



## FTIR Characterization of Siddha herbo-mineral drug Pattu Karuppu

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### ABSTRACT

**Background:** The Pattu karuppu is a herbal and mineral combination used for treating Soothaga Soolai (dysmenorrhoea), Soothaga Sanni (puerperal-delirium), Soothaga Vettai (leucorrhoea). **Objectives:** To characterize the herbo mineral drug "PattuKaruppu".

**Materials & Methods:** The ingredients such as Lingam, Rasam, Gandhagam, Pooram, Veeram, Vellaipadanam, Kandham, Karunabi, Lava ngam, Aamanakku Ennai, Kodiveliver pattai, Arakku nira pattu.

**Result:** FTIR characterization shows the presence of some functional group such as Halo compound alkane, primary alcohol, Aldehyde where identified in Siddha herbo, mineral formulation Pattu Karuppu. This study form the base for the pharmaceutical analysis of Pattu karuppu which will be followed by safety and efficiency studies later.

**Conclusion:** The instrumental analysis FTIR study for Pattu karuppu shows the presence of functional group through the stretch and bends which responsible for its functional activity further validate its efficiency and safety through proper standardization procedure for its potency.

### Keywords:

FTIR, Pattu Karuppu, Functional group, pharmaceutical analysis

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## INTRODUCTION

Siddha medicine is a traditional medicine. The herbal agents used by the siddha system to be classified into three groups. (i) Thaavaram (Herbal Product), (ii) Thadhu (Inorganic Substances), (iii) Sangamam (Animal Product), Siddha medicine of pattu karuppu prepared by using herbal, metals, panchachootham, paasanam, Karasaram. Some analytical equipments are helpful to get knowledge regarding the siddha formulation medicines. FTIR characterization was done for the herbo mineral siddha formulation "Pattu Karuppu" to evaluate functional group identification. It perfect tool for quantitative analysis.

## MATERIALS AND METHODS

Pattu Karuppu is a Siddha herbo-mineral formulation has the ingredients of

Sidha Name	Scientific Name	Quantity
Lingam	Mercuric Sulphide	35gm
Rasam	Elemental mercury	35gm
Gandhagam	Elemental sulphur	12.5gm
Pooram	Mercurous Chloride	12.5gm
Veeram	Mercuric Chloride	12.5gm
Vellaipasanam	Arsenic trioxide	12.5gm
Kandham	Magnetic Oxide of iron	12.5gm
Karunabi	Aconitum napellus	12.5gm
Lavangam	Syzygium aromaticum	6.25gm
Amanakku Ennai	Ricinus Communis	35gm
Ko-diveli ver pattai	Plumbago indica	280gm
Arak-ku nira pattu thuni	Silk Cloth	qs

## PURIFICATION OF DRUGS

### Lingam (Mercuric Sulphide)

Cow's milk 150ml, lemon juice 150ml and Acalypha indicajuce 150ml, were mixed well in a jar glass. A single piece of Lingam Weighted was placed on a mud plate and heated over hot plate mounted on the juices in a glass jar were instilled over the lingam drop by drop for 3 hours continuously. After 3 hours the lingam was allowed to cool and washed out with water and dried.<sup>2,4</sup>

### Rasam (Hudragynum)

Fitter mercury through a tough cloth of close mesh several times. Heat with pure water till the water does not show any alteration in colour. Then wash with fermented rice water seven times. Finally wash with water.<sup>2,4</sup>

### Gandhagam (Sulphur)

Melt sulphur in a spoon with butter. Pour into cow's milk. Repeat for 30 times wash in a water and dried in sunlight.<sup>2,4</sup>

### Pooram (Mercurous Chloride)

The poultice made of betal leaf (piper beetle) and pepper (piper nigrum) each 17.5gm is taken and dissolved in 2.6 letter of water pooram 70gm and tied with a cloth and immersed in the liquid from the cross bar and heated. After the water is reduced to 3/4 of its volume. The pooram is taken out, washed with water and dried to get it in purified form.

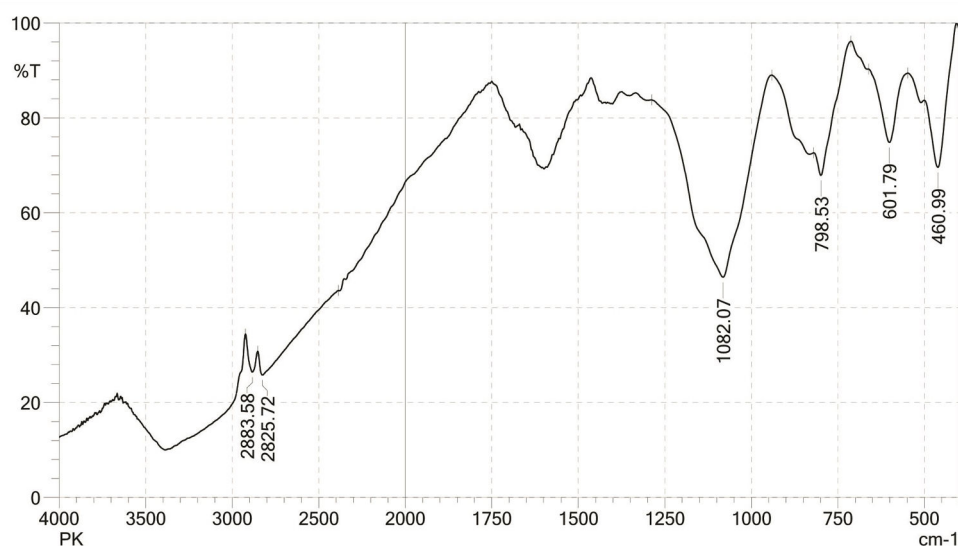
### Veeram (Meruric Chloride)

Camphor is mixed with tender coconut water and placed in a mud pot veeram is tied in a cloth and soaked in the pot without touching the water and the pot is burnt for half an hour.<sup>2,4</sup>

### Vellai padanam (Arsenic trioxide)

Arsenic trioxide 70gm is powdered and triturated with lemon juice. It is made in the small cakes and dried. This process is repeated for 7 times.<sup>2,4</sup>

Fig.1. Image of the FTIR spectrum.



**Table.1: FTIR Data interpretation of PK**

S.No.	Wave Number	Vibrational mode of PK JN IR	Functional group
1.	460.99	-	Unknown Compound
2.	601.79	C-Br Stretch	Halo Compound
3.	798.53	C-C bend	Alkane
4.	1082.07	C-O Stretch	Primary alcohol
5.	2825.72	CH Stretch	Aldehyde
6.	2883.58	CH Stretch	Alkane

**Kandham (Magnetic Oxide of iron)**

Magnetic oxide of iron 35gm, Root Bark juice of Tanner's cassia (ponnavarai) 210gm. Magnet is soaked in root juice of tanner's cassia an insulated from morning to evening for 10 days. Then it is dried for 2 days without adding the juice. This process is repeated twice and washed to obtain purified and detoxified magnet. The medicine manufactured from magnetic oxide of iron so prepared destroys diseases of vatha and protects life<sup>2,4</sup>.

**Karunabi (Aconitum napellus)**

Aconitum roots are soaked in cow's urine for 3 days. These roots are exposed to sunlight daily. After exposure to sunlight cow's urine is replaced by fresh water. After third day, purified roots are dried and preserved for medicinal uses.<sup>3,5</sup>

**Lavangam (Syzygium aromaticum)**

Flower Buds, were removed and dried in sunlight<sup>3,5</sup>

**Kodiveli ver pattai (Plumbago indica)**

The root was cleaned with a white cloth<sup>3,5</sup>

**PROCESS OF PREPARATION**

Purified Lingam, Rasam, Gandhagam, Pooram, Veeram, Vell aipadanam, Kandham, Nabi, Kirambu. All the above ingredients are purified and powdered in stone mortar. Then add 35gm of Caster oil to it triturated well and make it as a ball. The root bark of plumbago indica is triturated and made into paste. The above prepared ball is stuffed in the paste of plumbagoindica root bark. Then the content is sealed with cloth and dried. Then subjected to the incinerated process with so cow dung cakes then coded and powdered. Stored in a glass container<sup>1</sup>.

**Dose**

25-50mg.

**Adjuvant**

Honey

**Indication**

Soothaga soolai (dysmenorrhoea), Soothaga Sanni (puerperal delirium), Soothaga vettai (leucorrhoea).

**Details regarding the analysis**

FTIR spectra were recorded at kalasalingam academy of research and education (International research center) Srivelliputhur.

**FTIR Spectrum analysis:**

Fourier transform infrared spectroscopy, also known as FTIR analysis is an analytical technique used to identify organic, polymeric and in some cases, inorganic materials. FTIR is a bulk analytical technique, in that little information can be gained from trace (or) small concentration of material 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.

**DISCUSSION**

In FT-IR spectra analysis, this sample pattu karuppu exhibits the Peak value at 601.79, 798.53, 1082.07, 2825.72, 2883.58 having C-Br Stretch, C-C bend, C-O Stretch, C-H Stretch, C-H Stretch. This indicates the presence of some organic functional groups such as Halo compound, Alkane, Primary alcohol, Aldehyde, Alkane.

Present work can be considered as the first step towards the identification of heavy metals and functional groups. The present study is only a preliminary analysis, and exact nature of different peaks given by the sample along with the characterization is to be studied.

## CONCLUSION

The instrumental analysis FTIR study for pattu karuppu shows the presence of functional groups through the stretch and bends which responsible for its functional activity. It was to subject for further many studies to validate its efficacy and safety through proper standardization procedure. For its potency.

**SOURCE OF FUNDING :** Nil

**CONFLICT OF INTEREST :** None declared

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