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The Gas Chromatography Mass Spectroscopic Study of One Unani Drug, "Apk Abraisham"

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ABSTRACT

This work deals with the gas chromatography mass spectroscopic study of one Unani medicine, Apk Abraisham, which is prescribed for Ano-rectal disorders as well as nerve related problems. The medicine was procured from a standard Unani medicine vendor at Chennai and was processed suitably to be analysed by GC MS process. The results indicated the presence of many molecules such as trans-2,4-Dimethylthiane, S,S-dioxide, trans-2-methyl-4-n-pentylthiane, S,S-dioxide, Cyclopentane, 1-pentyl-2-propyl-, Terpinen-4-ol, alpha-Terpineol, Pivalic acid, 2-tetrahydrofurylmethyl ester, Propanoic acid, 2,2-dimethyl-2-ethylhexyl ester, trans-2,4-Dimethylthiane, S,S-dioxide, 3-Cyclohexene-1-ethanol, beta, 4-dimethyl-, Trichloroacetic acid, undecyl ester, Carbonochloridic acid, decyl ester, Sulfurous acid, butyl undecyl ester, Phthalic acid, octyl tridec-2-yn-1-yl ester etc. which show promising medicinal roles. These medicinal roles could lead to the cure of the ailments for which this medicine is prescribed.

Key words: Apk Abraisham, Unani, GC MS, Sulfurous acid, Butyl undecyl ester, Trans-2,4-Dimethylthiane, S,S-dioxide

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INTRODUCTION

Apk Abraisham is a Unani medicine prescribed for a number of ailments like haemorrhoids, piles, fistula, painful defecation, rectal bleeding, fissures and joint and muscular disorders. It also claimed to improve concentration, correct hyperactive disorder, helps in Parkinson's diseases, Alzheimer disease, dementia and psychological issues. It is imperative to establish the authenticity of alternative medicines such as Ayurveda, Sidhha and Unani systems as they are time tested and in use for centuries. The present workers have worked to scientifically evaluate the veracity of these medicine systems by latest techniques so that deeper knowledge of the mechanism of action of these medicines could be gained [1-19]. The present study in one step further in this endeavour. Not much work in this direction is reported as far as Apk Abraisham is concerned.

MATERIALS AND METHODS

Apk Abraisham was procured from Unani medicine vendor at Chennai. The medicine was suitably processed by standard procedures and the GC-MS analysis was performed.

RESULTS

The possible medicinal role of each molecule indicated in the gas chromatography mass spectroscopy profile is tabulated in Table 1.

Table 1: Indicates the retentions values, types of possible compound, their molecular formulae, molecular mass, peak area and their medicinal roles of each compound as shown in the GC MS profile of Apk Abraisham.

Ret. Time	Molecule	Mol. Formula	Mol. Mass	% Peak Value	Possible medicinal role
3.96	trans-2,4-Dimethylthiane, S,S-dioxide	$C_7H_{14}O_2S$	162.1	0.86	Glutathione-S-Tansferase inhibitor, increases glutathinone-S-transferase (GST) activity, decreases oxaloacetate transaminase activity, Catechol-O-Methyl-Transferase-Inhibitor, Decreases Glutamate Oxaloacetate Transaminase, Decreases Glutamate PuruvateTransaminase, Glucosyl-Transferase inhibitor, increases glyoxalate transamination, reverse transcriptase inhibitor, transdermal, smart drug, adrenocortical stimulant
4.16	Tremorine	$C_{12}H_{20}N_2$	192.2	0.92	Not known
4.41	trans-2-methyl-4-n-pentylthiane, S,S-dioxide	$C_{11}H_{22}O_2S$	218.1	6.08	Glutathione-S-Transferase-Inhibitor, Catechol-O-Methyl-Transfearse inhibitor, Myo-neuro-stimulator, Nitric Oxide Synthatase inhibitor, NO scavenger, Stimulates Morepinephrine production, Stimulates Sympathetic nervous system, decrease glutamate oxaloacetate transaminase, decrease glutamine pyruvate transaminase, Glycosyl transferase inhibitor, increases glyoxalate transamination, reverse transcriptase inhibitor, smart drug, adrenal supporter
4.48	Cyclopentane, 1-pentyl-2-propyl-	$C_{13}H_{26}$	182.2	9.67	Catechol-O-Methyl-Transfearse inhibitor
4.55	Terpinen-4-ol	$C_{10}H_{18}O$	154.1	13.09	Oligosaccharide provider
4.75	.alpha.-Terpineol	$C_{10}H_{18}O$	154.1	3.35	HIF 1 alpha inhibitor, Ikappa B alpha phosphorylation inhibitor, increases alpha mannosidae activity, Interleukine 1 alpha inhibitor, TNF alpha inhibitor
4.81	Benzene, 1,3-bis(1,1-dimethylethyl)-	$C_{14}H_{22}$	190.2	23.09	Not known
5.25	Dodecane, 1-fluoro-	$C_{12}H_{25}F$	188.2	20.24	Not known
5.42	1-Cyclohexylethanol, trifluoroacetate	$C_{10}H_{15}F_3O_2$	224.1	0.94	Not known
5.47	Pivalic acid, 2-tetrahydrofurylmethyl ester	$C_{10}H_{18}O_3$	186.1	0.93	Arachidonic acid-Inhibitor, Increases Aromatic Amino Acid Decarboxylase Activity
5.69	Propanoic acid, 2,2-dimethyl-, 2-ethylhexyl ester	$C_{13}H_{26}O_2$	214.2	1.38	Arachidonic acid-Inhibitor, Increase Aromatic Amino Acid Decarboxylase Activity
5.86	trans-2,4-Dimethylthiane, S,S-dioxide	$C_7H_{14}O_2S$	162.1	0.85	Glutathione-S-Tansferase inhibitor, increases

					glutathinone-S-transferase (GST) activity, decreases oxaloacetate transaminase activity, Catechol-O-Methyl-Transferase-Inhibitor, Decrease Glutamate Oxaloacetate Transaminase, Decrease Glutamate PuruvateTransaminase, Glucosyl-Transferase inhibitor, increases glyoxalate transamination, reverse transcriptase inhibitor, transdermal, smart drug, adrenocortical stimulant
6.05	3-Cyclohexene-1-ethanol, beta.,4-dimethyl-	$C_{10}H_{180}$	154.1	0.74	Ethanol absorption inhibitor, ethanolytic, 17 beta hydroxysteroid dehydrogenase inhibitor, anti- amyloid beta, anti-amyloid beta, anti TGF beta, beta receptor agonist, bête andrenergic receptor blocker, beta blocker, beta galactosidase inhibitor, beta glucuronidase inhibitor, ER beta binder
6.18	Trichloroacetic acid, undecyl ester	$C_{13}H_{23}Cl_3O_2$	316.1	1.08	Arachidonic acid-Inhibitor, Increase Aromatic Amino Acid Decarboxylase Activity,
6.39	Carbonochloridic acid, decyl ester	$C_{11}H_{21}ClO_2$	220.1	1.63	Arachidonic acid-Inhibitor, Increase Aromatic Amino Acid Decarboxylase Activity
7.53	Phenol, 2,4-bis(1,1-dimethylethyl)-	$C_{14}H_{22}O$	206.2	4.48	Not known
7.66	5-Isopropenyl-2-methylcyclopent-1-enecarboxaldehyde	$C_{10}H_{14}O$	150.1	1.17	Not known
8.42	Sulfurous acid, butyl undecyl ester	$C_{15}H_{32}O_3S$	292.2	3.74	Arachidonic acid-Inhibitor, Increase Aromatic Amino Acid Decarboxylase Activity,
9.1	Diethyl Phthalate	$C_{12}H_{14}O_4$	222.1	1.3	Not known
18.21	Phthalic acid, octyl tridec-2-yn-1-yl ester	$C_{29}H_{44}O_4$	456.3	1.08	Arachidonic acid-Inhibitor, Increase Aromatic Amino Acid Decarboxylase Activity,

Figure 1 represents the GC-MS profile of the Unani medicine Apk Abraisham. The molecules were identified by using NIST spectral Library and the possible pharmaceutical roles of each bio molecule was as per (National Agriculture Library, USA) and others as shown in Table 1 [20].

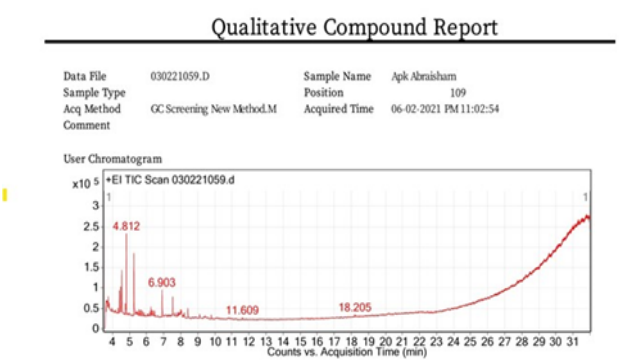

Figure 1: Indicates the GC MS profile of Apk Abraiisham.

DISCUSSION

Apk Abraisham profile showed some important compounds such as, trans-2,4-Dimethylthiane, S,S-dioxide, trans-2-methyl-4-n-pentylthiane, S,S-dioxide, Cyclopentane, 1-pentyl-2-propyl-, Terpinen-4-ol, alpha-Terpineol, Pivalic acid, 2-tetrahydrofurylmethyl ester, Propanoic acid, 2,2-dimethyl-, 2-ethylhexyl ester, trans-2,4-Dimethylthiane, S,S-dioxide, 3-Cyclohexene-1-ethanol, beta, 4-dimethyl-, Trichloroacetic acid, undecyl ester, Carbonochloridic acid, decyl ester, Sulfurous acid, butyl undecyl ester, Phthalic acid, octyl tridec-2-yn-1-yl ester etc. which have medicinal properties as mentioned in Table 1. The variety of biological roles indicates that multipurpose medicinal use of Apk Abraisham which ranges from antiseptic to hormonal regulation.

CONCLUSION

It could be summarized from the results and discussion that Apk abraisham does contain important biomolecules which provides a clue to its prescription for the ailments it is given. It will be of interest to probe into the

medicinal roles of those compound present in Apk Abraisham for which the medicinal roles are not available.

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REFERENCES

1. Rao MRK, S Philip, Kumar MH, et al. GC-MS analysis, antimicrobial, antioxidant activity of an Ayurveda medicine, Salmali Niryasa. J Chem Pharm Res 2015; 7:131-139.
2. Sivakumaran G, K Prabhu, Rao MRK, et al. Gas chromatography–mass spectrometry analysis of one ayurvedic oil, Anu thailam. DIT 2019; 11:2675-2678.
3. Sivakumaran G, K Prabhu, Rao MRK, et al. Gas chromatography–mass spectrometry analysis of one ayurvedic oil, Ksheerabala Thailam. DIT 2019; 11: 2661-2665.
4. Sivakumaran G, K Prabhu, Rao MRK, et al. Gas chromatography–mass spectrometry analysis of one ayurvedic oil, Ksheerabala Thailam. DIT 2019; 11: 2679-2683.
5. Narayanan G, K Prabhu, Rao MRK, et al. Gas chromatography–mass spectrometry analysis of one Ayurvedic medicine, Drakshadi Kashayam. DIT 2019; 11: 2652-2656.
6. Narayanan G, K Prabhu, Rao MRK, et al. Gas chromatography–mass spectrometry analysis of one ayurvedic medicine, Kutajarishtam. DIT 2019; 11:2666-2669.
7. Narayanan G, K Prabhu, Rao MRK, et al. Gas chromatography–mass spectrometry analysis of one Ayurvedic antiobesity medicine, Lohasava. DIT 2019; 11:2670-2674.
8. Kumar MH, K Prabhu, Rao MRK, et al. Gas chromatography/mass spectrometry analysis of one Ayurvedic skin oil, Eladi Kera Thailam. DIT 2019; 11:2657-2660.
9. Mohammad H, K Prabhu, Rao MRK, et al. The GC MS study of one Ayurvedic Pain relieving OIL "Mahamasha thailam". Drug Discov Today 2019; 12:1524-1527.
10. Mohammad H, K Prabhu, Rao MRK, et al. The GC MS study of one Ayurvedic Pain relieving oil "Karpooradi thailam", Drug Invention Today, 2019; 12:1542-1546.
11. Prabhu j, K Prabhu, Chaudhury A, et al. Neuro protective role of Saraswatharishtam on Scopolamine induced memory impairment in animal model. Pharmacogn J 2020; 12:465-472.
12. Prabhu K, Rao MRK, AK Bharath, et al. The GC MS study of one Ayurvedic Rasayana formulation Narasimha Rasayanam. DIT 2020; 13:658-662.
13. Prabhu K, Rao MRK, Vishal S K, et al. GC MS study of one Ayurvedic Rasayana drug, Dhanwantari Rasayanam. DIT 2020; 14:783-786.
14. Sharmila D, A Poovarasan, E Pradeep, et al. GC MS analysis of one Ayurvedic formulation, Sitopaladi. RJPT 2021; 14:911-915.
15. Narayanan G, K Prabhu, Chaudhuri A, et al. Cardio protective role of Partharishtam on isoproterenol induced myocardial infarction in animal model. Pharmacogn J 2021; 13:591-595.
16. Kalivannan J, Janaki CS, Rao MRK, et al. The GC MS astudy of one ayurvedic formulation, Chandanasavam. Ind J Nat Sci 2021; 12:33671-33676.
17. Akshaya SR, Kalaivani S, Prabhu K, et al. The GC MS study of one Ayurvedic churnam, Avalgujabijadi churnam. Ind J Nat Sci 2021; 12:34395-34402.
18. Subbiah AJ, Kavimani M, Rao MRK, et al. The GC MS study of one Ayurvedic formulation, Pushyanuga churnam. Ind J Nat Sci 2021; 12:357-366.
19. Yuvaraj R, Vijayakumar S, Rao M R K, et al. The GC MS study of one Ayurvedic medicine Pippalyasavam'. Ind J Nat Sci 2021; 12:35612-35618.
20. Duke, James A. Dr. Duke's Phytochemcial and Ehnobotanical Databases. U.S. Department of Agriculture, Agricultural Research Service. Ag Data Commons, U.S, 2021; 1992-2016.