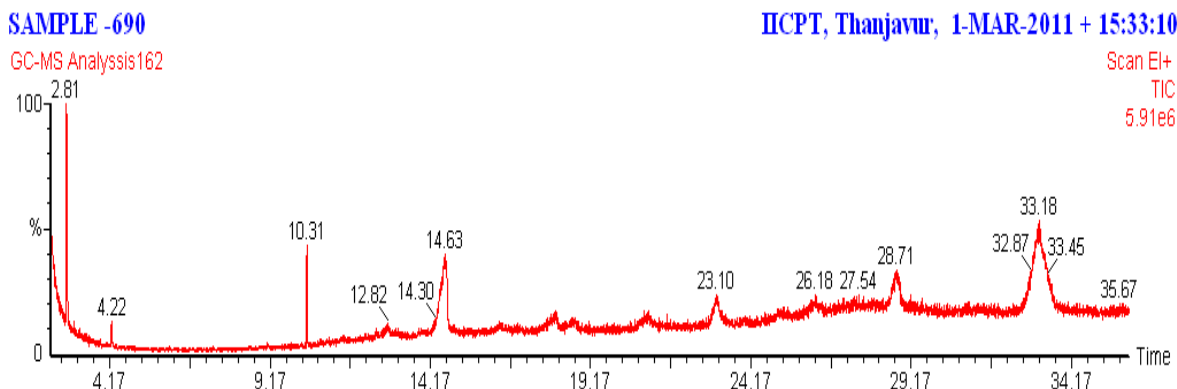


Figure.1
GC-MS Chromatogram of ethanolic extract of *Bullbophyllum kaitense*. Stem

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