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STANDARIZATION OF SIDDHA DRUG FORMULATION *VATHA KARAPPAN CHOORANAM* FOR THE MANAGEMENT OF *VATHA KARAPPAN (EXFOLIATIVE DERMATITIS)*

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ABSTRACT

Siddha's system of Medicine has its own treasure of knowledge. Siddha's literature paid special attention to the pediatric age group .Siddha literature, Sarabenthira Vaithiya Muraigal "Karpini Balaroga Sikichai" provides various medications for treating childhood diseases. *Vatha Karappan Chooranam* is one of the poly herbal formulations given in the textbook for treating 18 types of *Karappan*. *Vatha Karappan Chooranam* treating the *Vatha Karappan (Exfoliative dermatitis*. Here the analytical specification of *Vatha Karappan chooranam* as per PLIM guidelines are evaluated.

KEYWORDS: Siddha's system, Sarabenthira Vaithiya muraigal, *Karappan*. PLIM guidelines.

1. INTRODUCTION

Siddha System of Medicine is one of the most Ancient Medicine System in the World and it is the Native Medicine of Tamil Nadu. It has great values since then, researchers found that it was created by the Tamil people who were called Siddhars .Siddha System of medicine is still available to us through Monuments, Sculptures and Manuscripts.

From the source of Siddha Medicine, It has been told that, in today's Earth, the human beings are faced or affected by a total of 4448 diseases. Adding to it, these diseases can be brought in to 14 categories and 3 main methods of treating the Diseases.

To understand the knowledge of siddha, let us take one category .This is the first most category, which is called as paediatric age group, (From Birth of the Child to 12 Years of Age). It is told that diseases can attack in this particular phase. Out of this a main diseases is called *as* ***Karappan*** **(Eczema).**

Vatha Karappan (*Exfoliative dermatitis*) is the one of the 18 types of *Karappan*. *Vatha karappan* (*Exfoliative dermatitis*) is characterized by dryness, pain, burning sensation of the tongue, baby always cry rashes, crust, bleed and pus secretion from the rash, numbness and fever.

This diseases can happen to a child for the first four phases (*Varugai paruvam to thaala paruvam*). It is characterized by the symptoms of itching, Formulation of vesicles, oozing, crusting and scaling.

The reasons for this cause are started as the meats, brinjal, tomato, rhizomes, pollens, tubers of vegetables, huge amount of intake Fish, Mutton and Unhygienic Food substance are also responsible for the diseases. *Vatha Karappan Chooranam*[(1)] is used for treating these symptoms and this *Chooranam* has been prepared by PLIM Guidelines[(3)].

This article can also be used as an initiative for research areas for identifying Physiochemical properties, Heavy Metals and Pesticides.

2.MATERIAL AND METHODS:

2.1 DRUG SELECTION:

The siddha formulation drug *Vatha Karappan Chooranam*[(1)] selected from the siddha Pediatric literature *Sarabenthira Vaithiya Muraigal –Karpini Balaroga Sikichai*[(1)] and this medication is indicated for treating skin disease called *karappan*[(8)] (all 18 types).

2.2 INGREDIENTS OF *VATHA KARAPPAN (EXFOLIATIVE DERMATITIS) CHOORANAM*

This poly herbal formulation contains both fresh herbs and raw drugs and ingredients of the drug and its quantity are listed below in [2]**Table 1**

TABLE 1

S.No	Name	Botanical name	Family	Part used	Quantity
1.	*Karugncheeragam*	*Nigella sativa*	Ranunculaceae	Seed	35 grams
2.	*Kirambu*	*Syzygium aromaticum*	Acoraceae	Root	35 grams
3.	*Vasambu*	*Acorus calamus*	Myrsinaceae	Flower but	35 grams
4.	*Koogaineer*	*Maranta arundinacea*	Marantaceae	Tuber	35 grams
5.	*Elakkay*	*Elattaria cardamomum*	Zingiberaceae	Fruit	35 grams
6.	*Poothakarapan pattai*	*Sterculia foetida*	Malvaceae	Bark	35 grams
7.	*Jaathipaththiri*	*Myristica fragrans*	Myristicaceae	Aril	35 grams
8.	*Amukkara kizangu*	*Withania somnifera*	Solanaceae	Tuber	35 grams

2.3 COLLECTION OF RAW DRUG:

The raw drugs were brought from a well reputed raw drugs store in Tirunelveli town.

2.4 IDENDIFICATION AND AUTHENTICATION OF THE DRUG:

The raw drugs were identified and authenticated by the Head of the Department of post graduate department of Gunapadam, Government Siddha Medical College, Palayamkottai. The sample of each raw drug is stored in the PG department of Gunapadam for the future reference.

2.5 PURIFICATION OF THE RAW DRUG:

Purification of raw drugs were done as per classical Siddha literature [9].

2.6 PREPARATION OF THE TRIAL COMPOUND DRUG VATHA KARAPPAN CHOORANAM:

The above mentioned drugs are grinded into fine powder and sieved (*Vasthrakaayam*).Then the finely powdered drugs are mixed well and kept separated in a neat dry air tight container[9].

2.7 ADMINISTRATION OF THE DRUG:

From of the Medicine: Chooranam

Route of Administration: Oral

Dose: 500mg-1gram

Indication: *Karappan*

2.8 ORGANOLEPTIC CHARACTERS:

State, nature, Odor, Consistency, Flow Property, Appearance of the Drug and Solubility of the drug were noted. The Organoleptic character analysis was done by Noble Research Solutions Pvt.Ltd[3,4]., Chennai, India.

2.9 PHYSIOCHEMICAL ANALYSIS OF *VATHA KARAPPAN CHOORANAM:*

Physiochemical analysis studies of the powdered trial drugs have been done according to PLIM Guidelines for standardization and of Indian Medicine. The analysis such a loss on Drying. Determination of Total Ash, Water Soluble Ash, Acid Soluble Ash, water and alcohol soluble Extract. The analysis was done at Noble Research Solutions. Pvt. Ltd., Chennai, India. Each analysis is done three times and the mean value is calculated .[3,4]

RESULTS AND DISCUSSION

3.1.1 SAMPLE DISCRIPTION:

(TABLE 2)

State	Solid
Nature	Fine
Odor	Strongly Aromatic
Touch	Soft

Flow Property	Non Free flowing
Appearance	Blackish

3.1.2 SOLUBILITY PROFILE

(TABLE 3)

S.No	Solvent Used	Solubility / Dispersibility
1.	Chloroform	Insoluble
2.	Ethanol	Soluble
3.	Water	Soluble
4.	Ethyl acetate	Insoluble
5.	DMSO*	Soluble

DSMO- Dimethylsulfoxide

Solubility is one of the important parameters to achieve desired concentration of drug in systemic circulation for achieving required pharmacological response. But poorly water soluble drugs often required high doses in order to reach the therapeutic plasma concentration of oral administration .But in researchers medicine, 3 had soluble property. It is valuable finding to our study.

3.1.3 PERCENTAGE LOSS ON DRYING

Test drug was accurately weighed in evaporating dish. The sample was dried at 105ºC for 5 hours and then weighed.

3.1.4 DETERMINATION OF TOTAL ASH

Test drug was accurately weighed in silica dish and incinerated at the furnace a temperature 400 ºC until it turns white in color which indicates absence of carbon. Percentage of total ash will be calculated with reference to the weight of air-dried drug.

3.1.5. DETERMINATION OF ACID INSOLUBLE ASH

The ash obtained by total ash test will be boiled with 25 ml of dilute hydrochloric acid for 6mins. Then the insoluble matter is collected in crucible and will be washed with hot water and ignited to constant weight. Percentage of acid insoluble ash will be calculated with reference to the weight of air-dried ash.

3.1.6. DETERMINATION OF ALCOHOL SOLUBLE EXTRACTIVE

Test sample was macerated with 100 ml of Alcohol in a closed flask for twenty-four hours, shaking frequently during six hours and allowing it to stand for eighteen hours. Filter rapidly, taking precautions against loss of solvent, evaporate 25 ml of the filtrate to dryness in a tared flat bottomed shallow dish, and dry at 105ºC, to constant weight and weigh. Calculate the percentage of alcohol-soluble extractive with reference to the air-dried drug.[3,4]

3.1.7 DETERMINATION OF WATER SOLUBLE EXTRACTIVE

Test sample was macerated with 100 ml of chloroform water in a closed flask for twenty-four hours, shaking frequently during six hours and allowing it to stand and for eighteen hours. Filter rapidly, taking precautions against loss of solvent, evaporate 25 ml of the filtrate to dryness in a tared flat bottomed shallow dish, and dry at 105ºC, to constant weight and weigh. Calculate the percentage of water-soluble extractive with reference to the air-dried drug[3,4].

Table 4

S. No	Parameter	Mean (n=3) SD
1.	***Loss on Drying at 105 °C (%)***	2.5 ± 0.3
2.	***Total Ash (%)***	7.167 ± 2.329
3.	***Acid insoluble Ash (%)***	0.023 ± 0.015
4.	***Water soluble Extractive (%)***	21.5 ± 1.1
5.	***Alcohol Soluble Extractive (%)***	12.9 ± 1.572

The Ash value is useful in determining authenticity and purity of sample and also these values are important qualitative standards. The total ash value, acid insoluble ash, water soluble ash was found to be mean (n=3)SD is 7.167±2.329, 0.023± 0.015, 21.5 ± 1.1. This percentage clearly indicates that the *Vatha Karappan Chooranam* is best for drug action and effects. The water soluble extractive value plays an important role in evaluation of crude drug . Less extractive value indicates addition of exhausted material , adulteration or incorrect processing

during drying or storage .The alcohol –soluble extractive value was also indicate for the same purpose as the water soluble extractive value . The water soluble value proved to be higher than alcohol soluble extractive value. It was found to be 21.5±1.1. This shows that the constituents of the drug are more extracted and soluble in water as compared to alcohol. Moisture is one of the major factors responsible for the deterioration of the drugs and formulation. Low moisture content is always desirable for higher stability of drug. In researchers study had higher water soluble extractive value.

3.2 TEST FOR HEAVY METALS:

Atomic Absorption Spectrometry (AAS) is a very common and reliable technique for detecting metals and metalloids in environmental samples. The total heavy metal content of the sample was performed by Atomic Absorption Spectrometry (AAS) Model AA 240 Series. In order to determination the heavy metals such as mercury, arsenic, lead and cadmium concentrations in the test item.

Sample Digestion

Test sample was digested with 1mol/L HCL for determination of arsenic and mercury. Similarly, for the determination of lead and cadmium the sample were digested with 1mol/L of HNO3. Standard reparation As & Hg- 100 ppm sample in 1mol/L HCL, Cd & Pb - 100 ppm sample in 1mol/L HNO3.

The analysis report is detailed in **Table 5.**

Standard reparation:

As &Hg -100 ppm sample in 1 mol /L HCL

Cd & Pb -100 ppm sample in 1 mol /L HCL

(TABLE 5)

Name of the Heavy Metal	Absorption Max A max	Result Analysis	Maximum Limit
Lead	217.0 nm	0.56 PPM	10 ppm
Arsenic	193.7 nm	BDL	3 ppm
Cadmium	228.8 nm	BDL	0.3 ppm

Mercury	253.7 nm	0.12 PPM	1 ppm

BDL-Below Detection Limit

Heavy metals concentration in *Chooranam* was determined using atomic absorption spectroscopy and results obtained were tabulated in[6] table 5 Maximum concentration of Mercury was found in 1PPM and minimum concentration was found in 0.12 PPM. Mercury was not detected in *Vatha karappan Chooranam*. Maximum concentration of Cadmium was found in 0.3 PPM and Below Density Level of *Vatha Karappan choranam* .Maximum concentration level of Arsenic was found in 3PPM and below density level of *Vatha Karappan Chooranam*. Maximum concentration of Lead 10PPM and minimum concentration was found in 0.56 PPM. Lead was not detected in *vatha karaapan* chooranam. Proper guidance must be provided by the regulating authorities for the safety and efficacy of *vatha karappan chooranam* [1]during the usage [6].

3.3 PESTICIDE RESIDUE:

Test sample were extracted with acetone and followed by homogenization for brief period.

Further filtration was allowed and subsequent addition of acetone to the test mixture. Heating of test sample was performed using a rotary evaporator at a temperature not exceeding 40ºC until the solvent has almost completely evaporated. To the residue add a few milliliters of toluene and heat again until the acetone is completely removed. Resultant residue will be dissolved using toluene and filtered through membrane filter. Result analysis of drug detailed in **Table 6** and it showed that there were no traces of pesticides residues such as Organo chlorine, Organo phosphorus, Organo carbamates and phrethroids in the sample provided for analysis.

TABLE 6

Pesticide Residue	**Sample VTKC**	**AYUSH Limit (mg/kg)**
I. Organo Chlorine Pesiticides		
Alpha BHC	BQL	0.1 mg/kg
Beta BHC	BQL	0.1 mg/kg
Gamma BHC	BQL	0.1 mg/kg

Delta BHC	BQL	0.1 mg/kg
DDT	BQL	1mg/kg
Endosulphan	BQL	3 mg/kg
II. Organo Phosphorus Pesticides		
Malathion	BQL	1 mg/kg
Chlorpyriphos	BQL	0.2 mg/kg
Dichlorovos	BQL	1 mg/kg
III.Organo Carbamates.		
Carbofuran	BQL	0.1 mg/kg
IV. Pyrethroid		
Cypermethrin	BQL	1 mg/kg

BQL- Below Quantification Limit.

This study showed that there were no traces of pesticides residues. This mission of present research is to help find indigenous solutions to these problems[7]. This is only possible to aware the negative effects of pesticide residues on human health[7].

CONCLUSION:

Vatha karappan chooranam[1] shows the satisfactory results for standardizing the drug on the evaluation of analytical specifications of *the chooranam* as the PLIM guidelines[3,4]. It provide information about the safety and quality of the drug. Evaluation of those analytical parameters with the help of modern analytical tools widen the acceptance and scope of the siddha drugs. The information collected in this study will be helpful to analyze other siddha formulations.

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