

Effect of Plant Extracts on Seed Borne Fungi of *Vigna radiata*

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Abstract

Present paper deals with the study of antifungal properties of botanicals like leaf extracts, rhizome and seed extracts of different plants. Ten % aqueous leaf extract of *Parthenium hysterophorus*; *Azadirachta indica*; *Adhatoda Vasica* and *Aegle marmelos* retarded the growth of *Alternaria alternata*, *Aspergillus flavus*, *Curvularia lunata*, *Fusarium roseum* and *Trichoderma viride*. Rhizome and seed extracts of all tested plants retarded the growth of *Alternaria alternata*, *Aspergillus flavus*, *Curvularia lunata*, *Fusarium roseum* and *Trichoderma viride* at 10 % while rhizome extract of *Musa paradisiaca* stimulated the growth of *Trichoderma Viride*.

1. Introduction

Plant pathogens have a world wide host range covering all groups of plants. The biological control play an important role as per the modern concept of integrated disease management and sustainable agriculture and biopesticides, apart from reducing the use of synthetic fungicides avoid damage of non targeted beneficial flora. During present investigation attempts have been made to use botanicals of various plants to control fungi growth. Effect of leaf extracts of *Aegle marmelos* (Bel), *Adhatoda Vasica*, *Parthenium hysterophorus*, *Azadirachta indica* (Neem), rhizome extracts of *Zingiber officinale*, *Curcuma longa* (Turmeric) *Musa paradisiaca* (Banana), *Allium sativum* (Garlic) and extract of some legumes seed of *Clitoria ternata* (Gokarna), *Cicer arietinum* (Gram) *Phaseolus acoritifolius* (Moth bean), *Vigna unguiculata* (Cow pea) were studied against the growth of seed born fungi.

2. Materials and Methods

Fungitoxicity of plant extracts was studied by the poisoned food technique described by Nene

and Thapliyal (1993). The plant extracts were prepared by collecting fresh plant parts, washing them thoroughly and grinding in distilled water. The extracts were thoroughly mixed by stirring (Czapek dox agar medium was prepared and sterilized in flask.) To it equal amount of the plant extracts was added. The medium was then poured into petriplates. Small disc (7 mm) of the fungal culture grown on Potato Dextrose Agar (PDA) for 7days was cut with a sterile cork borer and transferred aseptically in the centre of the petriplates containing the plant extract. Control was also simultaneously kept where in the culture disc were grown under similar conditions but without plant extract. Linear growth of the test fungi was measured at regular intervals. The diameter of fungi colony was compared with control as a measure of the fungitoxicity.

3. Results and Discussion

Table 1 Effect of plant leaf extracts (10% Conc.) on growth of fungal

Plant	Diameter of fungal growth (mm)				
	<i>A.alternata</i>	<i>A.flavus</i>	<i>C.lunata</i>	<i>F.roseum</i>	<i>T.viride</i>
Control	59	61	64	65	55
<i>Aegle marmelos</i>	37	33	47	54	39
<i>Adhatoda vasica</i>	32	22	24	39	37
<i>Azadirachta indica</i>	28	24	27	34	33
<i>Parthenium hysterophorus</i>	34	29	43	34	33

Table 2 Effect of plant rhizome extracts (10% Conc.) on growth of fungal

Plant	Diameter of fungal growth (mm)				
	<i>A.alternata</i>	<i>A.flavus</i>	<i>C.lunata</i>	<i>F.roseum</i>	<i>T.viride</i>
Control	63	65	61	66	58
<i>Zingiber officinate</i>	39	28	49	53	44
<i>Curcuma longa</i>	34	27	42	54	24
<i>Musa paradisiaca</i>	29	35	25	46	60
<i>Allium Sativum</i>	31	24	54	51	46

Table 3 Effect of plant seed extracts (10% Conc.) on growth of fungal.

Plant	Diameter of fungal growth (mm)				
	<i>A.attermaria</i>	<i>A.flavus</i>	<i>C.lunata</i>	<i>F.roseum</i>	<i>T.viride</i>
Control	72	70	67	74	60
<i>Cicer arietinum</i>	39	20	44	54	49
<i>Phaseolus aconitifolius</i>	36	21	41	38	36
<i>Clitoria ternata</i>	31	19	43	36	34
<i>Vigna unculata</i>	28	29	35	29	32

It is clear from table 1 that 10 % aqueous leaf extract of *Parthenium hystrophorus*; *Azadirachta indica*; *Adhatoda Vasica* and *Aegle marmelos* retard the growth of *Alternaria alternata*, *Aspergillus flavus*, *Curvularia lunata*, *Fusarium roseum* and *Trichoderma viride*. Maximum growth inhibition of *Aspergillus flavus* and *Curvularia lunata* were caused by *Adhatoda Vasica* where as of *Alternaria alternata*, *Fusarium roseum* and *Trichoderma viride* were retarded by *Azadirachta indica*. Abraham and Prakasan (2000) reported that at 10% concentration leaf extract of *Azadirachta indica*, *Ocimum sanctum* and *Nitex negundo* proved inhibitory against *Geotrichum condidum* and *cladosporium oxysporum*. Narain and Satapathy (1977) reported that plant extract of *Vinca rosea* were effective against growth of *fusarium oxysporum*.

Ten percent rhizome extract of *Zingiber officinate*, *Allium sativum* and *Curcuma longa* proved inhibitory to the *Alternaria alternata*, *Aspergillus flavus*, *Curvularia lunata*, *Fusarium roseum* and *Trichoderma viride*. It was interesting to note that *Musa paradisiaca* rhizome extract stimulated the growth of *Trichoderma Viride*. Rhizome extract of *Curcuma longa* was inhibitorier to *Aspergillus flavus* and *Trichoderma viride* while that of *Musa paradisiaca* inhibitorier to *Alternaria alternata*, *Curvularia lunata* and *Fusarium roseum* (Table 2).

It is observed from table 3 that 10 % seed extract of *Vigna unquiculata*, *Cicer arietinum*, *Phaseolus aconitifolius* and *Clitoria ternata* hampered the growth of *Alternaria alternata*, *Aspergillus flavus*, *Curvularia*

lunata, *Fusarium roseum* and *Trichoderma viride*. Seed extract of *Vigna unquiculata* retarded the maximum growth al tested fungi except *Aspergillus flavus*. . Kolte and Shinde (1973) suggested that extract of *Phaseolus mungo* and *P. radiatus* were more effective against the growth of *Macrophomina phaseolina*.

Thus it can be concluded that the extract of plant part offer much scope for their exploitation of a promising material for use in plant disease control.

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