



SCREENING OF ANTIFUNGAL ACTIVITIES OF EXTRACTS OF TEN PLANT SPECIES

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ABSTRACT

Antifungal activity of extracts of 10 plant species were evaluated on cultures raised in PDA medium inoculated with garden soil extract. Colony counts were made after 15 days of sample inoculation. *Citrus aurantifolia* extract was found to possess maximum antifungal activity.

INTRODUCTION

Phytomedicines are major component of traditional system of healing in the developing countries. Besides wide spread use of botanicals as medicinal products in developing countries, such products are becoming part of the integrative healthcare system of industrialized nations, known as complementary and alternative system of medicines (CAM). Plants are rich source of bioactive secondary metabolites of wide variety such as tannins, terpenoids, alkaloids, and flavonoids, reported to have in vitro antifungal properties. A series of molecules with antifungal activity against different strains of fungus have been found in plants, which are of great importance to humans and plants (Cowman 1999, Walton 1997).

MATERIALS & METHODS

Following medicinal plants were collected from different locations of Jaipur, Rajasthan.

1. *Aloe vera*
2. *Azadirachta indica*

3. *Calotropis procera*
4. *Citrus aurantifolia*
5. *Euphorbia neriifolia*
6. *Ficus racemosa*
7. *Hibiscus rosa – sinensis*
8. *Ocimum sanctum*
9. *Punica granatum*
10. *Saraca asoka*

Plant samples were dried at room temperature for 5 days were grounded to powder. 1 g power of each species was stirred separately in 5ml solvents (ethanol and distilled water) and filtered. PDA medium (20ml) was poured in the petriplate along with 1ml plant extract. Aqueous extract of garden soil was inoculated on the medium and after one week of incubation, findings were recorded.

RESULTS

The colonies of 6 fungal species were identified. These were; *Aspergillus niger*, *Curvularia lunata*, *Fusarium*

Table1. Colony counts of fungal species from soil sample inoculated in individual PDA+ medicinal plant extracts after 15 days.

S. No	Fungus	<i>Aloe</i>	<i>Azadirachta</i>	<i>Calotropis</i>	<i>Citrus</i>	<i>Euphorbia</i>	<i>Ficus</i>	<i>Hibiscus</i>	<i>Ocimum</i>	<i>Punica</i>	<i>Saraca</i>
1.	<i>Aspergillus niger</i>	Nil	2	7	Nil	8	Nil	12	2	4	10
2.	<i>Curvularia lunata</i>	Nil	Nil	3	Nil	9	2	11	1	3	12
3.	<i>Fusarium oxysporum</i>	3	1	1	Nil	7	1	10	1	1	10
4.	<i>Penicillium chrysogenum</i>	Nil	Nil	3	Nil	6	Nil	1	2	4	9
5.	<i>Rhizoctonia solani</i>	2	1	2	Nil	1	2	10	2	5	10
6.	<i>Trichoderma harzianum</i>	Nil	Nil	1	Nil	4	1	9	1	4	9
	Total fungal colonies	5	4	17	Nil	35	6	53	9	21	60

oxysporum, *Penicillium chrysogenum*, *Rhizoctonia solani* and *Trichoderma harzianum* (Table 1). Their colony counts made after 15 days of inoculation differed in different plant extracts. Their maximum numbers were observed in *Saraca indica* suggesting poor antifungal activity. Fungal colonies were absent in treatment of *Citrus aurantifolia* possibly because of present of antifungal agents. *Azadirachta indica* (Bhambal et al. 2011), *Aloe vera* (Boudreau and Beland 2006, Vogler and Ernst 1999) and *Ficus racemosa* possessed antifungal activity to some extent as they had few fungal colonies.

The major compounds present in *Citrus aurantifolia* extract are; 5-geranyloxypsoralen, 5-geranyloxy-7-methoxycoumarin, 5,7-dimethoxycoumarin, 5-methoxypsoralen, and 5,8-dimethoxypsoralen; along with volatile compounds viz. 5,7-dimethoxycoumarin, 3-methyl-1,2-cyclopentanedione, 1-methoxy-clohexene, corylone, palmitic acid, 5,8-dimethoxypsoralen, terpineol and umbelliferone the major constituents which prove together to be highly antifungal in nature (Wilson and Beale 2004). Abril et al. (2008) reported effective fungi management using natural products from *Citrus aurantifolia*. The utilization of citrus extracts can prevent both human and animal infections (Liu et al. 2012).

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