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Functional groups identification through characterization of siddha formulation Musumusukkai chooranam

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Abstract

Siddha system is a wonderful medical system since ancient times .The medical system fully depends upon concept of the nature. Herbals are always having highly potent medicinal value without causing any adverse effects. Mukiamaderaspatna (MUSUMSUKKAI) is a well reputed herb that belongs to cucurbitaceae family. It is a literarity recommended in siddha medicine and used in practice for various ailments. Fourier Transform Infrared spectroscopy (FTIR) characterization will help to determine the functional compounds of the drug siddha medicine "MUAUMASUKKAI CHOORANAM" was subjected into characterization through FTIR. The FTIR peaks of " MUSUMUSUKKAI CHOORANAM" constitute some functional group such as alcohol, ether, ester, carboxylic acid , Alkane, fluoride, Bromide, Iodide. If further research will followed based on this research work, help to this siddha drug clinically in a safe manner.

Keywords: Musumusukkai chooranam, FTIR, cucurbitaceace.

Introduction

Siddha medicine is an ancient art of medicine which is the only system give curative, preventive, treatment and teaching art of eternal living. Standardization of the drug is very important to achieve the therapeutic efficacy, potency of the trail drug by establish the drug through doing numerous analyses. The traditional system of medicine became significantly more popular all over the globe because of the curative property, less toxic and has no side effects. It has been estimated that world's 70 – 80 percent population relies on traditional healthcare. Herbal medicines are more acceptable prescription as compared to synthetic medicines. The mode of preparation and plant used in traditional medicine varies from place to place. Siddha medicine, one of the oldest Indian traditional medicines " Musumusukkai chooranam is one of the siddha drug mainly used in the treatment of Irraippu (spasm), Irraippirumal (asthma), Vaandhi (emesis/vomitting), Gunmam(gastritis), Mudhuguvali (backache), Porumal (flatulence), Malachikkal (constipation), Palvali (odontalgia). This drug is administered at the dose of 1 – 5 gms of powder and take 2 – 3 times a day after food.

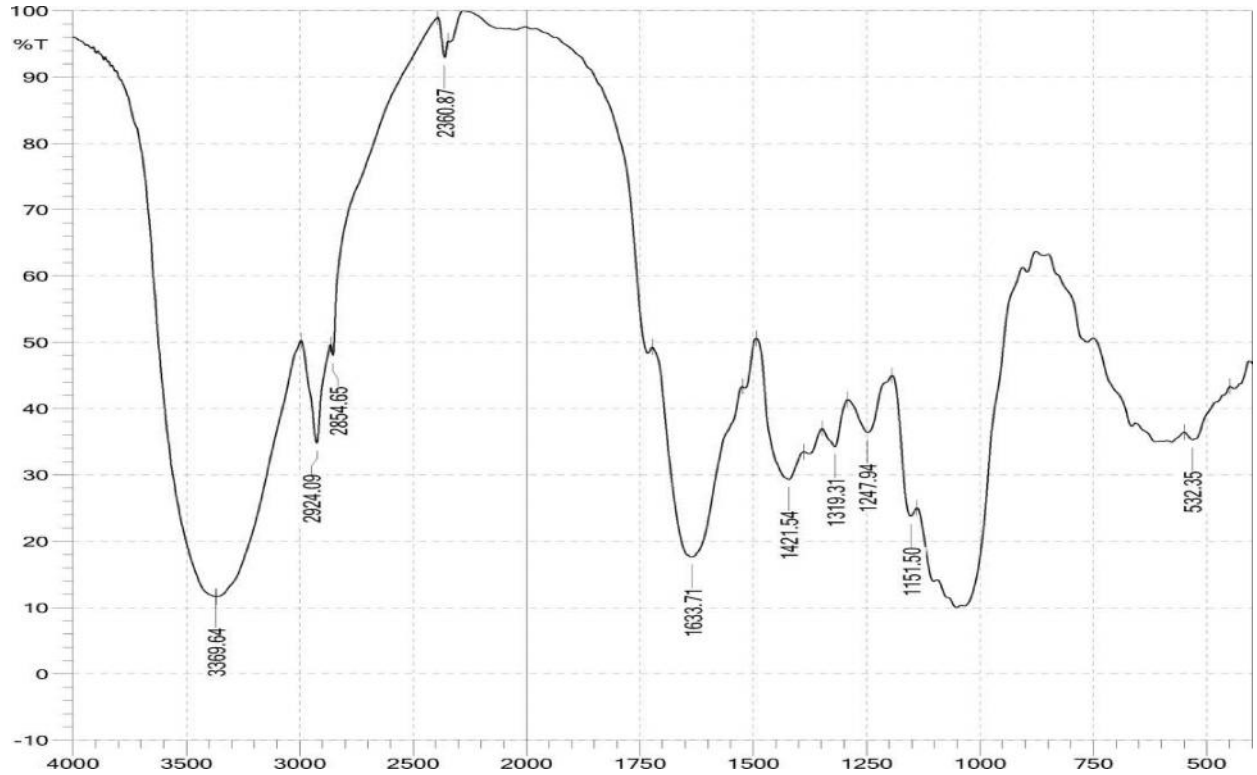
Materials and Methods

The medicine " MUSUMUSUKKAI CHOORANAM" has purchased from SKM Siddha and Ayurvedha company (India) Limited, and used as such for the present study, FTIR is an important and more advanced technique to indentify the functional group. The spectrum that appears denotes the molecular absorption and transmission. It is recorded as the wavelength and the peaks seen in the spectrum indicates the amount of material present.

Details regarding the FTIR analysis

The Perkineelmer Spectrum one Fourier Transform was Infrared (FTIR) Spectrometer was used to derive the FTIR Spectra of "MUSUMUSUKKAI CHOORANAM" potassium Bromide(KBR) matrix with scan rate of 5 scan per minute at the resolution 4cm^{1} in the wave number region 450 – 4000 cm^{1}. The samples were grounded to fine powder using agate motor and pestle and the mixed with to determine the presence of the functional groups and bands in the musumusukkai chooranam. The recorded spectrum analysis .

Results



Interpreting of "Musumusukkai chooranam"

Wave Number Range(cm^{1})	Bond	Type of vibration
3369	O – H	H – bonded
2924	C – H	Alkane
2854	C – H	Alkane
2360	-	-
1633	C = C	Alkane
1421	C = C	Aromatic
1319	C – F1	Fluoride
1247	C – O	Alcohol, ether, ester, carboxylic acid.
1151	C – O	Alcohol, ether, ester, carboxylic acid.
532	C – Br	Bromide
	C – I	Iodide

Discussion

In the FTIR spectra analysis, this Musumusukkai chooranam showed the association of functional groups and 10 effective peaks were obtained between 4000cm^{1} to 450cm^{1}. The results of FTIR spectra analysis are presented in figure 1 and table 1 which exhibits the peak value 3369, 2924, 2854,2360, 1421, 1319,1247,1151,532cm1 having O – H stretch, C – H stretch, C – H stretch, C = C stretch, C - F1 stretch, C – O stretch, C – O stretch, C – Br , C – I stretch. This peak indicates the presence of some organic functional groups such as alcohol, ether, ester, carboxylic acid, alkane, fluoride, Bromide, Iodide.

Conclusion

Nowadays it is very essential to validate the traditional formulations to get various knowledge regarding the science behind those formulations. This FTIR characterization findings of Musumusukkai chooranam helps to standardize drug. This results will help in structural Identification of this drug and further research on this drug.

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