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# PRELIMINARY PHYTOCHEMICAL SCREENING AND STANDARDIZATION OF POLYHERBAL SIDDHA FORMULATION FOR ANTI FUNGAL ACTIVITY

**C. Eswaran*[1]**

[1*]Founder and Chief Consultant, Sri Agathiar Siddha Clinic, Kolathur, Mettur, Tamilnadu, India.

## ABSTRACT

Standardization of the different herbal siddha formulation is possible by following modern scientific quality control procedure for raw material. The samples were collected, identified and extracted with ethanol. The ethanolic exract of *Argemone Mexicana, Hydnocarpus laurifolia, Nigella sativa, Pavaver somiferum, Psoralea corylifolia, Vernonia anthelmintica* showed antifungal activity by cup plate method for zone of inhibition aginst *Trichophyton rubrum, Candida albicans, Trichoderma lingnorum, Aspergillus niger*. From the obtained results concluded ethanolic extract of poly herbal siddha formulation is good antifungal activity.

## KEYWORDS

Standardization, Polyherbal, Siddha Medicine and Antifungal activity.

**Author for Correspondence:**

Eswaran C,

Founder and Chief Consultant,

Sri Agathiar Siddha Clinic,

Kolathur, Mettur, Tamilnadu, India.

**Email:** dr.eswar.md@gmail.com

## INTRODUCTION

Standardization of herbal medicine plant and quality of herbal preparations are the essential of the hour. The process of evaluating the quality and purity of crude drugs by means of various parameters like morphological, microscopical, physical, chemical and biological observation is called standardization[1]. Plants contain several hundred constituents and some of them are present at very low concentrations. In spite of the modern chemical analytical procedures available, only rarely do phytochemical investigations succeed in

isolating and characterizing all secondary metabolites present in the plant extract.

India has a very unique position in the world, where a number of recognized indigenous system of medicine viz, Ayurveda[2], Siddha, Unani, Homeopathy, Yoga and Naturopathy are practiced today for health maintenance. Quality control and standardization[3] of herbal medicines involve several steps. However, the source and quality of raw materials play a pivotal role in guaranteeing the quality and stability of herbal preparations[4-6]. Other factors such as the use of fresh plants, temperature, light exposure, water availability, nutrients, period and time of collection, method of collecting, drying, packing[7-9], storage and transportation of raw material, age and part of the plant collected, etc., can greatly affect the quality and consequently the therapeutic value of herbal medicines.

**Herbs exclusively used Skin Diseases in Siddha medicine**

Siddha medicine is the one of the oldest medicine in India. Traditional systems of Indian medicine[10-11] have been in vogue for centuries all over the world. Siddha medicines have effective treatment for many skin diseases such as eczema, leucoderma, skin rashes, and pimples. The herbs is using skin diseases in Siddha system *Aristolochia bracteolate, Indigofera aspalathoides*[12], *Semecarpus anacardium*[13-14], *Hydnocarpus laurifolia Smilax china, Cassia alata* and *Wrightia tinctoria*.

## MATERIAL AND METHODS

**Plan of work**

**Pharmacognostical studies**

- Collection and authentication of plants
- Botanical information of plants

**Phytochemical studies**

- Extraction of plant material
- Phytochemical screening of extracts

**Microbiological studies**

- Antifungal activity

**Pharmacognostical studies**

**Collection and Authentication of Raw materials**

Polyherbal siddha formulation[15] consists of six ingredients, viz., *Argemone Mexicana, Hydnocarpus laurifolia, Nigella sativa, Pavaver somiferum, Psoralea corylifolia, Vernonia, anthelmintica* (Table No.1) .The raw drugs were collected from the Western Ghats of Mettur and authenticated by Dr.V.Balasubramaniyam, Msc., Ph.d, in Botany department Kongunadu Arts and Science College, Coimbatore.

**Extraction of Plant Materials**

100 grams (each 16.66gm) of dried and coarsely powders and subjected to extraction procedure by Hot decoction method using 600ml 50% of alcohol for about an hour. Then the extract was filtered using muslin cloth and evaporated on a water bath which was further dried in an oven at 30 degree Celsius to get a semisolid mass. The extract obtained from 11 grams.

## PHARMACOGNOSTICAL STUDIES

**Phytochemical Screening**

**Qualitative Phytochemical Screening**

A systematic and complete study of crude drugs[16] should include a thorough investigation of both primary and secondary metabolites derived as a result of plant metabolism. The different qualitative chemical tests[17] are to be performed for establishing profile of the extracts for its nature of chemical composition.

The tests were carried out on the ethanolic extracts to detect various phytoconstituents present in them (Table No.2).

## DETERMINATION OF ANTIFUNGAL ACTIVITY BY CUP PLATE METHOD (Zone of inhibition)

The antimicrobial activity was assayed by agar diffusion method. The antimicrobial activity was carried out using different fungals stains such as *Trichophyton rubrum, Candida albicans, Trichoderma lingnorum, Aspergillus niger*. Sabouraud's dextrose agar was made. A small sterile borer having internal diameter of 6-8mm was used to make wells or cups in the medium. Three different concentrations of extract 250µg/ml, 750µ/ml, 500µ/ml and were compared with standard drug Amphotericin for antifungal activity.

Dimethyl sulphoxide (DMSO) was used as control group. The plates were incubated at 22ºC ± 2ºC for 48 hrs for antifungal study. The inhibition zone diameter (IZD) was measured by deducting the disc diameter (Table No.3).

## RESULTS AND DISCUSSION

Polyherbal siddha formulation was subjected for various evaluation parameters with the analytical techniques. Polyherbal siddha formulation composed of six ingredients, belonging to different families, different morphological plant parts and different phytoconstituents.

The results of preliminary phytochemical screening of extracts showed the presences of cabrbohydrates, alkaloids, saponins, tannins (Table No.2). The extracted polyherbal siddha formulation exhibited appreciable antifungal activity got *Candid albicans, Aspergillus niger* and found to be inactive got *Trichophyton rubrum*, *Trichoderma lignorum* then compared to standard (Table No.3).

**Table No.1: Composition of polyherbal siddha formulation**

| S.No | BOTANICAL NAME | FAMILY NAME | PART USED | QUANTITY |
|---|---|---|---|---|
| 1 | *Argemone Mexicana* (L) | Papaveraceae | Seeds | 16.66 gm |
| 2 | *Hydnocarpus laurifolia* | Flacourtiaceae | Seeds | 16.66 gm |
| 3 | *Nigella sativa*(L) | Ranunculaceae | Seeds | 16.66 gm |
| 4 | *Papaver somniferum* (L) | Papaveraceae | Seeds | 16.66 gm |
| 5 | *Psoralea corylifolia*(L) | Fabaceae | Seeds | 16.66 gm |
| 6 | *Vernonia anthelmintica*(L) | Asteraceae | Seeds | 16.66 gm |

**Table No.2: Phytochemical Screening- Qualitative Analysis**

| S.No | PHYTOCONSTITUENT | NAME OF THE TEST | RESULT |
|---|---|---|---|
| 1 | Carbohydrates | Molischs test<br>Barfoeds test<br>Benedicts test<br>Fehlings test | + |
| 2 | Alkaloids | Mayers test<br>Hagers test<br>Wagners test<br>Dragendroffs test | + |
| 3 | Tannins | Ferric chloride test<br>Lead acetate test<br>Gelatin test | + |
| 4 | Proteins and<br>Amino acids | Ninhydrin test<br>Millions test<br>Biuret test | - |
| 5 | Flavanoids | Zinc chloride test<br>Shinoda test | - |
| 6 | Glycosides | Borntragers test<br>Legals test | - |
| 7 | Saponins | Foam test | + |
| 8 | Phytosterols | Libermann- Burchards test | - |

+ indicates presence and – indicates absence

**Table No.3: Results for anti-fungal activity of Ethanolic extraction of poly herbal formulation**

| S.No | FUNGI | ZONE OF INHIBITION | | | | |
|---|---|---|---|---|---|---|
| | | 750µg | 500µg | 250µg | Ketoconazole50µg | Solvent control |
| 1 | *Trichophyton rubrum* | - | - | - | 1.3cm | - |
| 2 | *Candida albicans* | 2.4cm | - | - | 2.4cm | - |
| 3 | *Trichoderma lignorum* | - | - | - | Amphotericin B (100µG/ml) 1.8cm | - |
| 4 | *Aspergillus niger* | 1.6cm | - | - | 2.4cm | - |

## CONCLUSION

Polyherbal siddha formulation was screened for various standardization parameters as per pharmacopoeial standards. The research out comings of the standardization parameters can be used for evaluating the quality and purity of the formulations for the polyherbal phyto formulation.

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## CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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