

ANTIFUNGAL ACTIVITY OF LEAF EXTRACTS OF MEDICINAL PLANTS AGAINST POST-HARVEST SWEET ORANGE (*CITRUS SINENSIS*) FRUIT FUNGI.

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ABSTRACT:-

The present study was carried out to determine antifungal potential of leaf extract of plants. Shatavari (*Asperagus racemosus*), Woodapple (*Limonia acidissima*), Tulsi (*Ocimum sanctum*), Neem (*Azadirachta indica*) and Pomogranate (*Punica granatum*) against the post-harvest Sweet orange fruit fungi i.e. *Aspergillus niger*, *Fusarium oxysporum*, *Macrophomina phaseolina*, *Rhizoctonia solani* and *Penicillium digitatum*. 10 gm. leaf of these plants were taken in aqueous solution. The composition is made i.e. 85ml. Glucose nitrate broth and 15ml leaf extract and inoculated above pathogens. The antifungal activities of these medicinal plants were investigated. Antifungal activities of various plant extracts were compared with control (i.e. 85 %GN and 15% water). It was observed that the Neem plant had a broad spectrum antifungal activity against all the tested fungi. These findings supported the traditional uses of the plants in the treatment of various fungal infections.

KEYWORDS:-

Antifungal activity, Medicinal plants, Fungi i.e. *Aspergillus niger*, *Fusarium oxysporum*, *Macrophomina phaseolina*, *Rhizoctonia solani* and *Penicillium digitatum*.

INTRODUCTION:-

The extensive use of agrochemicals especially fungicides, resulted in more carcinogenic risk than other pesticides which may give rise to undesirable biological effects on animals and human beings medicinal plants represents a rich source of antimicrobial agents. Plants produce a great deal of secondary metabolites, many of them with antifungal activity. Large number of plants has been reported to possess fungi toxic properties against plant pathogens which could be exploited commercially with practically no residual or toxic effect on ecosystem (Kumar *et al.* 2008). The emergence of strains of pathogens resistant to these fungicides (Spotts and Cervantes, 1986; Suhr and Nielsen, 2003; Eckert, 1987). Biological control using naturally occurring substances has been recently explored for managing postharvest decay of fruits. Because of their non – phytotoxicity and systemicity (Fewcett and Spencer 1970). as well as biodegradability,

plants derived products can be potent and valuable reagents in pest management (Mishra and Dubey, 1990; Shukla and Tripathi; 1987; Tripathi and Dubey, 2004; Xuanet.al.2006). Therefore, the development of bio pesticides has been focused as a viable pest control strategy in recent years.

MATERIALS AND METHODS:-

Five plants were selected *i.e.* Shatavari, Neem, Wood apple, Tulsi and Pomegranate. 10gm of leaves were taken from each plant, washed thoroughly with distilled water. Aqueous leaf extract was prepared from these leaves. The fungi used for this study are *Aspergillus niger*, *Fusarium oxysporum*, *Macrophomina phaseolina*, *Rhizoctonia solani* and *Penicillium digitatum*. These fungi were isolated from post-harvest diseases of sweet oranges. Glucose nitrate media was prepared in a conical flask and leaf extract of each plant was added (85ml: 15ml). 25ml of GN media was taken in a conical flask plugged them and kept for sterilization in autoclave (15 lbs for 20 min.). After cooling the media fungi were inoculated in aseptic condition and incubated for 7 days at room temperature. Suitable checks were kept; the fungi were grown under the same condition in GN medium without plant extract. Mycelium weight of the test fungi was measured after harvesting. The mycelium weight of the fungi compared with check.

RESULT AND DISCUSSION:-

Aqueous leaf extracts of Tulsi, Wood apple, Neem, Shatavari and Pomegranate were screened against the growth of post-harvest sweet lime fruit fungi and results are summarized in Table no.1. It is cleared that leaf extract of Tulsi, Wood apple, Neem and Shatavari showed antifungal activity against *Fusarium*. Shatavari leaf extract showed antifungal activity against *A.niger*, *Rhizoctonia* and *Fusarium*. Neem leaf extract showed antifungal activity against all five fungi *i.e.* *A.niger*, *Rhizoctonia*, *Fusarium*, *Macrophomina* and *Penicillium*.

Table No. 1: Antifungal activity of Fruit Extracts against seed-Borne Pathogenic Fungi

Fungi	Medicinal plants					
	Control	Pomegranate	Tulsi	Shatavari	Neem	Wood Apple
<i>Aspergillus niger</i>	0.108mg	0.107 mg	0.081 mg	0.080 mg	0.096 mg	0.133 mg
<i>M. phaseolina</i>	0.108 mg	0.189 mg	0.136 mg	0.123 mg	0.087 mg	0.128 mg
<i>Fusarium oxysporum</i>	0.118 mg	0.387 mg	0.437 mg	0.082 mg	0.074 mg	0.083 mg
<i>Rhizoctonia solani</i>	0.191 mg	0.109 mg	0.106 mg	0.038 mg	0.056 mg	0.101 mg
<i>Penicillium digitatum</i>	0.139 mg	0.294 mg	0.109 mg	0.343 mg	0.086 mg	0.041 mg

CONCLUSIONS:-

The leaf extract of Tulsi, Wood apple, Neem, Shatavari and Pomegranate plants caused marked inhibitory activity against various fungi in terms of inhibition of mycelia growth. These plants can be used as natural fungicides for the controlling post-harvest diseases of Sweet lime.

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