

## IN VITRO ANTIFUNGAL ACTIVITY OF PLANT EXTRACTS ON ALTERNARIA ALTERNATA (Fr) KEISSLER, A POTENTIAL PATHOGEN OF ONION

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**Abstract.** Effect of fifteen plant extract on *Alternaria alternata* (Fr) Keissler, a potential pathogen isolated from onion (*Allium cepa* L.) was determined in vitro. Plant extracts at the 50 and 100 percentage concentrations were mixed with growth medium and percentage growth was observed. In general all the plant extracts were found to be effective individually against *Alternaria alternata* as compared to control. *Annona Squamosa* L. leaf extract gave 91.13% and 68.35% at 50% and 100% concentration extract respectively and *Withania somnifera* L. gave less effect 54.09% and 36.60% when compared to other plant extracts. Mixture of three plant extract (*Cassia*, *Argemone*, *Parthenium*) shows good results as compared to the individual plant extracts.

**Keywords:** Plant extracts, *Alternaria alternata*, *Allium cepa* L.

### 1. Introduction

Onion (*Allium cepa* L) is one of the important vegetable crop grown in Maharashtra and number of diseases has been recorded on this crop in Maharashtra. Late blight disease of onion is caused by *Alternaria alternata* is the most important disease of onion in Maharashtra. This disease is severe in all most all Onion growing areas of Maharashtra. In view of the commercial importance of the crop and losses caused by the disease in detail, present study deals with the effect of different biopesticides has been used to control the late blight disease of onion other than fungicides.

### 2. Material And Methods

In present study pure isolated *Altrnaria alternata* strain was used to see the effect of plant extract on *Alternaria alternata* using food poisoned technique. (Nene, 1971). Czapek –Dox medium was added to requisite quantity of the plant extract so as to get a certain final concentration. Eighth day old culture of the *Alternaria alternata* was inoculated at the center of the petriplate and linear diameter of the colony was measured at different intervals.

### 3. Observation & Discussion

A total of 15 plant extracts were used in the present study, plant extracts at the 50 and 100% concentrations were mixed with growth medium and percentage growth were observed, On 12th day after incubation period . (Table-1) Out of 15 plant extracts *Adhatoda vasica* extract gave 89.02 and 69.51% growth while *Annona squamosa* at 50% (91.13%) and (68.35%) growth at 100% extract *Argemone mexicana* extract gave 86.07%) and (65.82%) growth at 50 and 100% concentration respectively. The mixture of plant extract like *Calatropis procera* and *Callistemon rigidus* gave more or less same growth observed at 50 and 100%. While in *Catharanthus roseus* ( 65.38%)and (50.51%) of growth was observed at 50 and 100% respectively. In *Cassia balsamia* at 50% extract (74.68% ) and at100% extract (46.83%) was observed.The mixture of *Nicotian tobacum*, *Ocimum sanctum* , *Parthenium hysteriforus* showed (74.28%) growth at 50%and (57.14%) growth at 100 plant extract. *Withania somnifera* showed good 54.09%and 36.06% growth at 50 and 100% pant extract respectively .The mixture of three plant extracts like ( *Cassia balsamia* ,*Argemone mexicana* ,*Parthenium hysterifora*) showed good results as compared to indivisual plant extracts.

Table 1. The effect of plant extracts on the growth of *Altremania alternata* on 12th day incubation period.

Name of the plant ( extract)	Percentage growth	
	50%	100%
<i>Adhathoda vasica</i> Nees,	89.02	69.51
<i>Annona squamosa</i> L.	91.13	68.35
<i>Argemone mexicana</i> L	86.07	65.82
<i>Azadirachta indica</i> A.JussA.Juss.	75.67	63.51
<i>Calatropics procera</i> (Ait) R.Br	88.88	77.77
<i>Catharanthus roseus</i> (L.) G.Don	65.38	50.51
<i>Callistemon rigidus</i> R.BR.	88.60	79.74
<i>Cassia balsamia</i> L.	74.68	46.83
<i>Derris indica</i> Bennett.	84.14	63.41
<i>Ipomia fistula</i> Mart.ex.Choisy	79.96	51.61
<i>Nicotiana tobacum</i> .	74.28	57.14

<i>Oscimum sanctum L.</i>	71.42	64.93
<i>Parthenium hysteriforus L.</i>	86.95	77.17
<i>Mixture of Cassia, Argemone &amp; Parthenium.</i>	69.31	36.06
<i>Withania somnifera</i>	54.09	36.06

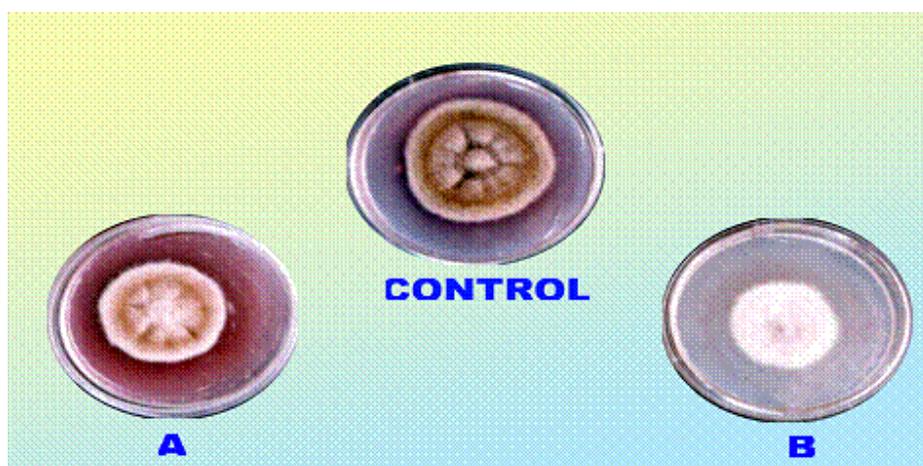


Fig 1: Linear Growth of Alternaria alternata against Biopesticide (Withania Somnifera)

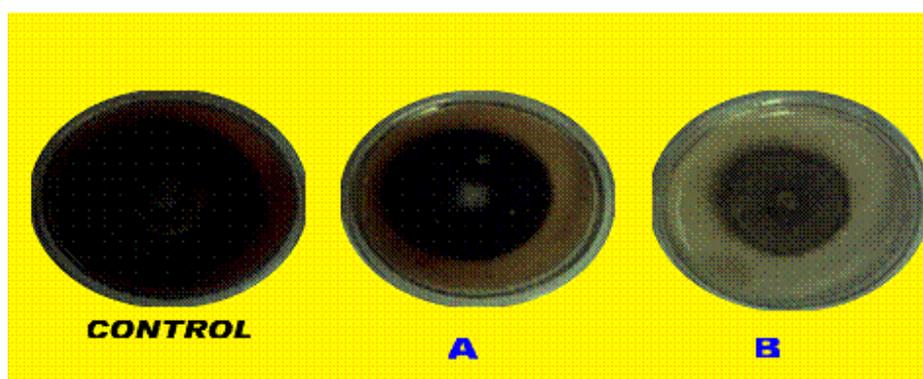


Fig 2: Linear Growth of Alternaria alternate against Biopesticide (Argemone, Parthenium, Cassia Sp.)

#### 4. References

- [1] Ansari M.M.(1995) Control of sheath blight of rice by plant extract.Indian Phytopath.48(4);553-558
- [2] Asthana A,N.N.(1986) Fungitoxic and phytotoxic studies with essential oil of Oscimum adscendens. Jr. Phytopath.(Berl,177(2,)152-159.
- [3] Bamode R.S.&Shukla V.N (1973-74) Antifungal properties of certain plant extract against same fungi.Res.Jr.2(2):1-8

- [4] Cook M.C. (1980) Fungi of India, Grev. 8:93-96
- [5] Garcia B.P. & Laws M.V. (1990) Plant extract for the control of Azolla pathogen. M.S.P.P Malysiya, 2:99-101 (3rd Int conf)
- [6] Yasmeen Saksena S.E. (1992) effect of fern extract on seed Mycoflora of Chickpea. Seed research (New Delhi) 20(2):170-171.