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ANTIFUNGAL ACTIVITY OF DIFFERENT FRUIT RIND EXTRACTS AGAINST SEED BORNE PATHOGENIC FUNGI

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ABSTRACT

Fruit rind extract are being used to control the diseases since last several years. Aqueous extract of various fruit rind are found to be effective against seed borne pathogenic fungi. The invitro studies have been performed by using poison food technique to examine the antifungal activity of fruits rind extract. Rind extract of five fruits were screened against five seed borne pathogenic fungi *Viz. Mucor mucedo, A. niger, A. flavus* and *Trichoderma viride* out of five fruit rind extracts. The rind extract of orange fruit shows maximum activity, while minimum activity was observed with Papaya against the tested fungi. These plant extracts can be exploited in the management of seed borne pathogenic fungi to avoid bio deterioration of seeds in eco -friendly way.

KEYWORDS: Antifungal activity, seed borne fungi, fruit rind extract.

INTRODUCTION

The use of most of the synthetic fungicides has created different types of environmental and toxicological problems. Recently in different parts of the world attention has been paid towards exploitation of higher plant products as novel chemo the repentant in plants protection. (Takada *et. al* 2004, 2012). The use of synthetic fungicides has been the major commercial means of post harvest decay control for several decades. However, the chemical residues that is liable to remain on the fruit or within its tissues following fungicidal treatment and the 1986 report from the US National Academic of Sciences (Research Council, Board of Agriculture, 1987) indicating that fungicide residues on food pose a great health risk to the consumer, led to the search for safe alternatives to synthetic fungicides.

Fruits are considered as an important part of a good diet. But peels of various fruits are generally considered as waste product and normally thrown away by us. But different studies conducts on peels revealed the presence of important constituents. The aim of the present study is to evaluate the aqueous fruit rind extract from pomegranate, banana, papaya, orange, and lemon, against *A. niger*, *Mucor*, *A. flavus* and *Trichoderma viride*.

MATERIAL AND METHODS

Isolation of fungi

Fungal pathogens were isolated and identified from different stored seeds. Identified fungal culture were isolated and pure cultures of each fungus made separately on PDA slants. These pure cultures were used for further investigation.

Collection of fruits

The fruit like Papaya, Pomegranate, Banana, Orange and Lemon were brought from local market.

Preparation of rind extract

The fruits washed with clean water, peel were separated, cut into small pieces and dried under shade at room temperature and powdered in a blender. 10gm of peel powder was added into separated conical flasks containing 100ml of sterile distilled water and kept for 24 Hours with occasional stirring. The content of flask was filtered through sterile Whatman filter paper No. 1. This rind extract was used to evaluate antifungal activity.

Antifungal activity

Poisoned food technique was performed to investigate antifungal efficacy of different fruit rind extract against *A. niger*, *A. flavus*, *Mucor* and *Tricoderma viride*. Potato dextrose agar was poisoned with peel extracts (80:20). Spore suspension of above fungi was prepared and inoculated at center of plates and control (Without extract). The plate were incubated at 28^0C for five days and diameter of fungal colonies in both control and poisoned plates were measured.

RESULTS AND CONCLUSIONS

Table No.1 showed the growth of fungus in different fruits rind extract. The antifungal activity of five fruit extract against four seed borne fungi is presented in table-1 as zone of inhibition (in cm). It was observed that out of five fruit extracts orange showed maximum

inhibitory activity against all fungi and minimum activity was observed in distilled water. The fruit extracts of Pomegranate and Lemon also showed antifungal activity; however fruit extracts of Banana and Papaya could not exhibit any antifungal activity against tested fungi. From the above studies it has been found that peels of fruits hold a tremendous potential to serve as a source of newer, effective, safer and better antifungal agent.

From the above study we have to conclude that orange peel extract shows maximum inhibitory activity and papaya and Banana peel shows minimum inhibitory activity against isolated fungi.

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Table No. 1.

Sr. No.	Name of Fruits	Zone of Inhibition in (cm)			
		A. niger	***Mucor***	***A. flavus***	***T. viride***
1	Orange	1.2 cm	8.5 cm	0.9 cm	3 cm
2	Pomegranate	1.4 cm	8.7 cm	1.2 cm	4.5 cm
3	Banana	1.7 cm	9 cm	1.3 cm	4 cm
4	Lemon	1.5 cm	8.7 cm	0.9 cm	4.5 cm
5	Papaya	1.4 cm	9.3 cm	1.3 cm	5 cm
6	Control	2 cm	9.5 cm	1.3 cm	5 cm

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