



Research Article

PHYTOCHEMICAL ANALYSIS OF SEERAGA THAILAM

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ABSTRACT

Seeraga thailam is a traditional polyherbal formulation used in the Siddha System of medicine. It is a medicated oil which is indicated for treatment of *Vatha* diseases. It is an external medicine which when applied to body externally to cure *Vatha* diseases. The present study aims to evaluate the phytochemical profile of *Seeraga thailam* through preliminary screening techniques to establish its pharmacological potential. The formulation was prepared as per classical Siddha text *Sarabendhira vaidhya muraigal (Vatha roga sikitchai)*, subjected to analysis for the presence of major phytochemicals including tannins, saponins, alkaloids, flavonoids, terpenoids, glycosides and phenolic compounds using standard qualitative methods. The results revealed the compounds known for their neuroprotective, anti-inflammatory, anti-convulsant and antioxidant properties. The presence of alkaloids and flavonoids further reinforce the traditional claims of its therapeutic benefits. This phytochemical analysis provides a basement for understanding of bioactive potential of *Seeraga thailam* and reinforce its use in traditional systems of medicine. It is concluded that the presence of certain phytochemicals justifies the better use of the medicine *Seeraga thailam* for *Vatha* diseases.

INTRODUCTION

Naturally occurring bioactive compounds are called phytochemicals. They are found in plants and contribute to their curative outcomes. These includes flavonoids, terpenoids, saponins, carotenoids, tannins, alkaloids, phenolic compounds. They possess significant health promoting properties. They act Primarily as antimicrobials anti-inflammatory, and antioxidants to reduce risk of chronic diseases, immunity improvement and inhibit cancer cell growth. Phytochemical analysis plays important role in detecting the presence of phytochemicals and helps in

validating uses of traditional medicines and provides a base for further pharmacological studies. The present study aims to perform initial phytochemical analysis of *Seeraga thailam* to identify the major classes of bioactive compounds present in the Siddha formulation.

MATERIALS AND METHODS

Seeraga thailam is composed of herbo mineral and animal-based ingredients, as mentioned in the classical Siddha text, *Sarabendhira Vaithya muraigal (Vatha roga sikitchai)* viz., *Seeragam*, *Vaaluluvai arisi*, *Karboga arisi*, *Karkadagachingi*, *Kostam*, *Inthuppu*, *Kacholam*, *Kadugurogini*, *Omam*, *Kirambu*, *Arathai*, *Ennai*, *Aatupaal*.

Drug Selection

The drug named *Seeraga thailam*, external application for treating *Vatha noigal* is referred from the literature, *Sarabendhirar vaidhya muraigal*.

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Ingredients of Seeraga Thailam

S.No	Name	Botanical name	Quantity
1	Seeragam	<i>Cuminum cyminum</i>	1 Kalanju (5.1 gram)
2	Vaaluluvai arisi	<i>Celastrus paniculatus</i>	1 Kalanju (5.1 gram)
3	Karboga arisi	<i>Psoralea corylifolia</i>	1 Kalanju (5.1 gram)
4	karkadagachingi	<i>Rhus succedanea</i>	1 Kalanju (5.1 gram)
5	kostam	<i>Costus speciosus</i>	1 Kalanju (5.1 gram)
6	Inthuppu	<i>Sodium chloride Impura</i>	1 Kalanju (5.1 gram)
7	Kacholam	<i>Kampefera galanga</i>	1 Kalanju (5.1 gram)
8	Kadugurogini	<i>Picrorrhiza kurroa</i>	1 Kalanju (5.1 gram)
9	Omam	<i>Trachyspermum ammi</i>	1 Kalanju (5.1 gram)
10	Kirambu	<i>Syzygium aromaticum</i>	1 Kalanju (5.1 gram)
11	Arathai	<i>Alpinia officinarum</i>	1 Kalanju (5.1 gram)
12	Ennai	-	1 Naali (1.3Litre)
13	Aatupaal	-	1 Naali (1.3Litre)

Collection of raw drugs

The raw drugs of *Seeraga thailam* are preferred and brought from shops in and around Palayamkottai, Tirunelveli district.

Authentication of Raw drugs

The raw materials of *Seeraga thailam* were authenticated by the medical botanist and also by the Gunapadam and department, Government Siddha medical College and hospital, Palayamkottai.

Purification

The drugs were purified as per classical Siddha literature.

Preparation of the drug

All the ingredients were mixed and boiled till the ingredients was boiled and cooled. The resulting

Thailam was filtered through muslin cloth and stored in a clean container at room temperature for further analysis.

Authentication of Prepared drug:

The Prepared drug was authenticated by the experts from the Department of Gunapadam.

Consistency of medicine: Thailam**Route of administration:** External**Phytochemical analysis of Seeraga Thailam**

The phytochemical analysis of the drug *Seeraga Thailam* was performed using the standard operative procedures by Noble Research Solutions, Chennai.

Phytochemical analysis Report

S.No	Experiment	Observation	Inference
1	Alkaloids 2ml of Mayer's reagent was added	A dull white precipitate revealed the presence of alkaloids.	Positive
2	Flavonoids Two to three drops of sodium hydroxide were added to 2ml of extract.	Initially, a deep yellow colour appeared but it gradually became colourless by adding few drops of dilute HCL, indicating that flavonoids were present.	Positive
3	Glycosides Test drug is hydrolysed with concentrated hydrochloric acid for 2 hours on a water bath, filtered and the hydrolysate is subjected to the following tests. To 2ml of filtered hydrolysate, 3ml of chloroform is added and shaken, chloroform layer is separated and 10% ammonia solution is added to it.	Pink colour indicates presence of glycosides.	Negative
4	Steroids	The upper layer in the test tube was	Positive

	2ml of chloroform was added with few drops of conc. sulphuric acid (3ml), and shaken well.	turned into red and sulphuric acid layer showed yellow with green fluorescence. It showed the presence of steroids.	
5	Triterpenoids To the chloroform solution, few drops of acetic anhydride was added then mixed well.	1ml concentrated sulphuric acid was added from the sides of the test tube; appearance of red ring indicates the presence of triterpenoids.	Positive
6	Coumarin To the test sample, 1ml of 10% sodium hydroxide was added.	The presence of coumarins is indicated by the formation of yellow colour.	Positive
7	Phenol To the test sample; 3ml of 10% lead acetate solution was added.	A bulky white precipitate indicated the presence of phenolic compounds.	Negative
8	Tannin To the test sample, ferric chloride was added	Formation of a dark blue or greenish black color showed the presence of tannins.	Negative
9	Protein To the extract, 1% solution of copper sulphate was added followed by 5% solution of sodium hydroxide.	Formation of violet purple colour indicates the presence of proteins.	Negative
10	Saponins To the test sample, 5ml of water was added and the tube was shaken vigorously.	Copious lather formation indicates the presence of Saponins.	Negative
11	Carbohydrate To the test sample about 0.5ml of Benedict's reagent is added. The mixture is heated on a boiling water bath for 2 minutes.	A characteristic-coloured precipitate indicates the presence of sugar.	Negative
12	Anthocyanin To the test sample, 1ml of 2N sodium hydroxide was added and heated for 5 min at 100°C.	Formation of bluish green colour indicates the presence of anthocyanin.	Negative
13	Betacyanin	Positive	Positive



RESULTS AND DISCUSSION

The trial drug *Seeraga Thailam* contains

➤ Alkaloids

➤ Flavonoids

➤ Steroids

➤ Triterpenoids

- Coumarin
- Betacyanin

Alkaloids act primarily as neuroprotective, anti-inflammatory, and antioxidant agents that help manage neurological conditions like hemiplegia and cerebral palsy by reducing neuronal damage, stimulating neurotransmitter activity, and enhancing cognitive function

Flavonoids can exert neuroprotective effects in the prevention and treatment of neurological diseases through multiple pathways, such as anti-inflammation, anti-oxidation, anti-apoptosis, and neurotransmitter regulation.

Steroids are essential for maturation and survival of several cell types in the CNS. Triterpenoids, a diverse group of natural compounds found abundantly in plants, possess promising neuroprotective properties. Madecassoside can exert a potent neuroprotective effect against cerebral ischemia-induced injury in rats, mediated by anti-oxidative, anti-inflammatory, and anti-apoptotic mechanisms. The neuroprotective effect of madecassoside in ischemic injury has also been confirmed in the GT1-7 cell lines

Natural or synthetic coumarins have the potential for development in the therapy of psychiatric and neurodegenerative disorders, including Alzheimer's and Parkinson's diseases, schizophrenia, anxiety, epilepsy, and depression.

The anti-inflammatory effect of betacyanin is complex, being partially responsible for the favourable effects in neurodegenerative disorders. Betacyanin act through strong antioxidative, antiapoptotic, and anti-inflammatory mechanisms.

CONCLUSION

Seeraga thailam is a siddha drug taken from classical Siddha text *Sarabendhira vaidhya muraigal (Vatha roga sikitchai)*, used in the treatment of *Vatha noigal*. Further clinical studies are required for validation of the drug's efficacy and safety for external therapeutic usage. The phytochemical analysis of this *Thailam* reveals the presence of key bioactive components such as alkaloids, flavonoids, triterpenoids, coumarins, betacyanin and steroids are well known for their pharmacological actions, including anti-convulsant, neuroprotective, anti-inflammatory and antioxidant properties.

The presence of such phytochemicals reinforces the use of *Seeraga thailam* but also highlights the need for further scientific validation. However extensive pharmacological, toxicological and clinical evaluation are necessary to establish its safety and efficacy in therapeutic contexts.

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