



SCREENING OF ANTIMICROBIAL ACTIVITY OF SIDDHA DRUG KUKKILADHI CHOORNAM

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ABSTRACT

Plan: Kukkiladhi choornam is one of the Siddha drugs, which has been indicated for its anti-microbial properties. The aim of the present study was to validate antibacterial and antifungal activity of Kukkiladhi choornam extract against various microorganisms.

Preface: The present study examined the invitro screening of antimicrobial activity of siddha drug kukkiladhi choornam.

Methodology: The extracts were tested for antimicrobial activity using agar well diffusion on solid media. The microorganisms used in the present study include *Streptococcus pyogenes*, *Staphylococcus aureus*, *Escherichia coli*, *Salmonella typhi*, *Shigella flexneri*, *Proteus vulgaris* and *Candida albicans*.

Outcome: The study revealed that 50µl extract of Kukkiladhichooranam had significant inhibiting activity against *Shigella flexneri* (17mm), *Streptococcus pyogenes* (17mm) and *Candida albicans* (18mm).

1. INTRODUCTION

Traditional Siddha medicine, which is prevalent mostly in Tamilnadu (South-eastern India), is popular among Tamil-speaking people even outside of this region. Siddha system of medicine described various treatments by the siddhar in the struggle to preserve human life resources from nature, and many of their findings confirmed by the modern scientific research. Medicinal plant's research with ethno-botanical importance and has initiated widely in recent times in order to encourage the use of herbal medicines and to establish them as a source of new drugs. The WHO estimated that about an 80% population of developing countries relies on traditional medicines, mostly plant drugs, for their primary health care needs¹. WHO listed 21,000 plant species used around the world for medicinal purposes. Around 2,500 plants species belong to more than 1000 genera are being used in the indigenous system of medicine in India².

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2. MATERIALS AND METHODS

2.1 Preparation of Extract

To 5 grams of Kukkiladhi choornam 50ml of water was added and kept in boiling water bath for 20minutes and then filtered. The crude extracts were used for the study.

2.2 Microorganism used

Bacterial strains used for testing included *Streptococcus pyogenes*, *Staphylococcus aureus*, *Escherichia coli*, *Salmonella typhi*, *Shigella flexneri*, *Proteus vulgaris*. The fungi used are *Candida albicans*. These strains were obtained from Central Research institute, Chandigarh, India. The culture was maintained on semisolid medium at 37°C.

2.3 Determination of Antimicrobial activity

The extract of the drug were tested for antimicrobial activity (3,4,5).Muller Hinton agar (MHA),Sabouraud Dextrose agar (SDA) and Blood agar (BA) were sterilized in flask, cooled to 45-50°C and then poured into sterilized petriplates. The prepared Muller Hinton agar culture plates were inoculated into the well in graded concentrations (50µl, 100µl) using sterile syringe. The plates inoculated with bacteria were incubated at 37°C for 24 hours and 30°C for 48 hours for the fungal strains. Imipenem served as positive control bacterial strain and Ketoconazole served as positive control for fungal strains. All the tests were performed in triplicate. The diameter of the inhibition zones were measured in mm.

3. RESULTS AND DISCUSSION

Table 1: Anti-microbial activity of extract of Kukkiladhi choornam

S.No	Name of the Microorganisms	Mean zone of inhibition (in mm)		
		50µl	100 µl	Control
1	<i>Escherichia coli</i>	16	16	R
2	<i>Salmonella typhi</i>	16	17	R
3	<i>Shigella flexneri</i>	17	18	R
5	<i>Proteus vulgaris</i>	15	16	R
7	<i>Streptococcus pyogenes</i>	17	16	R
8	<i>Staphylococcus aureus</i>	16	17	R
9	<i>Candida albicans</i>	18	17	R

The antimicrobial results for antimicrobial activity of extract of Kukkiladhi choornam are presented in Table 1. The study revealed that 50µl extract of Kukkiladhi choornam had significant inhibiting activity against *Shigella flexneri*(17mm), *Streptococcus pyogenes*(17mm) and *Candida albicans*(18mm). The extract of Kukkiladhi choornam showed antibacterial activity against *Escherichia coli*, *Salmonella typhi*, *Shigella flexneri*, *Proteus vulgaris*, *Streptococcus pyogenes*, *Staphylococcus aureus* and fungal strain *Candida albicans*.

4. CONCLUSION

Our findings suggest that Kukkiladhi choornam showed a significant zone of inhibition against *Shigella flexneri*, *Streptococcus pyogenes* and *Candida albicans*. Siddha medicine employs a variety of herbs and minerals, many of which developed in the ancient past under advanced scientific techniques, even by today's standard. Siddha medicine deals mainly with herbomineral preparations for treating acute and chronic infections. Analysing the anti-microbial activity, the ethanol extract of *Acalpha indica* showed maximum inhibitory against *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Vibrio cholerae*. The ethyl acetate extract of *Acalpha indica* showed maximum inhibition against *Staphylococcus aureus*, *Klebsiella Pneumoniae* and *Shigella flexneri*⁶.

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