Available online www.jocpr.com

Journal of Chemical and Pharmaceutical Research, 2016, 8(6):309-311

Research Article

ISSN : 0975-7384
CODEN(USA) : JCPRC5

Analysis and characterization of the Traditional Siddha formulation *Sangu parpam* through Fourier Transform Infra-Red Spectroscopy

Rajamaheswari K.*[1] and Rajasekaran M.[2]

[1]*Ph.D Scholar, Department of Gunapadam, National Institute of Siddha, Tambaram Sanatorium, Chennai-47*
[2]*Professor and Guide, Department of Gunapadam, National Institute of Siddha, Tambaram Sanatorium, Chennai-47*

ABSTRACT

Sangu (Turbinella Pyrum Linn.) is indicated as one of the best raw drug source in siddha medicine for its wide medicinal uses. In ancient days it is widely used as a drug of choice for the treatment of peptic ulcer, skin diseases, urinary disorders, hepatic diseases etc., According to Siddha Pharmaceutical Principles, while incorporating Sangu with herbal juices after its purification in order to attain the high range of medicinal value there can obtain a new structural chemical entity. Here the Sangu Parpam was subjected into characterization through FT-IR analysis. The results showed that this Sangu parpam constitutes C-H Stretch, N-H Stretch, O-H Stretch, C=O Stretch, -C-H Bending, C-Cl Stretch which indicates there is a presence of organic functional groups such as alkanes, amines, acids, carbonyl, alkyl halides. This study forms the base for the pharmaceutical analysis of sangu parpam which will be followed by safety and efficacy studies later.

Key words: FT-IR, *Sangu parpam*, herbo mineral, Siddha drug, Characterization

---

INTRODUCTION

Siddha system is a unique system which is highly incorporated with Science and Spirituality. There are lot of formulations with wondering scientific secrets especially in the field of chemistry. *Sangu* (Turbinella pyrum) is one of the drug which is mentioned in Siddha literatures for various diseases especially for Gastro intestinal diseases. Characterization always leads a major role for better determining of drug in various aspects. Scientific validation of safety and efficacy of the each and every drug before going to administer in humans are essential in the current Era. Because various changes happened nowadays in our Ecosystem. Standardization of herbal formulation through characterization is essential to assess the quality of the drugs[1]. In order to develop new drug strategy or standardization of the traditional Siddha formulations through characterization using sophisticated modern equipments is an emergence need to strengthen the field of pharmacology.

EXPERIMENTAL SECTION

Details regarding the sample:
The sample having 2 ingredients *Sangu* (*Turbinella pyrum*) and juice of *Pirandai* (*Cissus quadrangularis*). The drug was prepared as per the Siddha literature *Agasthiyar Aruliya Anupoga Vaidhya Kalanjium*[2].

Details regarding the FT-IR analysis.
FT-IR spectra were recorded at SAIF, IIT Madras, India. The Perkine Elmer Spectrum One Fourier Transform Infrared (FTIR) Spectrometer was used to derive the FT IR Spectra of *Sangu Parpam* in Potassium Bromide (KBr) matrix with scan rate of 5 scan per minute at the resolution 4cm^{-1} in the wave number region 450-4000cm^{-1}. The samples were grounded to fine powder using agate motor and pestle and the mixed with KBr. They were then Pelletized by applying pressure to prepare the specimen (the size of specimen about 13 mm diameter and 0.3 mm in

thickness) to recorded the FT- IR Spectra under Standard conditions[3]. FT- IR Spectra were used to determine the presence of the functional groups and bands in the *Sangu Parpam*. The recorded spectrum shows in figure 1.

RESULTS

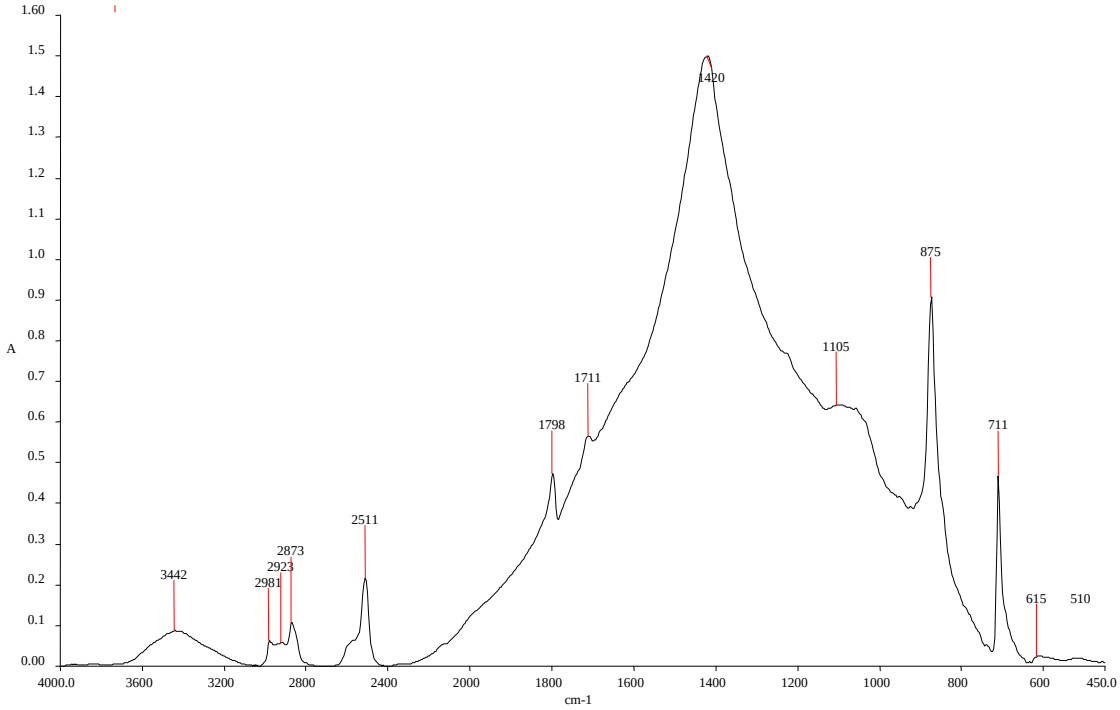

Figure [1] FTIR Spectra of *Sangu parpam*

Table [1] FTIR interpretation of *Sangu parpam*

Wave number (cm-1)	Vibrational modes of *Sangu Parpam* in IR region	Functional group
3442	N-H Stretch	Amine
2981	C-H Stretch	Alkane
2923	C-H Stretch	Alkane
2873	C-H Stretch	Alkane
2511	O-H Stretch	Acid
1798	C=O Stretch	Carbonyl
1711	C=O Stretch	Acid
1420	-C-H Bending	Alkane
1105	C-F Stretch	Alkyl halide
875	=C-H Bending	Alkene
711	C-Cl Stretch	Alkyl halide
615	C-Cl Stretch	Alkyl halide
510	C-Br Stretch	Alkyl halide

In the FT-IR Spectra analysis, this *Sangu Parpam* sample exhibits the peak value shows in Table 1 at the wave number of 3442, 2981, 2923, 2873, 2511,1798, 1711,1420, 1105, 875, 711, 615, 510 having N-H Stretch, C-H Stretch, O-H Stretch, C=O Stretch, -C-H Bending, C-F Stretch, =C-H Bending, C-Cl Stretch, C-Br Stretch. This indicates the presence of some organic functional groups such as amine, alkanes, acids, carbonyl groups, alkyl halides, alkenes.

DISCUSSION

From the results, the N-H Stretch at 3442 indicates a strong peak of calcium nitrate, the C-H Stretch at 2981 indicates calcium phosphate (monobasic), the -C-H Bending at 1420 indicates a strong peak of calcium nitrate, the C-F Stretch at 1105 indicates calcium sulphite, the =C-H Bending at 875 indicates calcium carbonate, the C-Cl Stretch at 711 indicates calcium carbonate[4]. So, majorly this sample *Sangu parpam* contains calcium compounds where calcium carbonate is the dominant form here. Overall observation in the sample *Sangu parpam* is predominantly alkane in nature. From that, we can conclude it may neutralize the acids easily.

CONCLUSION

The study clearly indicates that the major portion of this compounds having calcium majorly as calcium carbonates, calcium nitrates and calcium phosphates. One research Study reveals that S-Alkyl 1, 2, 4-Triazinone Derivatives Having Anti-Cancer Property[5]. In another study results indicates that the synthetic alkyl carbonyl groups also possess anti-cancer activity[6]. In addition to that one more study suggests that for safe and efficient drug delivery biogenic calcium carbonate microspheres may function as carriers for anticancer drugs of low aqueous solubility[7]. From the FT-IR characterization of this study can conclude that the presence of alkyl, carbonyl groups may possess anti-cancer activity when compared with the above mentioned published literatures. Major portions of calcium carbonates also may possess some usefulness as anti-cancer. This characterization results will leads to evaluate anti-cancer activity of *Sangu parpam* in future. This FT-IR characterization results are creating the fingerprints to standardize this Siddha drug *Sangu parpam.*

Acknowledgements
I wish to acknowledge my thanks to The National Institute Of Siddha, IIT Madras, Prof. Murugesan, Mr. S. Krishnasamy and Mr. R. Sakthi for their support through this entire study.

REFERENCES

[1] Yadav NP, Dixit VK. *Int J Integr Biol* **2008**;2:195-203.
[2] Agasthiyar Aruliya Anupoga Vaidhya Kalanjium, R.G.Pathi company, 1 st edition, Page: 54
[3] Northern Illinois University, Chemistry Analytical lab, FT-IR sample preparation. **2007**. http://www.niu.edu/ANALYTICALLAB/ftir/samplepreparation.shtml (06 Oct **2013**)
[4] Foil A. Miller And Charles H. Wilkins, Infrared Spectra and Characteristic Frequencies of Inorganic Ions *Their Use in Qualitative Analysis*, V O L U M E 24, NO. 8, A U G U S T 1 9 5 2, pages: 1253-1294
[5] Hosam A. Saad and Ahmed H. Moustafa, *Molecules* **2011**, 16, 5682-5700;
[6] Belen zarranz, Andres Jaso, Ignacio aldana, Antonio monge, *Bioorg Med Chem* **2004** Jul;12(13):3711-21.
[7] Neng Qiu, Huabing Yin, Bozhi Ji, Norbert Klauke, Andrew Glidle, Yongkui Zhang, Hang Song, Lulu Cai, Liang Ma, Guangcheng Wang, Lijuan Chen , Wenwen Wang, *Materials Science and Engineering: C* Volume 32, Issue 8, 1 December **2012**, Pages 2634–2640