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ANTIBACTERIAL SCREENING OF DIFFERENT PLANT SPECIES OF *MOORVA*– AN IN-VITRO STUDY

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ABSTRACT

Introduction : *Moorva* is explained to be a best *Jwarahara dravya*. It is grouped in *Jwarahara Gana* explained by *Charaka,Sushruta,Vagbhata*. In recent practices under the name *Moorva*Various Plant species are being used regionally. Attempt here is made to study the efficacy of such plants used as *Jwrahara*. Hence Antibacterial screening of three different species used as *Moorva* i.e, *Sanseveria roxburghiana Roxb., Bhuhnia vahlii Linn* and *Helicteres isora Linn* was carried out. **Material & Methods:** *Antibacterial study* of Methanol and water extracts of above herbs were done by *Agar* diffusion Method using Gram +ve (*staphyllococi Aureus*) and Gram –ve (*Escheria Coli*). **Results:** overall results of study conclude that *Helicters isora* Aqueous extract has inhibitory activity against Gram-ve and Gram-ve strains at 1000µg concentrations, while *Sanseveria roxburghiana* Aqueous extract is having over gram +ve and *Bauhnia vahlii* aqueous extract has activity on gram-ve at 500µg and 1000µg concentration.

Keywords: *Antibacterial study, Agar* diffusion Method, *Bauhnia vahlii, Helicters isora, Jwara, Moorva, Sanseveria roxburghiana Roxb*

INTRODUCTION: The plants have been playing major part in the pharmaco therapy since vedic period till today. In Ayurvedic literature a vast number of *jwaraghana dravyas* have been mentioned. Unfortunately many of them are not being used in today's pharmaco therapy. The reasons may be unidentification, non availability and controversy. *Moorva* is *jwarahara* dravya mentioned in Brahatrayees[1,2] roots of which are used in many *jwraghna* khashayas and in other formulations. *Moorva* is one of the highly controversial drugs. 5 to 7 plants are being used in the name of *Moorva*[3]. In the study three different species used as *Moorva*i.e, *Sanseveria roxburghiana Roxb., Bhuhnia vahlii Linn* and *Helicteres isora Linn* and their Aqueous and Methanolic extracts were prepared and at different concentrations *Antibacterial* study was conducted.

AIM AND OBJECTIVES: In the present Study Collection of *Moorva* samples from different places of India and evaluation of by *Antibacterial* study by agar diffusion method over Gram +ve and Gram –ve bacterial strains was conducted.

METERIAL AND METHODS:

Antibacterial study of *Moorva* for *Sanseveria roxburghiana Roxb., Bhuhnia vahlii Linn* and *Helicteres isora Linn* was conducted by Agar diffusion method over *Staphylococcus*[5,6,7] and *Escherichia coli* bacteria (as these are common *pyrogenic* bacterias) with *aqueous* extract and *Methanol* extract with 25,50,100,250,500,1000µg concentrations was screened.

Description [4,5]**:**

Media Used: Peptone-10 g, NaCl-10g and Yeast extract 5g, Agar 20g in 1000 ml of distilled water

Initially, the stock cultures of bacteria were revived by inoculating in broth media and grown at 37ºC for 18 hrs. The agar plates of the above media were prepared and wells were made in the plate. Each plate was inoculated with 18 hold cultures (100 µl, 10^{-4} cfu) and spread evenly on the plate. After 20 min, the wells were filled with of compound and antibiotic at different concentrations. All the plates were incubated at 37ºC for 24 h and the diameter of inhibition zone were noted

ABBREVIATIONS	FULL FORM
SR	*Sanseveria roxburghiana Roxb.*
HI	*Helicteres isora Linn.*
BV	*Bauhnia vahlii Linn*
W	*Water extract*
M	*Methanolic extract*

RESULTS :

Anti-bacterial analysis Staphyllococi Aureus

Sample	25 µg	50 µg	100 µg	250 µg	500 µg	1000 µg	MIC µg
SR-M	0	0	0	0	0	0	NF
SR-W	0	0	0	0	4	10	500
HI-M	0	0	0	0	0	0	NF
HI-W	0	0	0	0	0	5	1000
BV-M	0	0	0	0	0	0	NF
BV-W	0	0	0	0	0	0	NF
Ciprofloxacin	25	28	31	34	36	*	25

Escheria Coli

Sample	25 µg	50 µg	100 µg	250 µg	500 µg	1000 µg	MIC µg
SR-M	0	0	0	0	0	0	NF
SR-W	0	0	0	0	0	0	NF
HI-M	0	0	0	0	0	0	NF
HI-W	0	0	0	0	0	5	1000
BV-M	0	0	0	0	0	0	NF
BV-W	0	0	0	0	3	8	500
Ciprofloxacin	26	29	32	34	38	*	25

*the inhibitions zones were too big to measure

NF- MIC not found

Note: In above tables, NF is MIC not found in the concentrations screened

DISCUSSION: *Methanolic* extract and *Aqueous* extract of three source plants of *Murva* in different concentrations were subjected to *antibacterial* study with *ciprofloxacin* as standard drug. Gram +ve and gram –ve strains were used in which *Staphyllococi Aureus* and *Escheria Coli* from both strins were selected.

Anti bacterial study on gram +ve organism *(Staphyllococi Aureus)*

Aqueous extract of *Sanseveria roxburghiana* showed inhibitions in 500µg and 1000µg concentrations and *Helicteres*

isora showed inhibitions in 1000µg concentration. Minimum inhibitory concentration in *Sanseveria roxburghiana* Aqueous extract was 500µg and *Helicteres isora* Aqueous extract was 1000µg *Sanseveria roxburghiana* methanolic extract, *helicteres isora methanolic* extract, *Bauhnia vahlii* methanolic extract and *Bauhnia vahlii* aqueous extract did not show any activity.

Anti bacterial study on gram -ve organism *(Escheria Coli)*

Helicteres isora aqueous extract showed inhibition in 1000µg concentration and *Bauhnia vahlii* aqueous extract showed inhibitions in 500µg and 1000µg concentrations. Minimum inhibitory concentration values for *helicteres isora* aqueous extract was 1000 µg and *Bauhnia vahlii* aqueous extract was 500 µg. *Sanseveria roxburghiana* methanolic extact, *Sanseveria roxburghiana* Aqueous extract, *helicteres isora* methanolic extract and *Bauhnia vahlii* methnolic extract did not show any activity.

CONCLUSION:

Overall conclusion from both the studies is that *helicters isora* aqueous extract has inhibitory activity against *gram* +ve (Staphyllococi Aureus) and *gram –ve (Escheria Coli)* strains at 1000 µg concentration. While *Sanseveria roxburghiana* Aqueous extract is having activity over gram *+ve strain (Staphyllococi Aureus)* and *Bauhnia vahlii* aqueous extract has activity on *gram –ve* strain *(Escheria Coli)* on 500µg and 1000µg concentrations.

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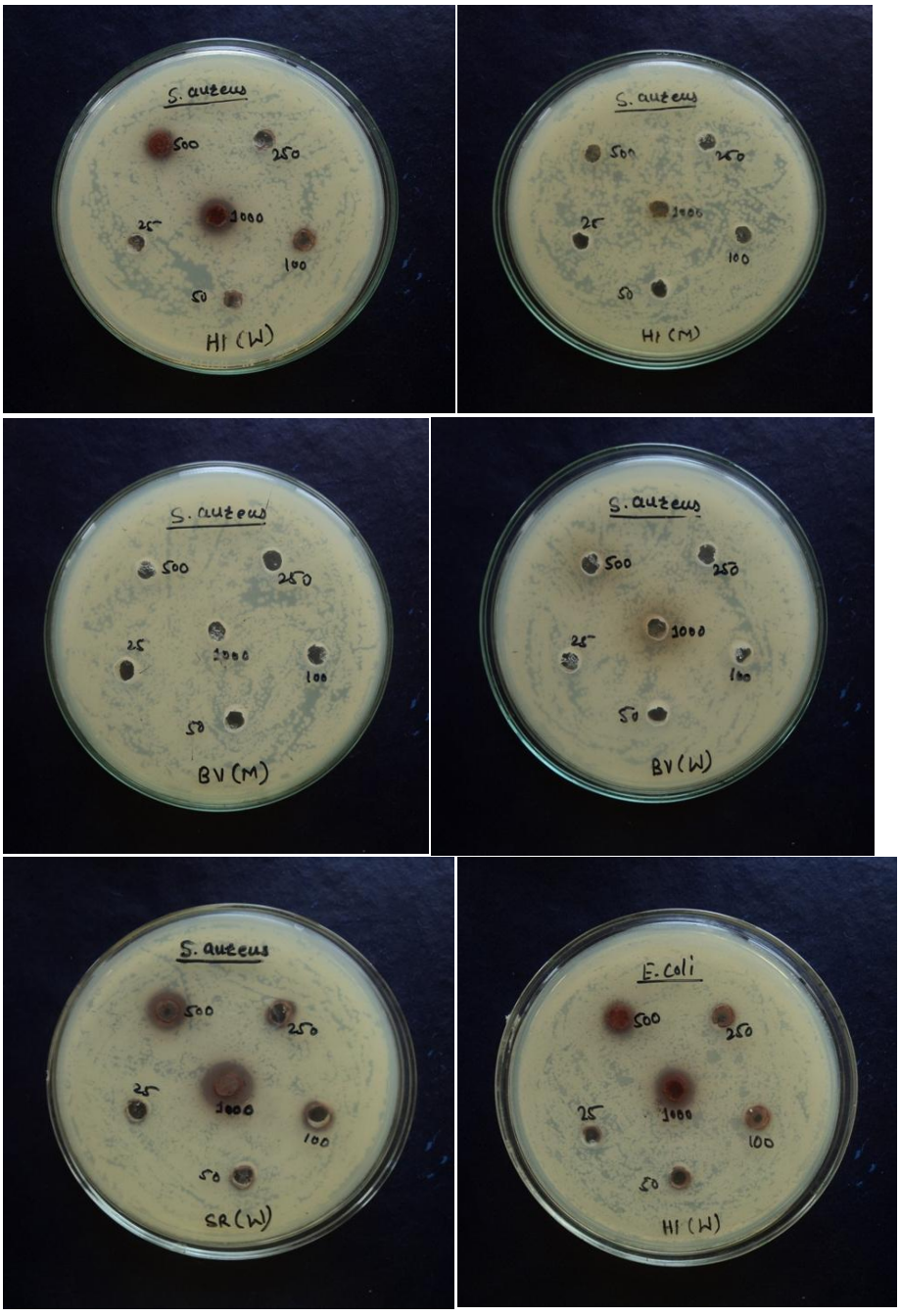
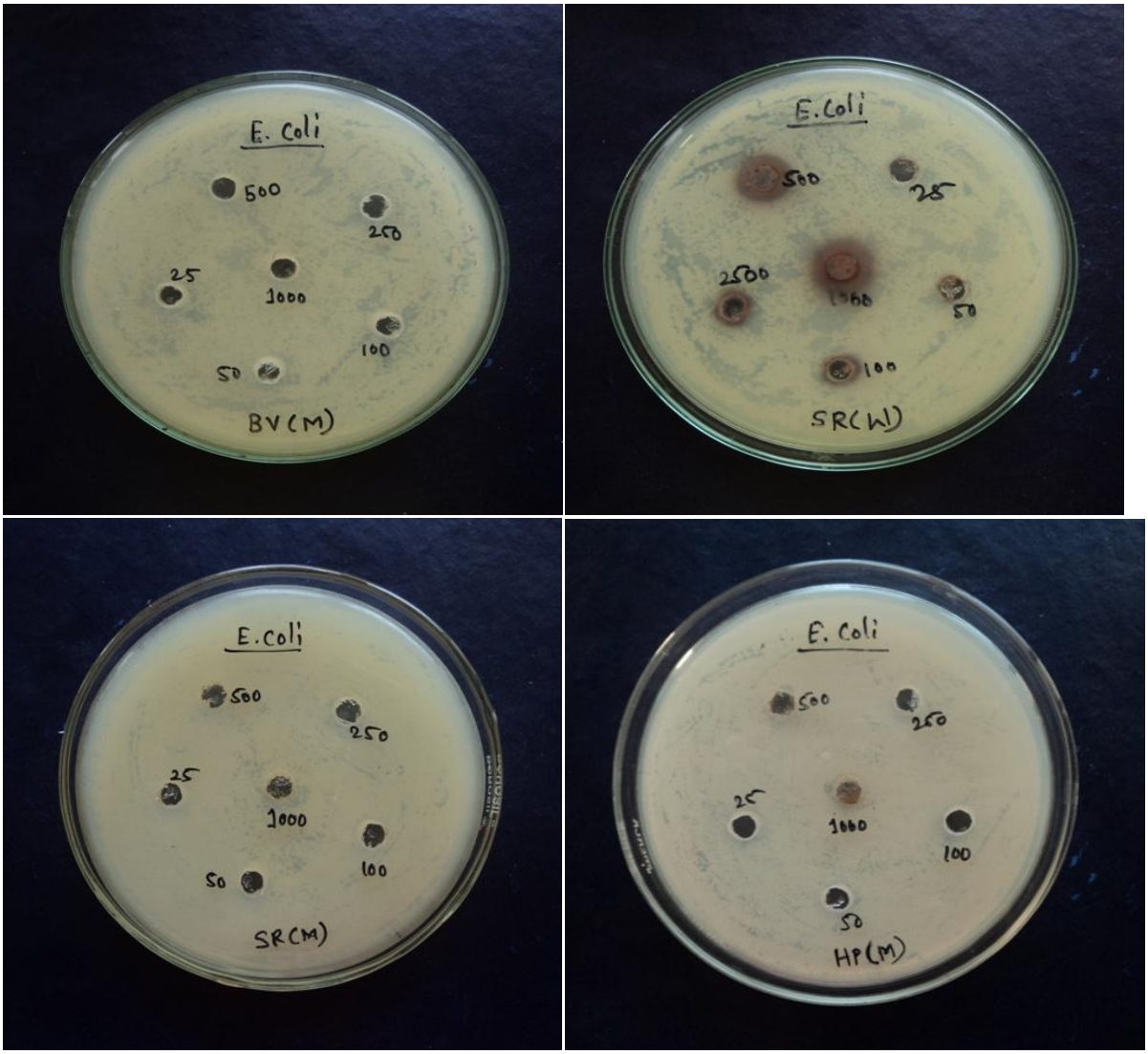
Photographs




E. Coli
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HP(M)