

**INTERNATIONAL JOURNAL OF CURRENT RESEARCH IN
CHEMISTRY AND PHARMACEUTICAL SCIENCES**

(p-ISSN: 2348-5213; e-ISSN: 2348-5221)

www.ijcrpps.com

DOI:10.22192/ijcrpps

Coden: IJCROO(USA)

Volume 4, Issue 2 - 2017

Research Article



DOI: <http://dx.doi.org/10.22192/ijcrpps.2017.04.02.006>

Standardization of “Arumuga Chenduram” through Fourier Transform Infra-Red Spectroscopy

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Abstract

Siddha is a traditional medical system of India. according to siddha system of medicine chenduram is a red colour powder generally made of metallic compounds. Siddha system is the Dravidian system of medicine presently practiced predominantly in south India. Siddha means the scripture for longevity it represents on ancient system of traditional medicine prevalent in India. Here the arumuga chenduram was subjected into characterization through FTIR analysis. The results showed that this arumuga chenduram constitutes O-H stretch, N-H stretch C-H stretch, C=C stretch, - C-H bending C-N stretch =C-H bending C-CL stretch C-Br stretch which indicates there is a presence of organic functional groups such as alcohol, amines, alkenes, alkanes, aromatic, alkyl halides. This study forms the base for the pharmaceutical analysis of Arumuga chenduram which will be followed by safety efficacy studies later.

Keywords: FT-IR Arumuga chenduram, herbo metallic drug, siddha formulation

Introduction

Siddha system is one of the most conservative medical system in the world. Metals play a vital role in siddha medicinal preparation. In siddha system of medicine the diagnostic methodology is based on three humours namely vatham pitham and kapham. Arumuga chenduram is a metallic mineral formulation cited in siddha vaidhya thirattu prepared through the special oxidation procedure involving purified form of minerals processed under herbal juice. It has been practiced frequently for treating inflammation of joints and anorectal disorders.

Materials and Methods

Arumuga chenduram is a herbo metallic formulation which is indicated as a drug in siddha text. Siddha vaidhya thirattu for the treatment of inflammatory diseases anemic condition and rheumatic diseases. The ingredients of arumuga chenduram are six in number. They are iron, rasam (mercury), kanthagam (sulphur) kaantham (magnetic oxide of iron), inthuppu (rock salt) (sodium chloride impura), vengaram (borax), iron powder. The drug was prepared as per the text.

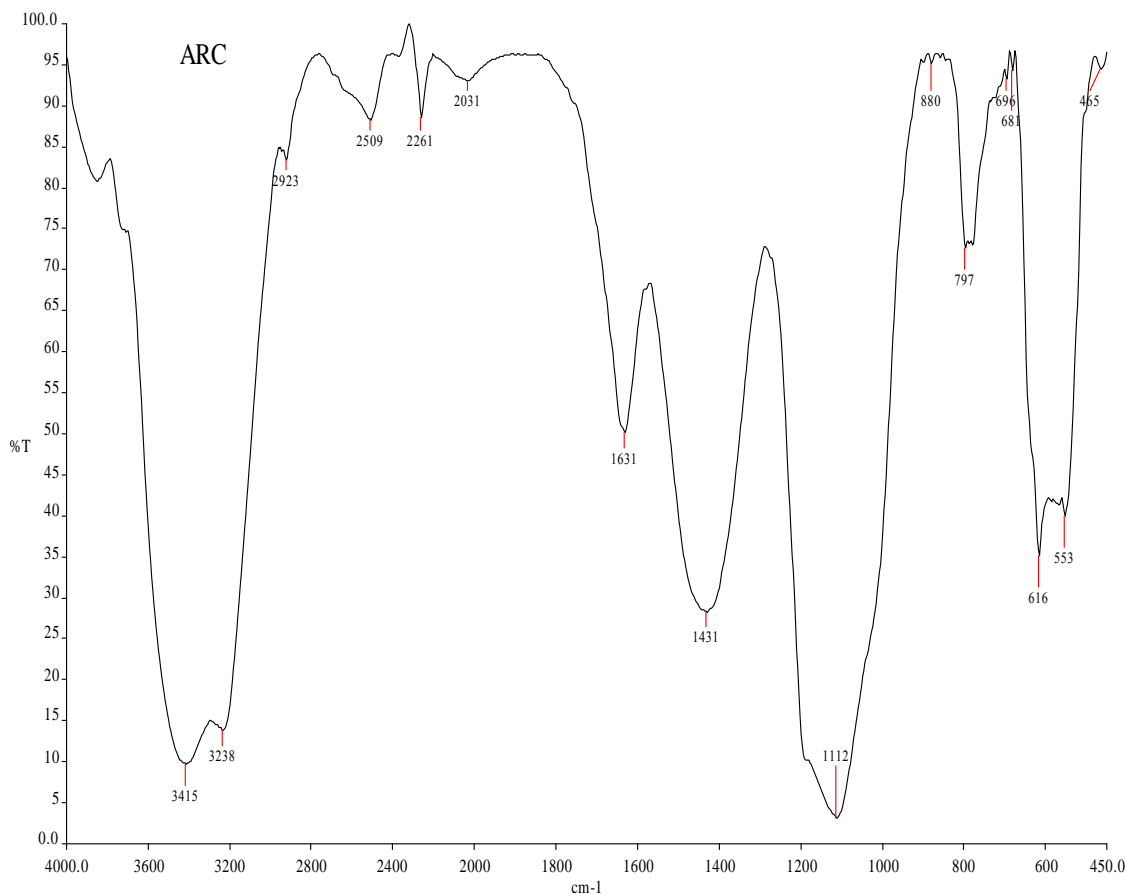


Details regarding the FT-IR analysis:

FTIR spectra were recorded at SAIF IIT madras, India. The perkin Elmer Spectrum one fourier transform infrared spectrometer was used to derive the FT IR spectrum of arumuga chenduram in potassium bromide (KBr) matrix with scan rate of 5 scan per minute all the resolution 4 cm in the wave number 797,696,681,616,553.

Results

In FTIR spectra analysis this metallic mineral drug Arumuga chenduram sample exhibits the peak value shows in table at the wave number 3415,3238,2923,2509,1631,1431,1112,880,797,696,681,616,553,465 having O-H stretch, O-H stretch,C-H stretch,O-H stretch,C=C stretch,C-H bending,C-N stretch, =C-H bending,C-CL stretch,C-Br stretch. This indicates the presence of some organic functional groups such as Alcohol/ Amine, Alkanes, Acid, Aromatics, Alkyl halides, phosphines.



wave number	Vibrational modes of arumuga chenduram in IR region	Functional group
3415	O-H Stretch N-H Stretch	Alcohol Amine
3238	O-H Stretch	Alcohol
2923	C-H Stretch	Alkane
2509	O-H Stretch	Acid
2261	P-H Stretch	Phosphines
1631	C=C Stretch	Alkane
1431	-C-H Bending C=C Stretch	Alkane Aromatic
1112	C-N Stretch C-F Stretch	Amine Alkyl halide
880	=C-H Bending	Alkene
797	C-CL Stretch =C-H Bending	Alkyl halide Alkene
696	C-CL Stretch	Alkyl halide
681	C-CL Stretch	Alkyl halide
616	C-CL Stretch	Alkyl halide
553	C-BR Stretch	Alkyl halide

Discussion

FTIR analysis is utilized to find out the organic nature of sample as well as metal oxygen Stretching frequencies. The Presence of some organic functional groups such as Alcohol, Amine, Alkanes, Acid, aromatic ,Alkyl halides, phosphines. were identified in the herbo metallic siddha medicine Arumuga chenduram through FTIR Analysis.

Conclusion

These observed data from the FTIR characterization helps to standardize the siddha compound drug "Arumuga chenduram" regarding its functional behavior. The presence of functional group Alcohol is majorly indicates to increase High Density Lipoprotein which is protective for Atherosclerosis. Because alcohol has favourable effects on HDL cholesterol.⁴

Acknowledgments

The authors wish to thank The vice chancellor, The Tamilnadu Dr.MGR Medical university, Gunidy, Chennai and to Indian Medicine And Homoeopathy Department, Arumbakkam, Chennai and specially thank to The Principal, Government siddha medical college, palayamkottai and to Mr.S.Santhana kumar, Mrs.S.Sankarammal and ,S.Uchimakali for their full support to complete this study

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Access this Article in Online	
	Website: www.ijrcrps.com
	Subject: Siddha Medicine
Quick Response Code	
DOI: 10.22192/ijrcrps.2017.04.02.006	

How to cite this article:

Sundari S, Thiruthani M, Essakky pandian G. (2017). Standardization of "Arumuga Chenduram" through Fourier Transform Infra-Red Spectroscopy. Int. J. Curr. Res. Chem. Pharm. Sci. 4(2): 25-28.

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