



FTIR Characterization of Siddha Medicine *Chitrarathai Chooranam*.

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ABSTRACT

Background: The *Chitrarathai chooranam* is a herbal medicine used for treating cough, eczema, oedema, dental diseases and used as expectorant also^[1].

Objectives: To characterize the herbal drug “*Chitrarathai chooranam*”

Materials and Methods : The ingredient used in this preparation is *Chitrarathai* root. The drugs was prepared as per siddha literature *Gunapadam Mooligai vakuppu*. The drugs was analyzed by using FTIR Spectrum.

Result: FTIR characterization shows the presence of some functional group such as Alcohol, Alkane, Silicon, Cyclopentanone, Conjugated alkane, Alkene, Amine, Tertiary alcohol, Fluoro compound, Halo compound, 1,2-disubstitutes where identified in Siddha herbal formulation “*Chitrarathai chooranam*”. If further research will be followed by the results based on this research work, it helps to utilize the medicinal effect of the siddha drug clinically in a safe manner.

Conclusion: The instrumental analysis FTIR study for *Chitrarathai chooranam* shows the presence of functional groups through the stretch and bends which responsible for its functional activity. These findings will help for further preclinical and clinical studies in *Chitrarathai chooranam*.

Keywords:

FTIR analysis, Siddha formulation, Herbal medicine, Functional group

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INTRODUCTION

Herbals are widely used in traditional siddha medicine. For getting more scientific knowledge for traditional medicines need much more investigations. Various medicinal compounds were identified in herbals. Those are always considered as safe with great medicinal value. The pharmaceutical principles of siddha medicines is a specialized one.

Chitrarathai chooranam was indicated as good siddha preparation for its wide medicinal uses. In classical days it is widely used as a drug to treat cough, eczema, edema, dental diseases and used as expectorant also^[1].

The FTIR characterization were carried out to standardize this formulation. This study will helpful for structural and functional determination of this drug in various ways.

MATERIALS AND METHODS

Collection of raw materials

Chitrarathai root was collected from surrounding places near Nagercoil.

Chitrarathai chooranam is a siddha herbal formulation has the ingredients of,

Process of preparation

Purified the *Chitrarathai* root by removing the out-

Siddha	Scientific name	Quantity
<i>Chitrarathai</i>	<i>Alpiniaofficinarum</i> ^{[2], [3]}	S.Q

er layer and dried it. Then it is placed in iron mortar and

powdered finely^{[1],[4]}. Then it was sieved through the cotton white cloth. Finally *chooranam* was obtained and stored in an airtight container.

Dose

1 – 2 gm.

Adjuvant

Honey – Twice or Thrice a day after food^[1].

Indication

Cough, eczema, edema, dental diseases and used as expectorant also^[1].

Details regarding the analysis

FTIR spectra were recorded at kalasalingam academy of research and education (International research center) 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 finger print of the sample. It is recorded as wavelength and the peaks seen in the spectrum indicate the amount of material present.

RESULTS

The results are plotted in image and table .1

Fig.1. Image of the FTIR spectrum.

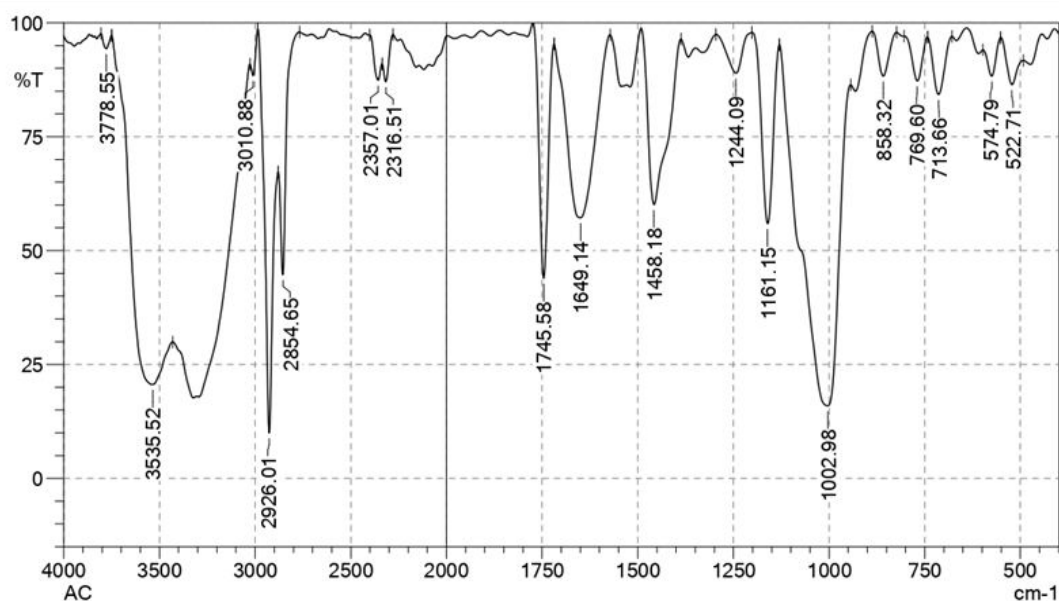


Table.1: FTIR Data interpretation of Chittrarathai chooranam

Wave number	Vibrational modes of SAMPLE (AOP) In IR region	Functional groups
3778.55	O-H Stretching	Alcohol
3535.52	O-H Stretching	Alcohol
3010.88	C-H Stretching	Alkane
2926.01	C-H Stretching	Alkane
2854.65	C-H Stretching	Alkane
2357.01	Si-HStretching	Silicon
2316.51	Si-HStretching	Silicon
1745.58	C=O Stretching	Cyclopentanone
1649.14	C=C Stretching	Conjugated Alkene
1658.18	C-C Stretching	Alkene
1244.09	C-N Stretching	Amine
1161.15	C-O Stretching	Tertiary alcohol
1002.98	C-F Stretching	Fluoro compounds
858.32	C-Cl Stretching	Halo compounds
769.60	C-H bending	1,2-disubstituted
713.66	C=C bending	Alkene
574.79	C-Br Stretching	Halo compounds
522.71	C-I stretching	Halo compounds

DISCUSSION

In FT-IR spectra analysis, this sample *Chittrarathai chooranam* exhibits the peak value at 3778.55, 3535.52, 3010.88, 2926.01, 2854.65, 2357.01, 2316.51, 1745.58, 1649.14, 1658.18, 1244.09, 1161.15, 1002.98, 858.32, 769.60, 713.66, 574.79, 522.71 having O-H stretch, C-H stretch, Si-H stretch, C=O stretching, C=C stretching, C-N stretching, C-F stretching, C-Cl stretching, C-H stretching, C-Br stretching, C-I stretching.

This indicates the presence of some organic functional groups such as Alcohol, Alkane, Silicon, Cyclopentanone, Conjugated alkane, Alkene, Amine, Tertiary alcohol, Fluoro compound, Halo compound, 1,2-disubstituted. The presence of alkanes protects against bacteria and fungal infections. likewise the presence of other these identified functional groups in the medicinal compound are also responsible for their therapeutic function.

CONCLUSION

The instrumental analysis FTIR study for *Chittrarathai Chooranam* shows the presence of functional groups through the stretch and bends which responsible for its functional activity.

These findings will help for further preclinical and clinical studies in *Chittrarathai chooranam*.

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CONFLICT OF INTEREST : None declared

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