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ANTIMICROBIAL STUDIES ON METHANOL EXTRACT OF *BENINCASA HISPIDA COGN., FRUIT.*

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ABSTRACT : *The methanol extract of wax gourd, the fruits of Benincasa hispida cogn.(Cucurbitaceae) was found to show no inhibition against three gram positive bacteria Staphylococcus aureus, Staphylococcus epidermidis, and Bacillus subtilis and three gram negative bacteria Escherichia coli, Pseudomonas aeruginosa and Klebsiella pneumonia by cup-plate method whereas antifungal studies showed significant inhibition against Candida albicans in the concentration of 30 mg/ml and there was no inhibition against Aspergillus niger.*

INTRODUCTION

Benincasa hispida cogn. (Cucurbitaceae) is a tendril climber which is cultivated throughout India in plains and hills[1]. Fruits of *Benincasa hispida* were nutritive, tonic diuretic, alternative and useful in insanity, epilepsy and other nervous diseases[2]. Four known triterpenses and two known sterols were isolated as active constituents from the methanolic extract of *Benincasa hispida* fruits[3]. As no information is available on the anti-microbial activity the present study was undertaken to investigate the same.

MATERIALS AND METHODS

Collection and identification

Well mature fruit of B.hispida was purchased from the local market in the month of September, and its authenticity was confirmed by Dr. Rajasekaran. Ethanomedicine Tropical Botanic Garden and Research Institute. Trivandrum.

Preparation of methanolic extract of B.hispida fruit (MEBH)

The pulp of the fruit meshed to fine slurry in a grinder, and extracted with methanol by maceration. A semisolid mass was obtained (yield 2.95% w/w) after complete elimination of solvent under reduced pressure below 60°C. This extract was stored in a refrigerator and protected from direct sunlight.

Culture media and microorganisms

Soyabean Casein Digest Agar Medium, and Sabouraud Dextrose Agar Medium, manufactured by Hi media Laboratories, Mumbai, India were used for the cultivation of bacteria and fungai respectively. All microorganisms used in the present study were obtained from Dept. of Microbiology, Kings Institute, Guindy, Chennai.

Antibacterial and anti fungal activity of MEBH were studied by *cup – plate*

method. (4,5)

Antibacterial study

Antibacterial activity of MEBH was studied against three gram positive bacteria *Staphylococcus aureus, Staphylococcus epidermidis and Bacillus subtilis* and three gram negative bacteria *Escherichia coli, Pseudomonas aeruginosa* and *Klebsiella pneumonia.* Ciprofloxacin solution (100 µg/ml) was used as the standard drug.

Antifungal activity

Antifungal activity of MFEBH was studied against Candida albicans and Aspergillus niger. Ketaconazol solution (50µg/ml) in dimethy sulphoxide was used as the standard drug.

RESULTS

MEBH showed no antibacterial activity against *Staphylococcus aureus, Staphylococcus epidermidis, Bacillus subtilis, Escherichia coli, Pseudomonas aeruginosa* and *Klebsiella pneumonia* by cup - plate method. (Table 1)

MEBH produced a significant zone of inhibition against *Candida albicans* in the concentration of 30 mg/ml where as there was no inhibition against *Aspergillus niger.* (Table 1).

CONCLUSION

In conclusion the present study demonstrates that MEBH has marked anti - fungal activity thus it would be useful in the treatment of candidiasis.

REFERENCES

1. Nadkarani K.M. Indian Materia Mediea, Popular Prakashan, Bombay: Vol. 1PA86, (1976).

2. The Wealth of India, Publication and information Directorate CSIR New Delhi. Vol-II. P. 186, (1998).

3. Yoshizumia. S., Murakami.T., Kadoya. M., Matsuda. H., Yamahara. J., Joshikawa. M., Histamine release inhibitors from wax gourd the fruits of *Benincasa hispida* Cogn, Yakugaku Zasshi - Journal of the Pharmaceutical Society of Japan. 118(5); 188-192 (1998).

4. Indian Pharmacopiea, Published the controller of Publications, P A-105, (1996).

5. Olorundare, E.O., Emudianigk T.S. Khasar, G.S.Kuteyi, S.A. andlroh O.N. Antibacterial activity of leaf extra; of Cassia alata. Bulletin of science Association of Nigeria 17, P106-1, (1991).

Table 1: Antimicrobial Activity of MEBH

S. No.	Organism Used	Zone of inhibition (mm)			
		B	L	H	S
A	BACTERIA				
1	Staphylococcus aureus	X	X	X	39
2	Staphylococcus epidermidis	X	X	X	28
3	Bacillus subtilis	X	X	X	32
4	Escherichia coil	X	X	X	27
5	Pseudomonas aerginosa	X	X	X	30
6	Klebsiella pneumonia	X	X	X	36
B	FUNGUS				
1	Candida albicans	X	X	21.2	26.3
2	Aspergillus niger	X	X	X	18.1

B - Blank (Solvent Control)

H - Higher concentration of MEBH (30 mg/ml)

L - Lower concentration of MEBH (15 mg/ml)

S - Standard drug.

X - No significant zone of inhibition