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Gas chromatography mass spectroscopic analysis of Panchagandha Churnam

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Abstract---The Gas Chromatography Mass Spectroscopic study Ayurvedic formulation, Panchagandhachurnam was performed in the present report. The formulation was subjected to Gas Chromatography Mass Spectroscopic analysis after processing it as per standard protocol. The Gas Chromatography Mass Spectroscopic study of Panchagandhachurnam depicted some bio-molecules, such as 3-Cyclopentene-1-ethanol, 2,2,4-trimethyl-, Ethyl p-methoxycinnamate, Methyl 2-hydroxy-octadeca-9,12,15-trienoate, 9,12,15-Octadecatrienoic acid, (Z,Z,Z)-, Methyl 2-hydroxy-octadeca-9,12,15-trienoate, which have medicinal roles relating to the function of this medicine.

Keywords---GC MS, Ayurvedic, Panchagandha Churnam.

Introduction

In order to understand the mechanism of action of Ayurvedic medicines it is imperative to subject them to modern analytical procedures such as GC MS, HPTLC etc. This report is in continuation of our earlier works in this regard.^[1-29] The GC MS analysis of one Ayurvedic medicine, Panchagandhachurnam was performed in this work. Panchagandhachurnam is made up of equal parts of finely powdered following ingredients : *Curcuma zedoaria*, *Embelica officinalis*, *Rubiocordifolia*, *Glycyrrhizaglabra*, *Cedrus deodara*, *Santalum album*, *Pterocarpus marsupium*, *Ferula asafoetida*, *Picrorhizakurroa*, *Nigella sativa*, *Pluchea lanceolata*, *Hemidesmus indicus*, *Crocus sativus*, *Shorea robusta*, *Cinnamomum camphora*, *Cyperus rotundus*, *Sidacordifolia* root, *Pavonia odorata*, *Vetiveria zizanioides*, *Saussurea lappa*, *Papaver somniferum*, Red ochre, *Myristica fragrans* and *Tamarindus indica*. Panchagandhachurnam is used for external application. It is rubbed into butter or breast milk, dehydrated and then applied over the crown for ailments like insanity, giddiness and hot feeling in the head. It is manufactured by Arya Vaidya Sala Kottakkal, Arya Vaidya Pharmacy, Vaidyaratnam Oushadasala Pvt Ltd, among others.

Materials and Methods

Panchagandhachurnam was subjected to GC MS analysis by standard procedure.

Results

Table 1 and Figure one depict the results of Gas Chromatography Mass Spectroscopic results of Panchagandhachurnam, The metabolites were identified by NIST spectral library and data base of National Agriculture Library, USA and others as shown in Table 1^[30].

Discussion

The GC MS profile of Panchagandhachurnam indicated the presence of some molecules, such as 3-Cyclopentene-1-ethanol, 2,2,4-trimethyl-, Ethyl p-methoxycinnamate, Methyl 2-hydroxy-octadeca-9,12,15-trienoate, 9,12,15-Octadecatrienoic acid, (Z,Z,Z)-, Methyl 2-hydroxy-octadeca-9,12,15-trienoate, which have medicinal roles which relate to the function of this medicine as depicted in Table 1.

Conclusion

The molecules shown in the GC MS profile of Panchagandha Churnam reflect its medicinal activity.

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Qualitative Compound Report

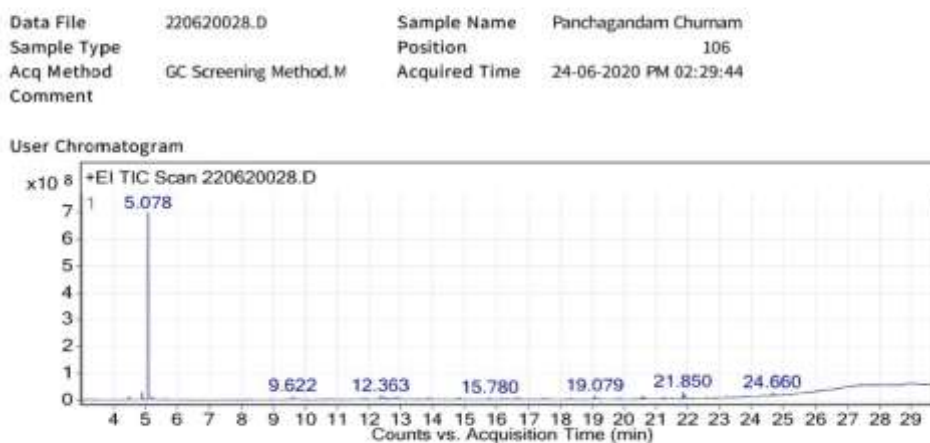


Figure1. Indicate the GC MS profile of PanchagandhaChurnam

Table1. Shows the various details of the GC MS profile of PanchagandhaChurnam

Sl. No	Retention Time	Compound Name	Mol. Formula	Mol. Weight	% Peak Area	Possible medical Role
1	4.47	3-Cyclopentene-1-ethanol, 2,2,4-trimethyl-	C ₁₀ H ₁₈ O	154.1	1.14	Ethanol absorption inhibitor, ethanolytic

2	5.08	5-Caranol, (1S,3R,5S,6R)-(-)-	C ₁₀ H ₁₈ O	154.1	77.69	Not known
3	12.36	Ethyl p- methoxycinnamate	C ₁₂ H ₁₄ O ₃	206.1	6.63	Adrenalin-pressor, Algogenic, ANS Paralytic, Anti-cAMP- Phosphodiesterase, Anticancer, Anticarcinomic, antidote, Antimitral valve prolapse
4	19.08	1,2-15,16- Diepoxyhexadecane	C ₁₆ H ₃₀ O ₂	254.2	1.53	Not known
5	21.26	Octatriacontylpentaf luoropropionate	C ₄₁ H ₇₇ F ₅ O ₂	696.6	1.04	Not known
6	21.85	7-Propylidene- bicyclo[4.1.0]heptan e	C ₁₀ H ₁₆	136.1	3.14	Not known
7	21.88	Methyl 2-hydroxy- octadeca-9,12,15- trienoate	C ₁₉ H ₃₂ O ₃	308.2	1.41	Catechol-O-Methyl transferase inhibitor, methyl donor
8	24.66	Androstan-17-one, 3-ethyl-3-hydroxy-, (5.alpha.)-	C ₂₁ H ₃₄ O ₂	318.3	1.96	Not known