

TWO DAYS NATIONAL LEVEL CONFERENCE

ON

**ROLE OF
PHYTOCHEMICALS AND
ADVANCED MATERIALS IN
CANCER PREVENTION
AND RESEARCH**

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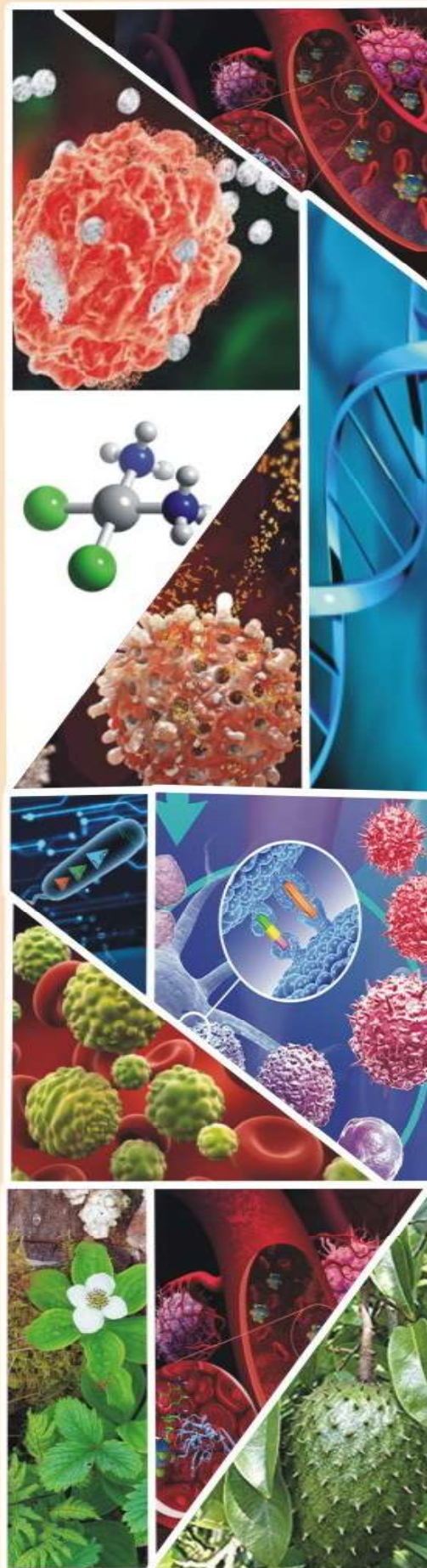


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PHYTOCHEMICAL ANALYSIS OF *Barleria prionitis* BY GCMS

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ABSTRACT

Plants have been an integral part of life in many local communities for food and medicine. Humans depend on nature for smooth life. For thousands of years mankind is using plant resource to improve or cure sickness. Nature is the paradise of medicinal principle offers to the humanity through plants which act as a richest source of the Phytochemicals. Since time memorial, man has been using whole plants, part of the plants and plant extracts as medicines in different formulation to treat various diseases. Medicinal plants constituent an important nature wealth of a country. Now a days various types of drug made from plant extract. Plants have been used to substitute medicine to promote human health and endurance in many regions of the worlds since prehistoric times. One such medicinal plant that is being extensive *Barleria prionitis* is called as porcupine flower or vajradanti. This study was conducted aiming to evaluate the chemical composition of the plant by GC-MS analysis. The results showed the presence of 12 compounds.

Key words: *Barleria prionitis*, traditional uses, phytoconstituents, GCMS.

INTRODUCTION

Barleria prionitis, a perennial, acanthaceous, barbed, bushy medicinal plant, including in *Barleria* genus containing 300 species is famous for its medicinal value from ancient time.^[1] Extensively found in India, it is distributed widely in throughout Asia including Malaysia, Pakistan, Philippines, Sri Lanka, Bangladesh, Yemen and tropicalafrica.^[2,3] Plant have been used as traditional medicine for several thousands of years. Since the beginning of this century, ethno-botanical and traditional uses of natural compounds, mainly of plant origin established much interest as they are well tested for their efficacy and generally believed to be safe for human use.^[4,5] *B. prionitis* has numerous medicinal properties including treating fever, respiratory diseases, toothache, joint pains and a variety of other ailments; and it has several cosmetic uses. A mouthwash made from root tissue is used to relieve toothache and treat bleeding gums. The leaves are used to promote healing of wounds and to relieve joint pains and toothache. Tribals of Melghat region use this plant species for medicinal purpose.^[6] Beside this the *B.prionitis* have also been found effective against many ailments and have been reported with anti-fertility^[7], antiinflammatory^[8,9] Hepatoprotective^[10,11], antimicrobial^[12], anthelmintic^[13], antidiabetic^[14], antidiarrhoeal^[15], and many more potentials.

MATERIALS AND METHODS

PLANT METERIAL

The fresh leaves of *B. prionitis* were collected from the area near Pollachi, in the month of September to December. The plant material was identified and authenticated by Department of Botany, NGM College, Pollachi, and Coimbatore.

EXTRACTION OF PLANT MATERIAL

About 500g of *B. prionitis* leaves were taken in 1litre round bottom flask with methanol solvent and heating for 4hrs and then cooled. It is filtered & the extract was collected by steam distillation method. The extract obtained was completely evaporated and then it is used for phytochemical studies.

GC-MS Analysis

GC-MS analysis of the phyto constituents of *Physalis minima* was carried out using thermo GC-trace ultra version: 5.0 coupled with thermo MS DSQ II instrument. Compounds were separated on DB-35, MS capillary standard non-polar column (30×0.25mm), film thickness 0.25µm. Helium was used as the carrier gas and the temperature programming was set with initial oven temperature at 70°C and held for 2 minutes and the temperature of the oven was raised to 260°C for 10 minutes and raised 6°c per minute and final temperature was 300°C for 10 minutes. The sample of 100 ml was dissolved in 1 ml of acetone injected with split less mode. Mass spectra were recovered over 50-500 amu range with electron impact ionization energy 70ev, while injector and MS transfer line temperature were set at 230°C and 280°C respectively.

RESULT AND DISCUSSION

The active compounds identified in the methanol extract of *B. prionitis* by GC-MS analysis. The results of the methanol extract found 10 compounds. The main chemical compositions of methanol extract were shown in **Table 1** and the GC-MS chromatogram were presented in **Fig1. 1**. The major compounds present in the leaves were hydroxylamine o-decyl-9(47.4 %) 9,12,15-oct abdicate enoic acid(z,z,z) (15.7 %) &3,7,11,15-tetramethyl-2-hexadecane-1-ol (15.5 %) and the minor compounds were caryophyllene (1.7 %), Naphthalene 1,2,3,5,6,8ahexa hydro-4,7dimethyl-1-(1methylene) (3,5 %), phytol acetate (0.27 %) ,& pentoadecanoic acid,(4-methyl-methyl ester) (0.34 %). Other minor compounds are also present.

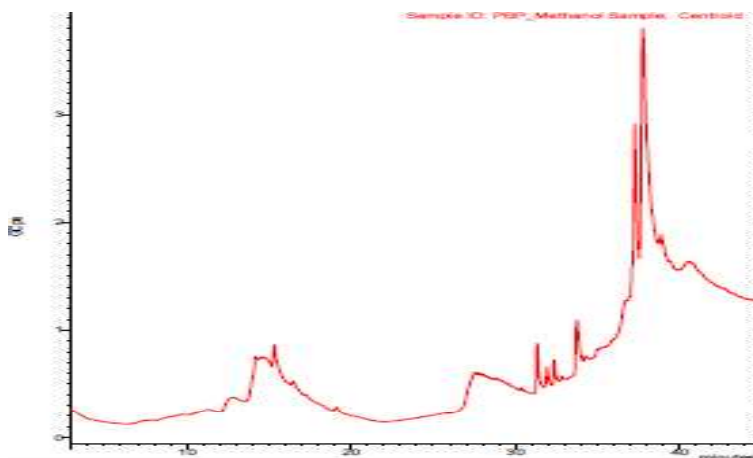


Figure 1: GC-MS chromatogram of methanolic extract of *B. prionitis*

Table 1: Chemical composition of methanolic extract of *B. prionitis*

S.No	Compound Name	% of compound	Retention Time	Area
1	caryophyllene	1.792	12.598	7.049
2	Naphthalene 1,2,3,5,6,8-hexahydro- 4,7-dimethyl-1-(1-methylene)	3.572	14.01	1.406
3	3,7,11,15-tetramethyl-2- hexadecen-1-ol	15.593	15.090	6.135
4	1-methoxy-3-(2-hydroxy ethyl)nonane)	9.319	29.749	3.667
5	Phytol acetate	0.270	31.154	1.061
6	Pentadecanoic acid,(4- methyl-methyl ester)	0.348	32.189	1.370
7	Methyl 8,11,14-heptadecatrienoate	1.526	33.590	6.004
8	Phytol	1.127	35.073	4.433
9	Hydroxylamine o-decyl	47.496	37.603	1.869
10	9,12,15-octadecatrienoic acid (z.z.z)	15.703	40.396	6.178

CONCLUSION

The phytoconstituents from methanol extract of *B. prionitis* was analysed by GC-MS analysis. The plant *B. prionitis* is used widely from its ancient time. This paper provides the clear information about this plant and the use of this plant for pharmacologist if they used to work on it.

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