WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.074
Volume 7, Issue 12, 793-801. Research Article ISSN 2277– 7105

PHYTOCHEMICAL AND PHYSICO-CHEMICAL ANALYSIS OF MAYILLIRAGATHY CHOORANAM -A SIDDHA HERBO-MINERAL FORMULATION

[1]*R. Keerthana, [2]S.Visweswaran and [3]N. J. Muthukumar

[1]PG Scholar National Institute of Siddha.

[2]HOD I/C Department of Gunapadam National institute of Siddha.

[3]HOD Department of Sirappu Maruthuvam National Institute of Siddha.

Article Received on
25 April 2018,

Revised on 16 May 2018,
Accepted on 06 June 2018

DOI: 10.20959/wjpr201812-12654

***Corresponding Author**
R. Keerthana
PG Scholar National Institute of Siddha.

ABSTRACT

Standardization of Siddda drugs is the need of the hour. '***Mayilliragathy chooranam'*** is a herbo -mineral siddha preparation, being used as Hiccups and vomiting in the text Theyraiyar padal thiratu-1001. Aim and Objective: To do physicochemical and phytochemical analysis for the drug '***Mayilliragathy chooranam'***. Materials and Methods: The drug is prepared as per the method mentioned in the classic siddha literature. The powder of this formulation was subjected to physicochemical study such as total ash value, acid insoluble ash, water soluble ash, water soluble extractive, Alcohol soluble extractive, moisture content. The behavior of the prepared powder with different reagent and fluorescence analysis was also carried out Preliminary phytochemical screening of the extracts showed the presence of alkaloid, carbohydrate, glycoside, diterpenes, flavonoids, gum& mucilage The physicochemical study reveals that drug contains the following composition: total ash 7.36%, acid insoluble ash 1.00%, water soluble ash 2.72% water soluble extractive 16.16%, Alcohol soluble extractive 31.59%, moisture content 8.73%,.The achieved results of physico-chemical, and phyto-chemical profiling will be useful as tools for authentication and standardization profile of the herbo-mineral formulation.

KEYWORDS: Siddha Drug, herbo -mineral formulation, Mayilragathy Chooranam, Physico-chemical, Phytochemical.

INTRODUCTION

Siddha is the indigenous system of Indian Medicine practiced in South India especially in Tamil Nadu. Siddha medicine has immense faith in the miracles drugs and in the prolongation of life through rejuvenating treatments and intense yogic practices the advantage and unique feature is the removal of the root causes of the disease and prefect remedy for body and mind. There is a popular saying in Siddha system of medicine that food is medicine and medicine is food. The drug under investigation is an example for this saying, it is taken along with food and not as medicine As there is an overall shift towards herbal medicines from modern medicine, the standardization part of medicine became mandatory for the acceptance of the drug by modern scientific community and the pharmacopoeial standards are prerequisites for the quality control of the drug. In the present investigation, ***Mayilliragathy chooranam***, one of the Siddha herbo-mineral formulations mentioned in the classical texts is taken up for the standardization study. The formulation is composed of salts and herbal drugs. The drug is used in Hiccups, vomiting. Route of administration the drug is Internal... The objective of this study was to prepare Mayilliragathy chooranam(as per protocol given by PLIM) analyze the physicochemical characteristics and phytochemical activity,. The Physico-chemical parameters like pH value, Total ash value, Acid soluble ash content and water soluble ash content and Preliminary phytochemical analysis for steroid, triterpene, flavonoid, alkaloid, phenol, tannin, acid, glycoside and saponin also were estimated.

Aim and objective

The aim of this study is to do phsico chemical and phyto-chemical analysis for the drug Mayilragathy chooranam.

MATERIALS AND METHODS

Collection and Identification of materials

The raw drugs Piper longum(thippili), Cuminum cyminum (seerakam) were procured from the local market and authenticated by Dr. D. Aravind Assistant professor (Botany), National Institute of Siddha,Tambaram,Chennai.

1.2 Purification

The raw drug were purified as per the methods mentioned in the literature.

1.3 Preparation of the drug, *Mayilragathy* chooranam

Ingredients of the drug, *Mayilragathy* chooranam are given below.

1. Thippili- Long pepper 560 grams
2. Seerakam-cuminum cyminum 700 grams
3. Mayil iragu sambal -Ash of peacock feathers 315grams

Process

The above mentioned drugs were powdered, and mixed with mayil eragu sambal till perfectly dried powder was obtained.

Indication

Hiccups, vomiting.

Dose

1-2gram, twice a day.

Anupanam

Honey.

2. Physico - chemical characterization

The physico-chemical and phytochemical analysis was done as per the protocol for testing of Ayurvedic, Siddha and Unani Medicines, by PLIM, Ghaziabad, under the Ministry of AYUSH, Ministry of Health and Family Welfare, New Delhi.

Physiochemical Analysis of – *Mayilliragathy* Chooranam

2.1 Loss on Drying

An accurately weighed 2g of ***Mayilliragathy chooranam*** formulation was taken in a tarred glass bottle. The crude drug was heated at 105^0C for 6 hours in an oven till a constant weight. Percentage moisture content of the sample was calculated with reference to the shade dried material.

2.2 Determination of total ash

Weighed accurately 2g of ***Mayilliragathy chooranam*** formulation was added in crucible at a temperature 600^0C in a muffle furnace till carbon free ash was obtained. It was calculated with reference to the air dried drug.

2.3 Determination of acid insoluble ash

Ash above obtained, was boiled for 5min with 25ml of 1M Hydrochloric acid and filtered using an ash less filter paper. Insoluble matter retained on filter paper was washed with hot water and filter paper was burnt to a constant weight in a muffler furnace. The percentage of acid insoluble as was calculated with reference to the air dried drug.

2.4 Determination of water soluble ash

Total ash 1g was boiled for 5min with 25ml water and insoluble matter collected on an ash less filter paper was washed with hot water and ignited for 15min at a temperature not exceeding 450^0C in a muffle furnace. The amount of soluble ash is determined by drying the filtrate.

2.5 Determination of water soluble Extractive

5gm of air dried drug, coarsely powered ***Mayilliragathy chooranam*** was macerated with 100ml of distilled water in a closed flask for twenty-four hours shaking frequently. Solution was filtered and 25 ml of filtrated was evaporated in a tarred flat bottom shallow dish, further dried at 100^0 C and weighted. The percentage of water soluble extractive was calculated with reference to the air dried drugs.

2.6 Determination of alcohol soluble extractive

2.5gm. of air dried drugs; coarsely powdered ***Mayilliragathy chooranam*** was macerated with 50 ml. alcohol in closed flask for 24 hrs. With frequent shaking it was filtered rapidly taking precaution against loss of alcohol. 10ml of filtrate was then evaporated in a tarred flat bottom shallow dish, dried at 100^0C and weighted. The percentage of alcohol soluble extractive was calculated with reference to air dried drug.

The Preliminary Phytochemical Screening Test

Mayilirakathi Chooranam

The preliminary phytochemical screening test was carried out for each extracts of Mayilirakathi chooranam as per the standard procedure.

1. Detection of alkaloids

Extracts were dissolved individually in diluted hydrochloric acid and filtered.

Mayer's test

2 ml of extract was treated with few drops of Mayers' reagent; formation of yellow colored precipitate indicates the presence of alkaloids.

Wagner's test

2 ml of filtrate was treated with Wagner's reagent. Formation of brown /reddish precipitate indicates the presence of alkaloids.

2. Detection of carbohydrate

Extract was dissolved individually in 5 ml distilled water and filtered. The filtrates were used to test for presence of carbohydrates.

Molisch's test

2 ml of filtrate was treated with few drops of alcoholic Alpha naphthol solution in a test tube. Formation of the violet ring at the junction indicates presence of carbohydrates.

Benedict's test

Filtrate was treated with Benedict's reagent and heated gently. Orange red precipitate indicates the presence of reducing sugars.

3. Detection of Glycosides

Liebermann's test

2ml of extract was treated with 2ml chloroform and 2ml of acetic acid, Violet color change into blue and green indicates presence of Glycosides.

4. Detection of saponins

Froth test

Extracts was diluted with distilled water to 20 ml and this was shaken in a graduated cylinder for 15 minutes. Formation of 1 centimeter layer of foam indicates the presence of Saponins.

Foam test

0.5-gram extract was shaken with 2 ml of water. If foam produced persists for 10 minutes, it indicates the presence of saponins.

5. Detection of phytosterols

Salkowski's test

Extracts was treated with chloroform and filtered; the filtrates were treated with few drops of concentrated sulphuric acid, shaken and allowed to stand for few minutes. Golden yellow color indicates the presence of triterpenes.

6. Detection of phenols

Ferric Chloride test: 2 ml of extracts was treated with 3-4 drops of ferric chloride solution. Formation of bluish black color indicates the presence of phenols.

7. Detection of tannins

Gelatin test

To the extracts, 1% of gelatin solution containing sodium chloride was added; formation of white precipitate indicates the presence of tannins.

8. Detection of flavonoids

Alkaline reagent test

Extract was treated with few drops of 10% sodium hydroxide, formation of intense yellow color then on addition of diluted hydrochloric acid it becomes colorless, and it indicates the presents of flavonoids.

Lead acetate test

Extract was treated with few drops of lead acetate solution; yellow color precipitate indicates presence of flavonoids.

9. Detection of proteins and aminoacids

Xanthoproteic Test

The extracts were treated with few drops of conc. Nitric acid. Formation of yellow colour indicates the presence of proteins.

10. Detection of diterpenes

Copper Acetate test

Extracts were dissolved in water and treated with 3-4 drops of copper Acetate solution; formation of emerald green color indicates the presence of diterpenes.

11. Test for gum and mucilage

The extract was dissolved in 10 ml of distilled water and to this 2ml of absolute alcohol with the constant stirring white cloudy precipitate indicates the presence of gum and mucilage.

12. Test for Quinones

Extract was treated with sodium hydroxide blue or red precipitate indicates the presence of Quinones.

RESULTS AND DISCUSSION

Physico - chemical characterisation

The result obtained in the physico-chemical characterisation is listed below Table -1.

S.no	Parameters	Percentage
1	Loss on drying	8.73%
2	Total ash value	7.36%
3	Acid insoluble ash	1.00%
4	Water soluble ash	2.72%
5	Water soluble extraction	16.16%
6	Alcohol soluble extraction	31.59%

RESULTS -II

Phyto- chemical characterization

The results of the phyto-ochemical parameters are given in Table 2.

S.no	Phytochemicals	Test Name	H_2O ext.
1	Alkaloids	Mayer's test	**+ve**
		Wagner's test	**+ve**
2	Carbohydrates	Molisch's test	-ve
		Benedict’s test	**-ve**
3	Glycosides	Libermann Burchard's test	**+ve**
4	Saponins	Froth test	+ve
		Foam test	+ve
5	Phytosterols	Salkowski's test	**+ve**
6	Phenols	Ferric chloride test	+ve
7	Tannins	Gelatin test	-ve
8	Flavonoids	Alkaline Reagent test	-ve
		Lead acetate test	**+ve**
9	Proteins and Amino acids	Xanthoproteic test	-ve
10	Diterpenes	Copper acetate test	**+ve**
11	Gum & mucilage	Extract + alcohol	**+ve**
12	Quinone	NAOH + Extract	+ve

+ve/-ve present or absent if component tested

DISCUSSION

Mayilliragathy chooranam were done using standard procedures. The result obtained from physicochemical screening total ash value of ***Mayilliragathy*** chooranam indicated the amount of mineral and earthy material,analytical result showed total ash value was 7.36%.The amount of acid insoluble ash present in the ***Mayilliragathy*** chooranam was 1.00%.The water soluble extractive value indicated the presence of sugar,acid,and inorganic compound analytical result showed water soluble extractive value was 16.16%.The alcohol soluble ertractive value indicated the presence of polar constituents analytical result showed alcohol soluble extractive value was 31.59%.The result obtained from phytochemical screening reveals that phytoconstituents like, alkaloids, glycosides, saponins, phytosterols, phenols, flavonoids, quinone diterpenes, in ***Mayilliragathy*** chooranam. The present study reveals that the bioactive compounds were present in all the extracts of ***Mayilliragathy chooranam***.

CONCLUSION

Based on the above results, it can be assumed that the drug ***Mayilliragathy chooranam***.

Has validated the traditional claim and the present study leads to the further research in the way of isolation.

REFERECE

1. K.s. Murugesamudhaliyar, Gunapadam Mooligai vaguppu(Siddha material medica medicinal plants division) Indian Medicine and Homoeopathy Department, 7th edition,
2. Madhav NVS, Upadhya K, Phytochemical screening and standardization of poly-herbal formulation for dyslipidemia. International Journal of Pharmacy and Pharmaceutical Sciences, 2011; 3(3): 235-38.
3. Anubha Arora, Phytochemical analysis of methanolic extracts of leaves of some medicinal plants. Biol Forum – An Int J., 2013; 5(2): 91-93
4. Edeoga HO, Okwu DE and Mbaebie BO, Phytochemical constituents of some Nigerian medicinal plants. Afr J Biotech., 2005; 4: 685-688.
5. Indian Pharmacopoeia (IP). Govt. of India, Ministry of Health and Family Welfare Published by the Controller of Publications, New Delhi, 1996; A-47, A53, A-54.
6. Farnsworth NR, Henry LK, Svoboda GH, Blomster RN, Yates MJ and Euler KL, Biological and phytochemical evaluation of plants. I. biological test procedures and results from two hundred accessions. Lloydia, 1966; 29: 01-122.

7. Santhi R, Lakshmi G, Priyadharshini AM and Anandaraj, Phytochemical screening of Nerium oleander leaves and Momordica chrantia leaves. Inter Res J Pharm., 2011; 2: 131-135.
8. Shanmugam S, Sathish Kumar T and Panneer Selvam K, 2010. Laboratory handbook on Biochemistry. PHI learning private limited Delhi.
9. Mubashir S and Wajaht AS, Phytochemical and Pharmacological Review Profile of Adiantum venustum. Int J Pharm Tech Res., 2011; 3: 827-830.