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**Research Article**



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**FTIR Characterization of Siddha medicine  
“Nanjumurivu chooranam”**

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**Abstract**

Siddha medicines are having high therapeutic value. Their standardization is essential to get wider knowledge about that drug for extensive safe use. Characterization of the drug plays a major role to identify the nature of the drug for standardization. FTIR characterization will help to determine the functional (groups) compounds of the drug. Siddha medicine “Nanjumurivu chooranam” was subjected to characterization through sophisticated analytical equipment FTIR to identify the presence of functional groups. The presence of some functional groups such as Alkane, Alcohol, Ketone, Amide, Aldehyde, Chloride, Esters, Ether, Carboxylic acid, Aromatics were identified in the siddha poly herbal formulation “Nanjumurivu Chooranam”. If further research will be followed by the results based on their research work. It helps to utilize the medicinal effect of this siddha drug clinically in a safe manner.

**Keywords:** FTIR, Siddha drug, Poly herbal, Functional groups.

**Introduction**

The siddha system is an Indian system of medicine which is developed and mainly practiced in Tamilnadu and other parts of Southern India since ancient times. The materia medica of Siddha system encompasses around 500 medicinal plants, 150 metals and minerals, 150 animals and their derivatives. Herbal medicines as the major remedy in traditional system of medicine have been used in medical practices since antiquity. Approximately 60% of the population use herbal medicines to treat physical illnesses.

The World Health Organization (WHO) has appreciated the importance of medicines. Plants for

public health care in developing nations and has evolved guidelines to support the member states in their efforts to formulate national policies on traditional medicine and to study their potential usefulness including evaluation, safety and efficacy. “Nanjumurivu Chooranam” is a poly herbal siddha medicine used in Kanakadi (Urticaria), Ovamaitholnoikal, (Allergic dermatitis), Vishakadi (poisonous bites) Blackening of skin, Ullankai, UllankalVedippu (Fissure of palms and soles). It is taken orally one to two grams twice a day with honey (or) hot water. This study reports on the characterization of “Nanjumurivu chooranam” based on FTIR.

## Experimental Section

### Details regarding the sample

The drug have been purchased from SKM Siddha & Ayurvedha pharmacy. "Nanjumurivu Chooranam" is a poly herbal formulation which indicated as a drug in siddha sastric text ("Siddha formulary of india Part I")

The ingredients of *Nanjumurivu chooranam* are nine in numbers. They are *Cassia aungustifolia*, *Corallo carpusepigaeus*, *Indigofera asphalanthodies*, *Enicostemma littorale*, *Gymnema sylvestris*, *Piper nigrum*, *Piper longum*, *Syzygium aromaticum*, *Indigofera tinctoria*. The drug was prepared as per the text.

### Details regarding the FT-IR analysis

FT-IR spectra were recorded at Kalasalingam University, Krishnankovil. The Perkin Elmer specturm one Fouries Transform Infrared (FTIR) Spectrometer was used to derive the FT IR spectra of *Nanjumurivu Chooranam* in Potassium Bromide (KBr) matrix with scan rate of 5 scan per minute at the resolution 4  $\text{cm}^{-1}$  in the wave number region 450-4000  $\text{cm}^{-1}$ . The samples were grounded to fine powder using agate mortar and pestle and the mixed with KBr. They were then pelletized by applying pressure to prepare the specimen (The size of specimen about 13mm diameter and 0.3mm in thickness) to recorded the FT-IR spectra under standard conditions. FT-IR spectra were used to determine the presence of the functional groups and bends in the *Nanjumurivu Chooranam*. The recorded spectrum shows in figure.

## Results

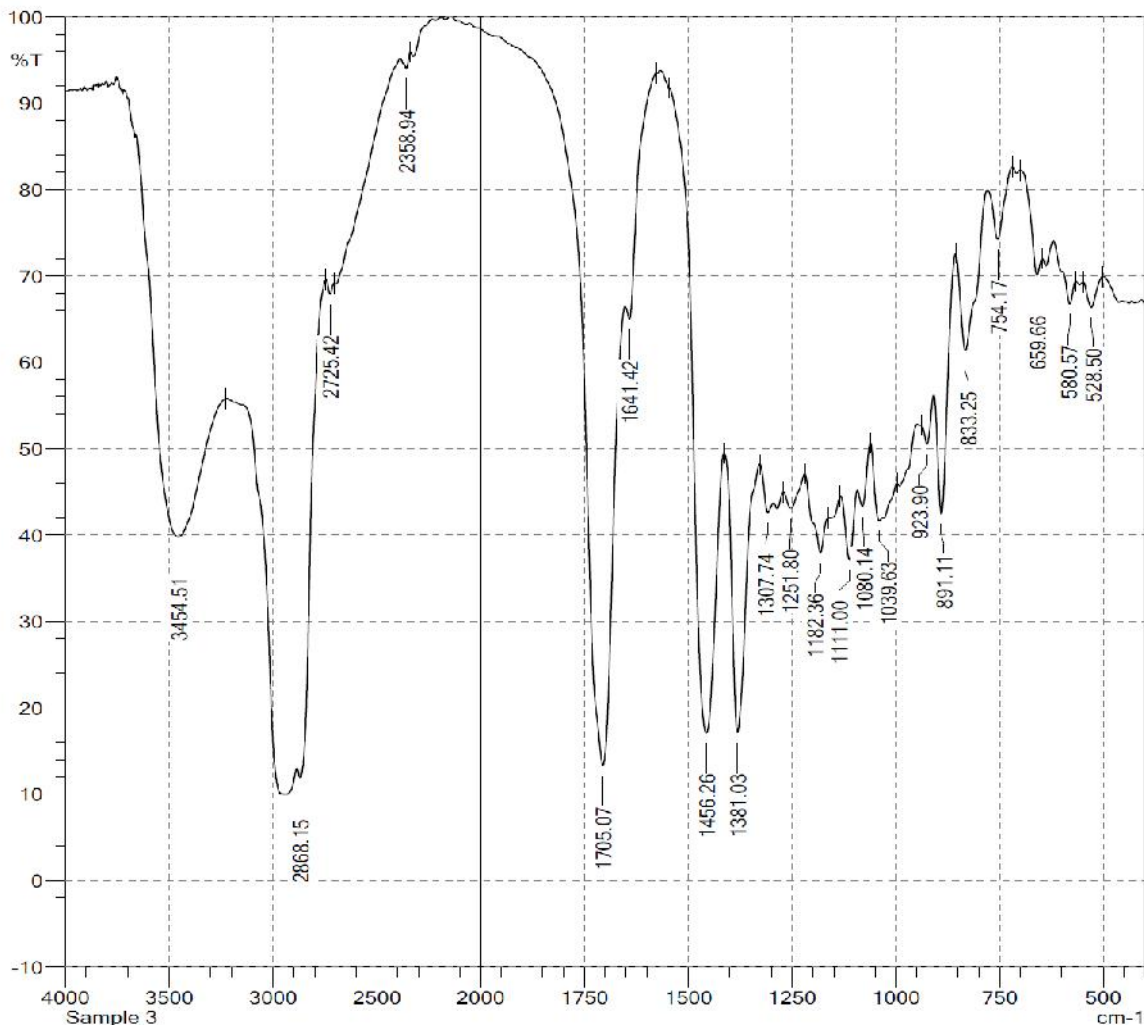


Fig.1 : FTIR Spectra of "Nanjumurivu Chooranam"

Table – 1 FTIR Interpretation of “Nanjumurivu Chooranam”

Wave number	Vibrational modes of “Nanjumurivu Chooranam” in IR region	Functional group
3454	N-H	Primary & secondary amines & amides
2868	C-H	Alkane
2725	C-H	Aldehyde
2358	-	-
1705	C=O	Ketone
1641	C=O	Amide
1456	N=O	Nitro
1381	N=O	Nitro
1307	C-N	Amines
1251	C-O	Alcohols, ethers, esters, carboxylic acid, anhydrides
1182	C-O	“
1111	C-O	“
1080	C-O	“
1039	C-O	“
923	C-H	Alkane
891	C-H	Aromatic
833	C-H	Aromatic
754	C-H	Aromatic
659	C-H	Aromatic
580	C-X	Chloride
528	C-X	Chloride

In the FTIR spectra analysis, this poly herbal siddha drug “*Nanjumurivu Chooranam*” sample exhibits the peak value shows in Table1 at the wave number of 3454, 2868, 2725, 2358, 1705, 1641, 1456, 1381, 1307, 1251, 1182, 1111, 1080, 1039, 923, 891, 833, 754, 659, 580, 528 having N-H, C-H, C-H, C=O, C=O, N=O, N=O, C-N, C-O, C-O, C-O, C-O, C-O, C-H, C-H, C-H, C-H, C-H, C-X, C-X.

### Discussion

The presence of some organic functional groups such as Amines groups, Alkanes groups, Aldehydes, Nitro compounds, Alcohols, Aromatics, Chloride were identified in the poly herbal siddha medicine “*Nanjumurivu chooranam*”.

### Conclusion


Traditional medicines are always provides higher therapeutic value without causing any harmful effects. Scientific validation of tradition medicines through standardization will provide the knowledge regarding the mechanism of durg action. These FTIR characterization findings of siddha drug “*Nanjumurivu chooranam*” creates the finger prints of standardize this drug. These results may form the base for further structural determination of this poly herbal siddha formulation “*Nanjumurivu Chooranam*”.

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