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**Functional groups identification through FTIR
characterization of Siddha formulation
“Karuveppilai Vadagam”**

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Abstract

Siddha is an ancient system of medicine that originated in the South India. Siddha formulation works by revitalizing and rejuvenating the organs. Siddha formulation also helps to restore the normal function of organs. Hence to show the uniqueness of Siddha formulation in the management of disease, FTIR characterization was carried out for the “Karuveppilai Vadagam” to identify its functional groups. Alkane, Mercaptans, Amines, Chloride, Bromide, Iodide, Nitro groups were functional groups identified in Siddha formulation “Karuveppilai Vadagam”. This identified functional groups will help to evaluate the molecular structure regarding research findings for this Siddha formulation “Karuveppilai Vadagam” in future for its extensive use.

Keywords: Siddha formulation, Karuveppilai, FTIR characterization, Vadagam.

Introduction

Siddha treatment is classified into three categories Devamaruthuvum (Divine method) Manudamaruthuvum (Rational method) and Asuramaruthuvum (Surgical method). In the Rational method, medicines made of herbs like Churanam,

Kudineer or Vadagam are used. Hence “Karuveppilai Vadagam” was subjected into FTIR Characterization to create fingerprints for standardization of the Siddha drug in the Manudamaruthuvum (Rational method).

Experimental Section

Details regarding the sample:

“Karuveppilai Vadagam” is a Siddha formulation which indicated as a drug in Siddha sastric text Siddha Vaithiya Thirattu for the treatment of gastro intestinal disorders especially in cases of nausea, loss of appetite, diarrhoea. The ingredients of “Karuveppilai Vadagam” are six in number.

They are Karuveppilai (*Murraya koenigii*), Koththumalli (*Coriandrum sativum*), Common salt (Sodium chloride), Milagu (*Piper nigrum*), Kichchilikkizhangu (*Curcuma zedoaria*), Saathipaththiri

(*Myristica fragrans*). The drug was prepared as per the text Siddha Vaithiya Thirattu.

Details regarding the FT-IR analysis:

FT-IR spectra were recorded at Kalasalingam academy of Research and Education, International Research Centre, India. The sample in vadagam form were grounded to fine powder form using agate motor and pestle. They were then Pelletized by applying pressure to prepare the specimen to record the FT-IR Spectra and used to determine the presence of the functional groups and bands in the “Karuveppilai Vadagam”.

Results



Fig: 1 Image of Karuveppilai Vadagam

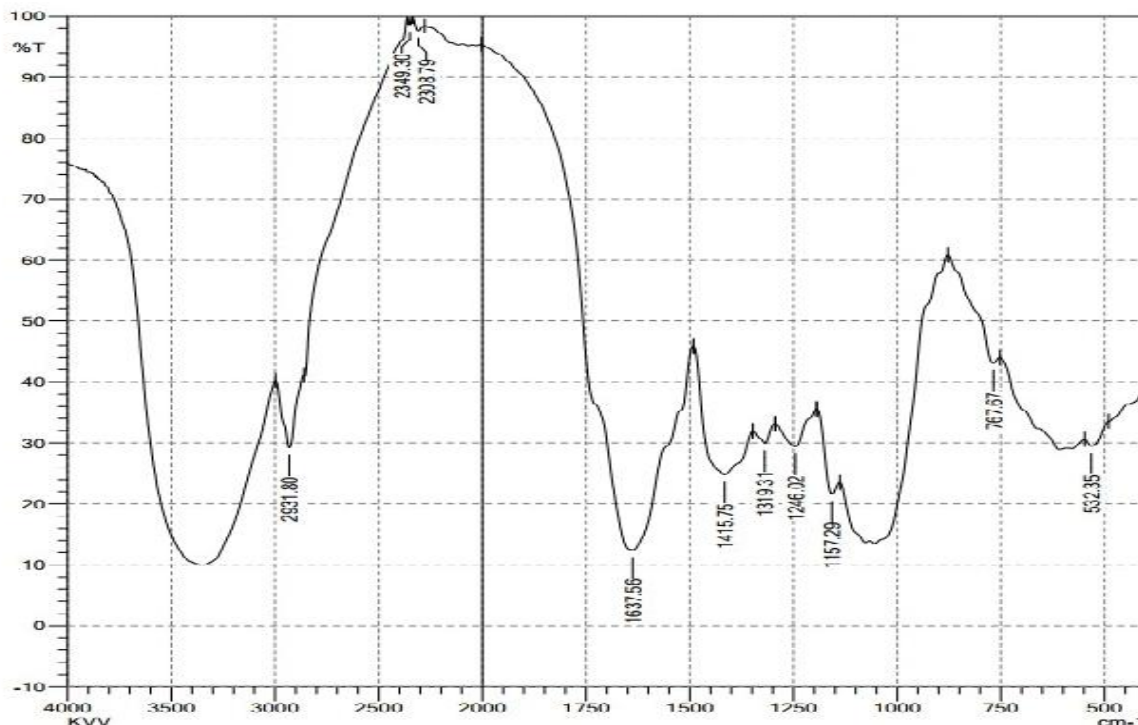


Fig: 2 FTIR Spectra of “Karuveppilai Vadagam”

Table [1] FTIR interpretation of "Karuveppilai Vadagam"

Wave number(cm-1)	Vibrational modes of "Karuveppilai Vadagam" in IR region	Functional group
2931.80	C-H (Stretch)	Alkane
2349.30	S-H	Mercaptans
2308.79	S-H	Mercaptans
1637.56	N-H (Bend)	Amines
1415.75	N=O	Nitro(R-NO ₂)
1319.31	C-N	Amines
1246.02	C-N	Amines
1157.29	C-N	Amines
767.67	C-X	Chloride
532.35	C-X	Bromide, Iodide

Discussion

The presence of Alkane, Mercaptans, Amines, Chloride, Bromide, Iodide, Nitro groups functional groups were identified in the Siddha formulation "Karuveppilai Vadagam" through FTIR spectrum analysis. The compounds were confirmed through the frequencies observed at the above mentioned wave number.

Conclusion

These observed data from this FTIR characterization helps to standardize this Siddha formulation "Karuveppilai Vadagam" regarding its functional behaviour. Alkane, Mercaptans, Amines, Chloride, Bromide, Iodide compounds in this formulation will helps to treat human diseases especially diarrhoea. This identification will become a platform for further research in future regarding the therapeutic uses like anti-diarrhoeal activity of this Siddha formulation "Karuveppilai Vadagam".

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