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TITLE

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**ANTI BACTERIAL AND ANTI FUNGAL ACTIVITY OF SHODHITA
MANASHILA PREPARED BY ARDRAKA SWARASA**

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ABSTRACT:

Physicians are unable to treat various bacterial and fungal infections appropriately due to hindrances like development of resistance, adverse effects, patient affordability etc. Suddha Manashila mentioned in Ayurvedic Texts can be an ideal replacement for treating various infectious diseases. Assessment of its antibacterial and antifungal activity may provide scientific evidence for the study. Manashila purified by ardraka swarasa according to the classical reference was subjected to antibacterial and antifungal activity by cup plate method. Different concentrations of the drug was tested against bacteria like Staphylococcus aureus, Pseudomonas auregenosa and E coli and fungi Aspergillus niger, Cryptococcus neoformans, Candida albicans and Trycophytum rubrum. Fluconazole and Benzathine Pencillin taken as a standard for comparison. Suddha manashila solutions in different concentrations showed a significant zone of inhibition against three strains of bacteria (16-28 mm) and four strains of fungi (14-27mm) when compared to Fluconazole (22 mm), Benzathine Pencillin (28 mm) & control.

Keywords: Ardrakaswarasa, Benzathinepencillin, Fluconazole, Manashila Bhavana

INTRODUCTION

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INTRODUCTION

Disease and death have always attracted the attention of human mind. Ancient humans ascribed them to divine wrath and other supernatural forces. Invention of microscope exposed the world of micro-organisms to humans.¹ Out of these microorganisms, pathogenic organisms are the root cause of majority of diseases in human beings. Now a day's number of antimicrobial agents are discovered which are effective in various infections.² Even though, physicians face many hindrances while treating such infections. Emergence of Resistance to the conventional antimicrobial is a serious problem.³ Other than this adverse effects

and patient affordability are also difficult tasks for a physician.⁴ The scenario is further made complicated by infections like HIV where most immunity itself suppressed. These all difficulties create a need for constant development of newer antimicrobial agents which are safe, cost effective to inhibit growth or kill organisms. *Manashila* is one of the mineral drug used for *krimi rogas*, both external as well as in internal administration.^{5,6} *Manashila*⁷ after *shodhana*, mainly cures diseases like *krimi, kushta, kasa, swasa* etc and has got wide range disease curing capacity which is a positive thing for us in today's era.^{9,10}

MATERIAL AND METHODS

To evaluate the antibacterial and antifungal activity of *Suddha Manashila* the following material were used.

MATERIALS:

A) Drugs :

1. Suddha Manashila
2. Fluconazole
3. Benzathine penicillin

B) MICRO ORGANISMS

BACTERIA

- a) Staphylococcus aureus
- b) Pseudomonas auregenosa
- c) Escheria coli

FUNGI

- a) Candida albicans
- b) Cryptococcus neoformans
- c) Trycophytum rubrum

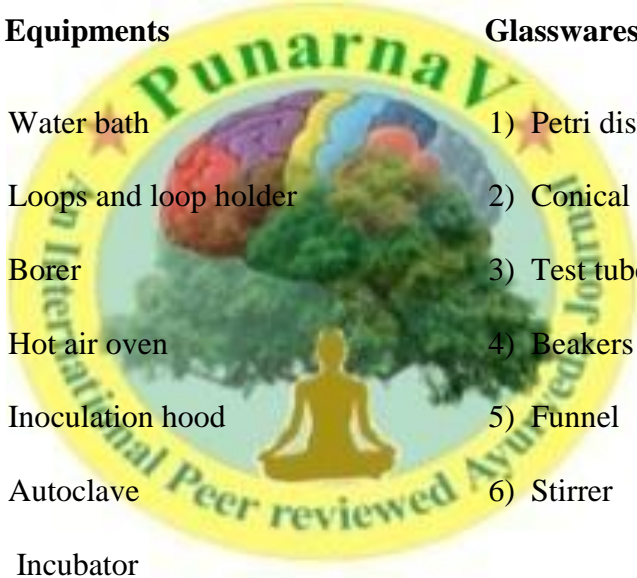
d) *Aspergillus niger*

C) Chemicals & solvents

- | | |
|--------------------|------------------------|
| 1) Nutrient broth | 4) Potassium Hydroxide |
| 2) Nutrient agar | 5) Sodium Hydroxide |
| 3) Surgical spirit | 6) Distilled water |

D) Equipments and Glassware's

Equipments	Glasswares
1) Water bath	1) Petri dish
2) Loops and loop holder	2) Conical flask
3) Borer	3) Test tubes
4) Hot air oven	4) Beakers
5) Inoculation hood	5) Funnel
6) Autoclave	6) Stirrer
7) Incubator	

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METHODS

To assess the percentage of solubility of *Suddha Manashila* in different solvents for carrying out antimicrobial activity.

Solubility Test: Solubility test of *Suddha Manashila* was carried out in different solvent

Determination of Antibacterial and antifungal susceptibility testing of

Suddha Manshila Antibacterial and antifungal activity was carried by cup plate method.¹¹

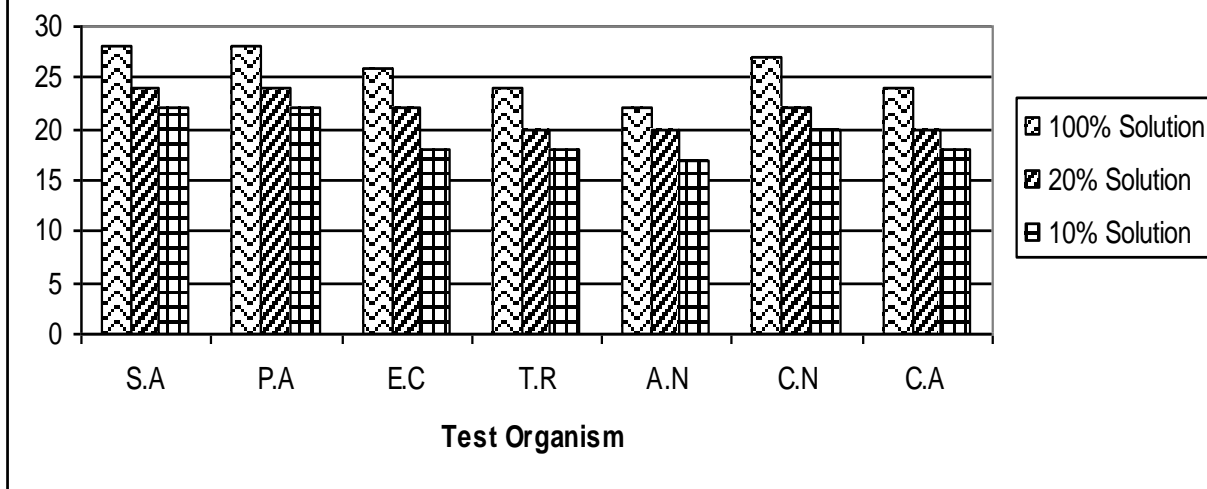
OBSERVATION AND RESULT

TABLE 1&2 SHOWS ZONE OF INHIBITION IN MM

<i>Antimicrobial sensitivity testing of 100%, 20%, 10% SMArB solution.</i>							
Test drugs	Test Organisms						
	S.A	P.A	E.C	T.R	A.N	C.N	C.A
I. 100% Solution	28	28	26	24	22	27	24
II. 20% solution	24	24	22	20	20	22	20
III.10% solution	22	22	18	18	17	20	18

<i>Antimicrobial sensitivity testing of Control and Standard solution.</i>									
Test drugs			Test Organisms						
			S.A	P.A	E.C	T.R	A.N	C.N	C.A
I. Control Solution (10% KOH)			16	12	10	10	16	12	16
II Fluconazole soluion			--	--	--	20	22	22	20
III. Benzathine solution	Penicillin		28	28	27	--	--	--	--

Table no. Shows zone of inhibition (in mm) in the Antimicrobial sensitivity test of SMArB



DISCUSSION

Manashila was purified by *ardraka swarasa* according to the classical reference mentioned in *rasa tharangini*.¹² *Shodhita Manashila* was undertaken for antibacterial and antifungal study and tested against bacteria like *Staphylococcus aureus*, *Pseudomonas auregenosa*¹³ and *E-coli* and fungi like *Trycophytrum rubrum*, *Aspergillus Niger*, *Cryptococcus Neoformans* and *Candida albicans*¹⁴. The purified *Manashila* was subjected for solubility test in different solvents. The sample of *manashila* was sparingly soluble in KOH, NaOH, Distilled water, CCl₄, Glacial acetic acid. 10% KOH taken as a solvent for this study.¹⁵ 10%, 20% and 100% solutions were prepared from *shodhita manashila*.¹⁶ Then each samples were subjected to antibacterial and antifungal activity in comparison with

control and standard drug Fluconazole and Benzathine Penicillin^{17,18}. *Shodhita Manashila* had shown sensitivity towards all organisms. 10% solution of *shodhita manashila* has shown high sensitivity towards *Plasmodium Auregenosa* and *Staphylococcus Aures* of 22 mm of zone of inhibition. Among fungi it has shown high sensitivity towards *Cryptococcus neoformans* of 20 mm of zone of inhibition. 20% solution of *Shodhita manashila* has shown high sensitivity towards *Plasmodium Auregenosa* and *Staphylococcus Aureus* of 24 mm of zone of inhibition. Among fungi it has shown high sensitivity towards *Cryptococcus neoformans* of 22 mm of zone of inhibition. 100% solution of *Shodhita manashila* has shown high sensitivity towards *Plasmodium Auregenosa* and

Staphylococcus Aureus of 28 mm of zone of inhibition. Among fungi it has shown high sensitivity towards Cryptococcus neoformans of 27 mm of zone of inhibition. Standard drug Benzathine Penicillin was sensitive to all bacterial organisms and highly sensitive against Staphylococcus aureus and Pseudomonas auregenosa and, where zones of inhibition were 28 mm. Standard drug Fluconazole was sensitive to all fungal organisms and highly sensitive against Aspergillus niger and Cryptococcus neoformans, where zones of inhibition were 22 mm. The zones of inhibition of the *shodhita manashila* with different concentrations were found to be significant in bacteria compared to fungi. Significant zone of inhibition was noted in bacteria Plasmodium auregenosa, Staphylococcus aureus compared to E.coli. Significant zone of inhibition was observed in fungi Aspergillus niger and Cryptococcus Neoformans when compared to Trycophytum rubrum and Candida albicans. Control group has also shown sensitive to all organisms. 100% solution of *shodhita manashila* has shown significant zone of inhibition in

comparison with 20% and 10% respectively. The sample of *shodhita Manashila* solution in higher concentration show similar and less activity compared to Benzathine Penicillin. The sample of *shodhita manashila* solution in higher concentration compared to Fluconazole showed significant antifungal activity against Aspergillus Niger and Cryptococcus neoformans, similar activity against Candida albicans and Trycophytum rubrum. Different concentrations of *shodhita manashila* zones of inhibition were significant in comparison to control. Sample *Shodhita manashila* had shown sensitive against all organisms this may be due to the presence of elements like Arsenic and Sulphur which might have contributed to antibacterial and antifungal activity. *Ardraka swarasa* used for *bhavana* of *Manashila* which also contributes to the antibacterial and Anti-fungal activity. *Manashila* due to its *ushna teekshna* properties destroys *kledamsa* in the body which is responsible for growth of micro-organisms. It is one type of *Prakruthi vighatha Chikitsa*.

CONCLUSION

Different concentrations of three different samples of *shodhita manashila* the zones of inhibition were significant in comparison to control. Benzathine Penicillin and Fluconazole act only as antimicrobial agents and may produce adverse effects on

human beings but *shodhita manashila* not only act as antimicrobial agent but have additional properties like rejuvenation and promotes positive health and vigor by increasing the immunity, thus making the

body resistant against disease causing factors.

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