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"GAS CHROMATOGRAPHY MASS SPECTROSCOPY ANALYSIS OF ONE UNANI DRUG, "HABB-E-SOZAK"

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ABSTRACT
The Unani Drug, Habb-e-Sozak is prescribed for urinary ailments and infections like gonorrhoea. The drug was bought from a Unani supplier and was processed suitably to be analysed by Gas Chromatography Mass Spectroscopic process. The profile showed biomolecules, namely. endo-Borneol, .beta.-curcumene, 1,3,7,11-Cyclotetradecatetraene, 2-methyl-, 8-Hydroxy-2,2,8-trimethyldeca-5,9-dien-3-one, .alpha.-Santalol, Bergamotol, Z-.alpha.-trans-, Santalol, E-cis,epi-.beta.-, Santalol, cis,.alpha.-, Santalol, trans-.beta.-, Benzenebutanal, .gamma.,4-dimethyl- etc. which have medicinal roles which could support Habb-e-Sozak to cure urinary tract ailments.

Key words: GC MS, Habb-e-Sozak, Unani, endo-Borneol, .beta.-curcumene, Santalol

INTRODUCTION

Habb-e-Sozak is an effective medicine for urinary tract diseases such as gonorrhoea, burning sensation which micturition and helps in healing wounds of ureter. It is prepared with the following ingredients:
Illaichi Khurd (Cardamomum, *Elettariacardamomum*), Burada Sandal Safaid (Pwder of white sandalwood:*Santalum album*), Banslochan (Bamboo extract; *Bambusa vulgaris*), Sat Behroza (*Pinus longifolia*Roxb), Kababchini (*Piper Cubeba* Linn) and KaththaSafaid (*Acacia catechu*). There are no scientific records to establish the molecular roles of this medicine. 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.

MATERIALS AND METHODS

The drug, Habb-e-Sozakwas bought from a Unani medicine supplier and was suitably processed by standard procedures and the GC-MS analysis was performed.

RESULTS

The Gas Chromatography Mass Spectroscopic analysis profile of the Unani medicine Habb-e-Sozakand possible medicinal role of each molecule is tabulated in Table 1. Figure 1 represents the GC-MS profile of the Unani medicine Habb-e-Sozak. The identification of metabolites was done by comparison with NIST spectral library and the possible pharmaceutical roles of each bio molecule as per National Agriculture Library, USA and others as shown in Table 1.[20]

DISCUSSION

Gas Chromatography Mass Spectroscopic analysis profile of the Unani medicine Habb-e-Sozakshowed compounds, namely, endo-Borneol, .beta.-curcumene, 1,3,7,11-Cyclotetradecatetraene, 2-methyl-, 8-Hydroxy-2,2,8-trimethyldeca-5,9-dien-3-one, .alpha.-Santalol, Bergamotol, Z-.alpha.-trans-, Santalol, E-cis,epi-.beta.-, Santalol, cis,.alpha.-, Santalol, trans-.beta.-, Benzenebutanal, .gamma.,4-dimethyl- etc. which have important medicinal roles as shown in Table 1. These medicinal roles of molecules could be the cause for the medicinal role of Habb-e-Sozak.

CONCLUSION

It could be summarized from the results and discussion that Habb-e-Sozakdoes 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 many compound present in the profile for which reports are not there.

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Figure 1. Shows the Gas Chromatography Mass Spectroscopic analysis profile of the Unani medicine Habb-e-Sozak

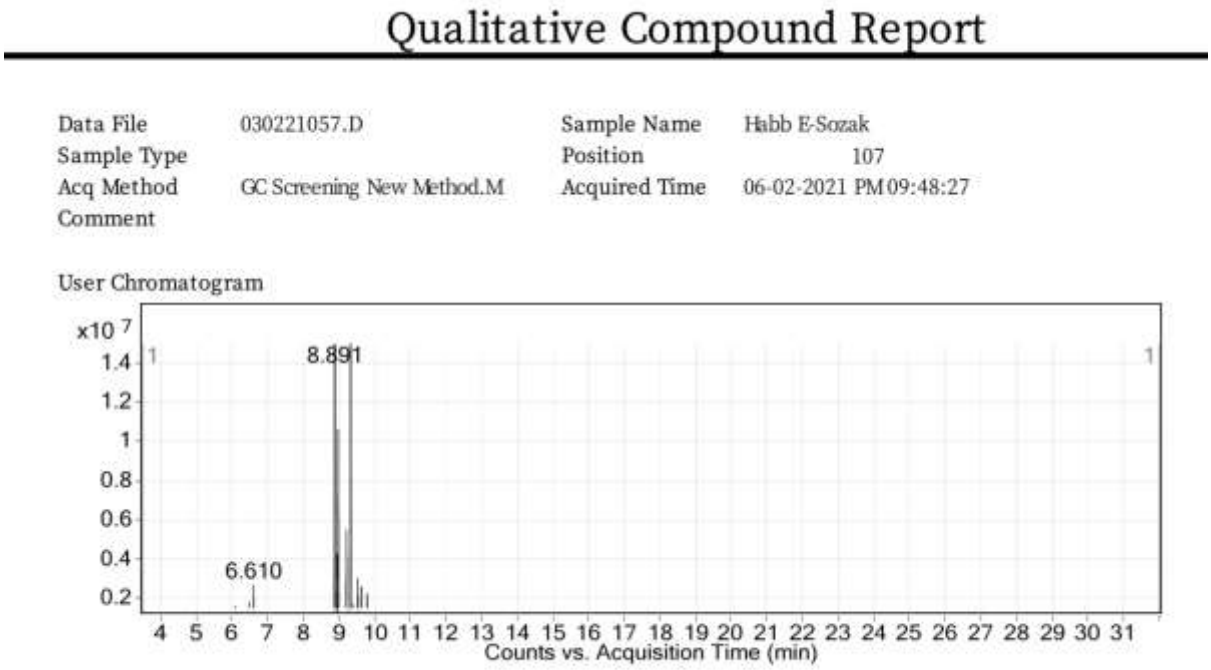

Table 1. Indicates the retentions values, types of possible compound, their molecular formulae, molecular mass, peak area and their medicinal roles of each compound as shown in the GC MS profile ofHabb-e-Sozak

Ret. Time	Molecule	Mol. formula	Mol. Mass	% Peak Area	Possible Medicinal Role
4.53	endo-Borneol	C10H18O	154.1	0.39	Decrease endothelial leukocyte adhesion, endoanesthetic, endocrinative, endothelium dependent, endothelium derived relaxing factor promoter
5.25	Dodecane, 1-fluoro-	C12H25F	188.2	0.38	Not known

7.12	.beta.-curcumene	C15H24	204.2	0.28	17 beta hydroxysteroid dehydrogenase inhibitor, antiamyloid beta, anti TGF beta
7.66	1,3,7,11-Cyclotetradecatetraene, 2-methyl-	C15H22	202.2	0.89	Catechol-o-methyl transferase inhibitor
7.81	3-Carene	C10H16	136.1	0.35	Not known
8.41	8-Hydroxy-2,2,8-trimethyldeca-5,9-dien-3-one	C13H22O2	210.2	0.25	17 beta hydroxysteroid dehydrogenase inhibitor, Aryl hydrocarbon hydroxylase inhibitor, testosterone hydroxylase inducer
8.59	Cyclohexane, 1-ethenyl-1-methyl-2-(1-methylethenyl)-4-(1-methylethylidene)-	C15H24	204.2	0.67	Not known
8.72	.beta.-bisabolol	C15H26O	222.2	0.66	17 beta hydroxysteroid dehydrogenase inhibitor, antiamyloid beta, anti TGF beta, beta galactosidase inhibitor, beta glucuronidase inhibitor, ER beta binder
8.89	.alpha.-Santalol	C15H24O	220.2	44.25	5 alpha reductase inhibitor, HIF 1 alpha inhibitor, Ikappa B alpha phosphorylation inhibitor, increases alpha mannosidae activity, Interleukine 1 alpha inhibitor, testosterone 5 alpha reductase inhibitor, TNF alpha inhibitor
8.98	Bergamotol, Z-.alpha.-trans-	C15H24O	220.2	8.72	Glutathione-S-tansferase inhibitor, increases glutathinone – S-transferase (GST) activity, decreases oxaloacetate transaminase activity, Decreases Glutamate PuruvateTransaminase, Glucosyl-Transferase inhibitor, increases glyoxalate transamination, reverse transcriptase inhibitor, transdermal, smart drug, adrenocortical stimulant
9.21	Santalol, E-cis,epi-.beta.-	C15H24O	220.2	4.44	17 beta Antiamyloid beta, ER beta binder, Decrease endothelial leukocyte adhesion, endoanesthetic, endocrinative, endothelium dependent, endothelium derived relaxing factor promoter
9.27	Santalol, cis,.alpha.-	C15H24O	220.2	0.64	5 alpha reductase inhibitor, HIF 1 alpha inhibitor, Ikappa B alpha phosphorylation inhibitor, increases alpha mannosidae activity, Interleukine 1 alpha inhibitor, testosterone 5 alpha reductase inhibitor, TNF alpha inhibitor
9.33	Santalol, trans-.beta.-	C15H24O	220.2	24.45	5 alpha reductase inhibitor, HIF 1

					alpha inhibitor, Ikappa B alpha phosphorylation inhibitor, increases alpha mannosidae activity, Interleukine 1 alpha inhibitor, testosterone 5 alpha reductase inhibitor, TNF alpha inhibitor
9.59	Benzenebutanal, .gamma.,4-dimethyl-	C12H16O	176.1	0.92	PPRA Gama antagonist
9.63	Lanceol, cis	C15H24O	220.2	2.62	Not known