



Physiochemical and Preliminary Phytochemical Screening of *Venpoosani Lekiyam* – A Poly Herbal Siddha Formulation

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Abstract

Siddha Medicine is one of the ancient systems of medicine originated in Indian sub continents. Siddha fiction is in Tamil and it is practised largely in Tamil speaking part of India and abroad. Although the formulations of the Siddha system of Medicine is popular, not much scientific work has been reported so far. This article attempts to establish the scientific basis of analysis one of the popular Siddha formulation “Venpoosani Lekiyam”, a poly-herbal formulation widely used as an Aphrodisiac, Neuroprotective and Nervine tonic & Brain tonic. Physiochemical and Phytochemical screening is important to identifying the new source of therapeutically and industrially valuable compound having medicinal significance, to make the best sensible use of available natural health. Preliminary phytochemical study of Venpoosani Lekiyam shown the results; presence of Carbohydrates, Glycoside, Saponin, Phytosterol, Phenols, Flavonoids, Proteins & Amino acids and Diterpenes. The Physiochemical study reveals the presence of loss on drying is 11.09%, total ash value is 1.49, acid insoluble ash is less than 1%, water soluble ash is less than 1%, water soluble extraction is 54.84% and alcohol soluble extraction is 35.08%.

Keywords: *Siddha Medicine, Venpoosani Lekiyam, Physiochemical properties, Phytochemical Analysis.*

Introduction

The Siddha System of Medicine is an ancient traditional system of medicine generated from Dravidian culture and it is believed to be one of the oldest medical systems in the known universe. It is a traditional healthcare science which is significant to Indian subcontinent especially Southern region. The term ‘Siddha’ means attainments and ‘Siddhars’ were saintly personnel who achieved benefits in medicine. Siddha fiction is in Tamil and it is practised largely in Tamil speaking part of India and overseas. Herbal medicines are safe, natural and have less adverse

effects. They are effectively being used to treat many diseases, but lack of acceptability still persists because of dearth of documentation and stringent quality control. They are also prone to adulteration and substitution which puts a doubt on their efficacy. Although the formulations of the Siddha system of Medicine is popular, not much scientific work has been reported so far. The present article is an attempt to establish the scientific basis of analysis one of the popular Siddha formulation “*Venpoosani Lekiyam*”, a poly-herbal formulation widely used as an Aphrodisiac, Neuroprotective and Nervine tonic &

Brain tonic. The evaluation of Physiochemical properties of the ingredients is essential for the assessment of the quality, ash value determinations, such as total ash, sulphated ash, and acid insoluble ash. The extractive values and Phytochemical analysis of the drugs and formulations are also ensuring the presence of plant activities and their solubility profile.^[1,2,3]

Venpoosani Lekiyam is a poly herbal Siddha formulation describes in many Siddha texts, however this study is based on the text of “*Siddha Vaithiya Thirattu*” by Dr. K.N. Kuppusamy Muthalyaar and Dr. K.S. Uththamarajan, published by Department of Indian Medicine and Homeopathy, Chennai - 600 106, Tamil Nadu, India.^[1]

This poly herbal formulation comprises of 18 herbals properties, such as;

1. Juice of Benincasa hispida – (*Venpoosanikaai Chaaru*),
2. Juice of areal root of Pandanus odoratissimus – (*Thaalavizhuthu Chaaru*),
3. Juice of Cocos nucifera – (*Thennam poo Chaaru*),
4. Juice of Citrus limon – (*Pazha Chaaru*),
5. Cow Milk – (*Pasup Paal*),
6. Saccharum officinarum (Sugar) – (*Sarkkarai*),
7. Seeds of Cumius cuminum – (*Seerakam*),
8. Seeds of Coriandrum sativum – (*Kothumalli*),
9. Costus speciosus – (*Kostam*),
10. Piper nigrum – (*Milaku*),
11. Seeds of Quercus infectoria – (*Maasikkaai*),
12. Elettaria cardamomum – (*Elam*),
13. Myristica fragrans – (*Saathikkai*),
14. Dried leaves of Myristica fragrans – (*Saathipathiri*),
15. Dried root of Glycyrrhiza glabra – (*Athimathuram*),
16. Abiess pectabilis – (*Thaalislam*),
17. Ghee – (*Nei*),
18. Honey – (*Thenn*).^[1]

The required raw drugs were authenticated by the Department of Medicinal Botany in National Institute of Siddha. After that the raw drugs were purified as per the guidelines mentioned in the Siddha literature of “*Chikitcharathna Theepam*”, Kannusaamy Pillai, Rathna Nayakar & Sons, Chennai - 600079. Then the trial drugs were

prepared in the *Gunapadam* laboratory of National Institute of Siddha by standard operative procedures.^[2]

Method of Preparation

350 grams (10 palam) sugar, 2600 ml (2 padi) milk and the herbal juices of above mentioned, first four each 1300 ml (1 padi) were blended well and filtered. Then allow to boiled it up to the stage of linctus. The powder of remaining raw drugs, each 35 grams (1 palam) were dry and to made it as a fine powder then slowly mixed with the prepared compound and allowed to heat continue up to electuary stage. Finally 650 ml (1/2 padi) ghee and 325ml (1/4 padi) honey were added with this preparation and mildly heated become as an electuary form. Then stored it in clean glass container.^[1]

Materials and Methods

All the Physiochemical analysis was carried out as per standard guidelines.

Loss on Drying

An accurately weighed 2g of *Venpoosani Lekiyam* formulation was taken in a tarred glass bottle. The crude drug was heated at 105⁰C 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.

Determination of Total Ash

Weighed accurately 2g of *Venpoosani Lekiyam* formulation was added in crucible at a temperature 600⁰C in a muffle furnace till carbon free ash was obtained. It was calculated with reference to the air dried drug.

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.

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 15 min at a temperature not exceeding 450⁰C in a muffle furnace. The amount of soluble ash is determined by drying the filtrate.

Determination of Water Soluble Extractive

5gm of air dried drug, coarsely powdered *Venpoosani Lekiyam* was macerated with 100ml of distilled water in a closed flask for twenty-four hours shaking frequently. Solution was filtered and 25 ml of filtrate was evaporated in a tarred flat bottom shallow dish, further dried at 100⁰ C and weighted. The percentage of water soluble extractive was calculated with reference to the air dried drugs.

Determination of Alcohol Soluble Extractive

2.5gm. of air dried drugs, coarsely powdered *Venpoosani Lekiyam* was softened 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 100⁰C and weighted. The percentage of alcohol soluble extractive was calculated with reference to air dried drug.

Preliminary Phytochemical Screening

The primary phytochemical screening test was conducted for each extracts of *Venpoosani Lekiyam* as per the standard operating processes. Key metabolites of Carbohydrates, Proteins, Fixed oil, Fats, Gums and Mucilage were investigated for their existence of standard measures^[3,6,8]. The following tests were performed for this analysis.

Detection of Alkaloids

- a) Mayer's Test
- b) Wagner's Test
- c) Dragendroff's Test
- d) Hager's Test

Detection of carbohydrates:

- a) Molisch's Test
- b) Benedict's Test
- c) Fehling's Test

Detection of Glycosides

- a) Modified Borntrager's Test
- b) Cardiac glycoside (Keller-Killiani test)
- c) Legal's Test

Detection of Saponins

- a) Froth Test
- b) Foam Test

Detection of Phytosterols

- a) Salkowski's Test

Detection of phenols Ferric Chloride Test**Detection of tannins Gelatin Test****Detection of flavonoids**

- a) Alkaline Reagent Test
- b) Lead acetate Test

Detection of proteins and amino acids

- a) Xanthoproteic Test
- b) Ninhydrin Test
- c) Biuret test

Detection of diterpenes Copper Acetate Test**Gum and Mucilage****Test for Fixed oils and Fats**

- a. Spot test

Test for Quinones

The present study reveals that the bioactive compounds were present in all the extracts of *Venpoosani Lekiyam* were given below in table format.

Results

Physiochemical analysis results had shown, Loss on drying is 11.09%, Total ash value is 1.49, Acid insoluble ash is less than 1%, water soluble ash is less than 1%, water soluble extraction is 54.84% and Alcohol soluble extraction is 35.08% and Preliminary phytochemical screening test was carried out for each extracts of *Venpoosani Lekiyam* in Molisch's Test, Benedict's Test had shown the presence of Carbohydrates, Modified Borntrager's Test, Cardiac glycoside (Keller-Killiani test), Legal's Test, had shown the glycoside. Foam Test had reveals the saponin, Salkowski's Test had shown the Phytosterol, Ferric Chloride Test had shown the Phenols, Alkaline Reagent Test, Lead acetate Test had shown the results of flavonoids, Xanthoproteic

Test, Biuret Test shown the presence of Proteins and amino acids, Copper Acetate Test had shown the Diterpenes, Extract + alcohol had shown the

presence of Gum and Mucilage, Spot Test and NAOH + Extract test had reveals the presence of Fixed oils and Fats and Quinones.

Table 1: Physiochemical properties of *Venpoosani Lekiyam*

S. No.	Parameters	Percentage
1	Loss on drying	11.09%
2	Total ash value	1.49%
3	Acid insoluble ash	Less than 1%
4	Water soluble ash	Less than 1%
5	Water soluble extraction	54.84%
6	Alcohol soluble extraction	35.08%

Table 2: Preliminary phytochemical screening of *Venpoosani Lekiyam*

S.No	Phytochemicals	Test Name	H ₂ O ext.
1.	Alkaloids	Mayer's Test	- ve
		Wagner's Test	- ve
		Dragendroff's Test	- ve
		Hager's Test	- ve
2.	Carbohydrates	Molisch's Test:	+ ve
		Benedict's Test	+ ve
		Fehling's Test	- ve
3.	Glycoside	Modified Borntrager's Test	+ ve
		Cardiac glycoside (Keller-Killiani test)	+ ve
		Legal's Test	+ ve
4.	Saponin	Froth Test	- ve
		Foam Test	+ ve
5.	Phytosterol	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
		Ninhydrin Test	- ve
		Biuret Test	+ ve
10.	Diterpenes	Copper Acetate Test	+ ve
11.	Gum and Mucilage	Extract + alcohol	+ ve
12.	Fixed oils and Fats	Spot Test	+ ve
13.	Quinones	NAOH + Extract	+ ve

Discussion and Conclusion

The present study was carried out as per WHO Pharmacopoeia standards for various Standardization parameters such as Physiochemical parameters like Total ash, acid insoluble ash, and Water & alcohol soluble extractive values. Presence of various phyto constituents can serve as basis for screening of different pharmacological activities. Plants serves as vast source for varied phytoconstituents exhibiting pharmacological property. Preliminary phytochemical screening test had reveals the presence of Carbohydrates, glycoside, saponin,

Phytosterol, Phenols, flavonoids, Proteins and amino acids, Diterpenes, Gum and Mucilage, Fixed oils and Fats and Quinones. Physiochemical study reveals the presence of loss on drying is 11.09%, total ash value is 1.49, acid insoluble ash is less than 1%, water soluble ash is less than 1%, water soluble extraction is 54.84% and alcohol soluble extraction is 35.08%. An herbal based formulation improves the quality of human life through its potent natural antioxidants.

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