



ORIGINAL RESEARCH PAPER

Siddha

FTIR ANALYSIS ON SIDDHA HERBAL DRUG VALLADHI RASAYANAM

KEY WORDS: FTIR, Siddha drug *Valladhi Rasayanam*, Poly herbal, Vatha diseases.

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ABSTRACT

BACKGROUND: The *Valladhi Rasayanam* is a polyherbal drug used for treating vatha diseases, cancer, leprosy, eczema and other skin ulcers.

OBJECTIVES: To characterize the polyherbal drug *Valladhi Rasayanam*.

MATERIALS AND METHODS: The ingredients such as *Semecarpus anacardium*, *Zingiber officinale*, *Piper nigrum*, *Piper longum*, *Curcuma longa*, *Carum copticum*, *Cuminum cyminum*, *Vernonia anthelmintica*, *Embelia ribes*, *Smilax china*, *Plumbago indica*, *Sesamum indicum*. The drug was prepared as per *Siddha* literature *Dhanuvin Sankira Sindhamani*. The drug was analysed under FTIR Spectrum.

RESULTS: FTIR characterization shows the presence of some functional group such as alkane, esters, lactone, aliphatic ketone, carboxylic acid, imine/oxime, aromatics, amine, vinyl ether, tertiary alcohol, primary alcohol, sulfoxide, alkene compounds were in *Siddha* polyherbal drug *Valladhi Rasayanam*. This study forms the base for the pharmaceutical analysis of *Valladhi Rasayanam* which will be followed by safety and efficacy studies later.

CONCLUSION: The instrumental analysis FTIR study for *Valladhi Rasayanam* shows the presence of functional groups through the stretch and bends which responsible for its functional activity. It shows the presence of alkanes, amines, vinyl ether, alcohol, sulfoxide, lactone and aromatic compounds. It has anti inflammatory, analgesic, anesthetic, sedative, anti hypertensive, auto immune and anti microbial activities. Further researches want to be done in the *Valladhi Rasayanam* to prove the efficacy and standardization of the drug.

INTRODUCTION

Siddha system of medicine is primitive medicine. Hence it is unique when compared to any other Indian medical system. It has a rich treasure of medicinal knowledge that includes the use of herbs, metals and minerals. *Siddha* system is based on a combination of ancient medicinal practices and spiritual disciplines. This specialized medical practice was created by the *siddhars*. They discovers many natural remedies which are used for the wide range of diseases.

Siddhar Yugi Munivar has classified *Vatha* disease into 80 types in *Yugi Vaithiya Chinthamani* 800. *Cegana vatham* is one among them and the symptoms are pain around the neck, giddiness, pain in the limbs, burning sensation of the eyes, pain all over the body like a sting of a scorpion. Most of the symptoms present in *Cervical spondylosis* can be correlated to those of *Cegana vatham*. Nowadays pain in the neck has become a matter of major concern. It is mainly due to lifestyle modification.

In *Siddha* text, *Dhanuvin Sankira Sinthamani*, a polyherbal drug *Valladhi Rasayanam* has been indicated for *Vatha* disease. FTIR characterization was done for this *Siddha* drug to evaluate functional group identification. It is an excellent tool for quantitative analysis.

DRUG INGREDIENTS

TABLE: 1

SI. No	DRUGS	BOTANICAL NAME	PART USED	AMOUNT
1	Cherangkottai	<i>Semecarpus anacardium</i>	Fruit	25 in number
2	Chukku	<i>Zingiber officinale</i>	Rhizome	15.3gms
3	Milagu	<i>Piper nigrum</i>	Unripped fruit	15.3gms
4	Thippili	<i>Piper longum</i>	Fruit	15.3gms

5	Manjal	<i>Curcuma longa</i>	Rhizome	15.3gms
6	Omam	<i>Carum copticum</i>	Seed	15.3gms
7	Nar-chirakam	<i>Cuminum cyminum</i>	Seed	15.3gms
8	Kattu-chirakam	<i>Vernonia anthelmintica</i>	Seed	15.3gms
9	Vaivilangam	<i>Embelia ribes</i>	Seed	15.3gms
10	Parangipattai	<i>Smilax china</i>	Rhizome	52.5gms
11	Kodiveli	<i>Plumbago indica</i>	Root	4.5gms
12	Ell	<i>Sesamum indicum</i>	Seed	8.75gms
13	Palm jaggery			Total net weight of 1-12 drugs.
14	Gingely oil			Required amount

DOSE

6-12gm

ADJUVENT

Hot water

INDICATION

Vatha diseases

DETAILS REGARDING ANALYSIS

FTIR spectra were recorded at Kalasalingam academy of research and education (International research centre) Srivilliputhur.

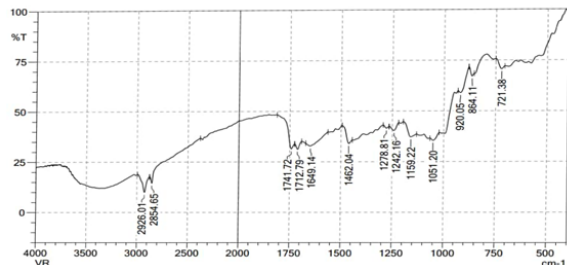
FTIR SPECTRUM ANALYSIS

Fourier transform infrared spectroscopy it is an important and more advanced technique. It is used to identify the functional

group to determine the quality and consistency of the sample material and can determine the amount of compound present in the sample.

In FTIR - infrared is passed from a source through a sample. This infrared is absorbed by the sample according to the chemical properties and some are transmitted. The spectrum that appears denotes the molecular absorption and transmission. It forms the molecular fingerprint of the sample. It is recorded as wavelength and the peaks seen in the spectrum indicate the amount of material present

FIGURE: 1



INTERPRETATION

TABLE: 2

S.No	Wave Number	Vibrational modes of Valladhi Rasayanam in IR	Functional Groups
1.	2926.01	C-H Stretch	Alkane
2.	2854.65	C-H Stretch	Alkane
3.	1741.72	C=O Stretch	Esters, Lactone
4.	1712.79	C=O Stretch	Aliphatic ketone, Carboxylic acid
5.	1649.14	C=N Stretch	Imine/ Oxime
6.	1462.04	C-H Bend	Alkane
7.	1278.81	C-N Stretch	Aromatic amine
		C-O Stretch	Aromatic ester
8.	1242.16	C-N Stretch	Amine
		C-O Stretch	Vinyl ether
9.	1159.22	C-O Stretch	Tertiary alcohol
10.	1051.20	C-O Stretch	Primary alcohol
		S=O Bend	Sulfoxide
11.	920.05	-----	Unknown compound
12.	864.11	-----	Unknown compound
13.	721.38	C=C Bend	Alkene

DISCUSSION AND RESULTS

In FTIR spectrum analysis, this sample analysis Valladhi Rasayanam exhibit the peak value at 2926.01, 2854.65, 1741.72, 1712.79, 1649.14, 1462.04, 1278.81, 1242.16, 1159.22, 1051.20, 920.05, 864.11, 721.38 having C-H stretching, C=O stretching, C=N stretching, C-H bending, C-O stretching, C-N stretching, S=O stretching, C=C bending.

This indicates the presence of some organic functional groups such as alkane, esters, lactone, aliphatic ketone, carboxylic acid, imine/oxime, aromatics, amine, vinyl ether, tertiary alcohol, primary alcohol, sulfoxide, alkene. The presence of alkanes protects against bacteria and fungal infections. The presence of amines and vinyl ether are good painrelievers and they have anti-inflammatory and anesthetic activities. The presence of lactone and sulfoxide has an anti hypertensive action. Alcohol acts as a sedative agent, which has the property to dilate blood vessels and reduce the risk of heart attack and stroke.

CONCLUSION

The instrumental analysis FTIR study for Valladhi Rasayanam shows the presence of functional groups through the stretch and bends which responsible for its functional activity. It shows the presence of alkanes, amines, vinyl ether, alcohol, sulfoxide, lactone and aromatic compounds. It has anti inflammatory, analgesic, anesthetic, sedative, anti hypertensive, auto immune and anti microbial activities. Further researches want to be done in the Valladhi Rasayanam to prove the efficacy and standardization of the drug.

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