

## EVALUATION OF CERTAIN SIDDHA DRUGS IN THE TREATMENT OF CANDIDIASIS

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**ABSTRACT:** Search for naturally occurring compounds with antifungal activity has become quite intense due to the side effects of synthetic fungicides and the development of pathogens against such fungicides. Hence screening of various Siddha drugs for their antifungal activity against various strains of *Candida albicans* was considered worthwhile. Seven such Siddha drugs were screened for their antifungal activity against fourteen strains of *Candida albicans*. The results indicate that the drugs Nandhi mezhugu, Vaan mezhugu, Erasa Kenthi mezhugu and Parangi pattai choornam possessed significant antifungal activity against various strains of *C.albicans*.

### INTRODUCTION

Skin diseases are more common in tropical countries like India. In Siddha system of medicine, skin diseases are classified in 18 types. This classification is based on the symptoms and the parts affected (Yugimunivar, 1959). Classification based on the vitiation of humor is also seen in Siddha literature (Kuppuswamy Mudaliar, 1953). Fungal infections of skin (Dermatomycosis) are dealt under 'Padarthamarai Perunkuttam'. The word 'Padarthamarai' refers to the circular (ring like) lesions that expand peripherally.

A perusal of the literature of Siddha system of medicine revealed that there are several drugs available for the treatment of fungal diseases. Anandan et al (1991) in a pilot study have reported the significant activity of *Sivanaramirtham*, *Akasakaruden Kizhangu Choornam* and *Sanguparpam*

against different humoral types of dermatomycosis. Another drug 'Chirattai Tailam' used in the Siddha system of medicine is reported by Mudaliar (1969), to cure several skin diseases. Hence the screening of various Siddha drugs for their antifungal activity against various strains of *candida albicans* was considered worthwhile.

### MATERIALS AND METHODS

#### a) Materials:

The following Siddha drugs were procured and were subjected to in vitro antifungal testing against ***Candida albicans***.

S. No.	Name of the drug preparation	Manufacturer's Name
01	<i>Palakarai parpam</i>	M. Gopalan Aason*
02	<i>Nandhi mezhugu</i>	IMCOPS+
03	<i>Vaan mezhugu</i>	IMCOPS+
04	<i>Iedi vallaathi mezhugu</i>	IMCOPS+
05	<i>Erasa kenthii mezhugu</i>	IMCOPS+
06	<i>Sivanar amirtham</i>	M. Gopalan Aason*
07	<i>Parangi pattai chooram</i>	M. Gopalam Aason*

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+ The Indian Medical Practitioners Co-operative Pharmacy and Stores Limited, Madras – 41, Tamil Nadu.

#### b) Extraction:

Each of the drugs was macerated with alcohol at room temperature for 48 hours and filtered. The filtrate was then dried to a residue under low pressure. This dried extract was further used for testing antifungal activity.

#### b) *In vitro* antifungal activity:

The antifungal activity of the various Siddha drugs against the following strains of *C. albicans* viz., Ca5, Ca7, Ca8, Ca10, Ca11, Ca13, Ca15, Ca22, Ca24, Ca25, Ca26, Ca27, Caskf and CaP was studied at doses ranging from 500 µg/ml to 31.25 µg/ml of broth using 2-fold serial dilution technique. 24 hrs cultures of the strains containing  $10^5 - 10^6$  Cfu/ml were used to seed the broth.

The studies involves a series of tubes, that were filled with 1 ml of inoculated broth to which was added the test drug present in a

volume of 1 ml of the broth. The concentration of the drug in the broth was such that it was twice the dilution in the successive tube. The addition of the test drug and all other manipulations was done under strict aseptic conditions. The control tube was with the solvent alone and also without the solvent but with the inoculum were maintained throughout the experiment. Clotrimazole was used as the positive control. The whole study was carried out in triplicate. The racks of tubes were then incubated at 37°C for 24 hours. The observations were recorded at the end of 24 hours.

The growth of the organisms was observed in the growth control tube and the other tubes were observed for the inhibition of the organisms. The lowest concentration of the test during that caused apparently a complete inhibition of the growth of the organisms was taken as the minimum inhibitory concentration of the drug. This was further confirmed by plating also.

## RESULTS AND DISCUSSION

The results indicate that the following drugs showed significant antifungal activity against various strains of *Candida albicans* (Table No.1).

1. *Nandhi mezhugh*
2. *Vaan mezhugu*
3. *Erasa kenhi mezhugu*
4. *Parangi pattai choornam*

The above results were further confirmed statistically by using factorial analysis technique and found that these Siddha medicines had anticandidal activity in the following order.

*Nandhi mezhugu* > *Parangi pattai choornam* > *Erasa kenhi mezhugu* > *Vaan mezhugu*.

The alternative systems of medicine such as Siddha, Unani and Ayurveda have always

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come to the rescue of modern medicine, whenever there was dearth for new drugs. The literature of Siddha medicine reveals several such drugs that are available for the treatment of fungal infections. However they do not have scientific data to substantiate their use as antifungal agents. Though they have been in use for centuries by the practitioners of Siddha systems of medicines.

It was the purpose of this study to provide scientific validation of the Siddha drugs tested for their antifungal activity and especially against various strains of *Candida albicans*. These studies have thus revealed four promising drugs for use against candidal infections. Further studies with these formulations *in vivo* may reveal interesting facts about these medicines.

**Table 1**

*In vitro* evaluation of antifungal activity of various Siddha drugs against *C.albicans* using two fold serial dilution technique

Sl. No.	Name of the Compound	Minimum inhibitory concentrations in µg / ml													
		Ca5	Ca7	Ca8	Ca10	Ca11	Ca13	Ca15	Ca22	Ca24	Ca25	Ca26	Ca27	CaSKF	Cap
01	Palakarai Parpam	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	Nandhi Mezhugu	125	150	62.5	250	62.5	62.5	125	62.5	62.5	125	250	62.5	62.5	125
03	Vaan Mezhugu	-	-	125	-	-	125	-	125	125	62.5	62.5	125	-	-
04	Iedi Vallathi Mezhugu	-	-	-	-	-	125	-	125	-	-	-	-	-	-
05	Erasa Kenthi Mezhugu	62.5	62.5	62.5	62.5	125	62.5	125	62.5	125	62.5	62.5	62.5	-	-
06	Sivanar Amirtham	-	-	250	-	-	250	-	-	-	-	-	125	-	-
07	Parangi Pattai Choornam	125	62.5	125	125	62.5	62.5	62.5	125	125	62.5	62.5	62.5	62.5	62.5
08	Clotrimazole	3.125	3.125	3.125	3.125	62.5	62.5	3.125	62.5	3.125	62.5	3.125	3.125	3.125	62.5

Broth used : Sabouraud's broth  
 Volume of broth in assay tube 1 ml  
 Inoculam strength : 10<sup>5</sup> to 10<sup>6</sup> cells/ml  
 Remarks : MIC range – 62.5 to 250 µg/ml

Temperature at which incubated : 37<sup>0</sup>C  
 Observations recorded after : 24 hours  
 Solvent used :DMSO

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