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To avoid the fungal diseases of Bringal , different leaf extract has been used to control the pathogen

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ABSTRACT

In present study the *pathogenic* fungus was isolated from infected plant parts and deification based on morphological and cultural characters. The efficacy of different plant extracts such as *Adhatoda vasica, Aloe Vera, Andrographis paniculate, Azima tetracantha and Cadala India* etc were tested to control brinjal fungal disease. Different concentration of plant extract viewed in the study. All the plant extract showed significant reduction in the growth of fungal plant. Aong the different extracts *Adhatoda vasica, Jetropha curcas L, Sapindus emarginatus, Acalypha indica,Cissus quadraqularis* was found most effective. Application of plant extract which are easily available for controlling plant diseases are non-pollutive, cost effective, non-hazardous not disturb ecological balance.

INTRODUCTION

Brinjal is given as an important vegetable crop in all over the world. The plant is affected by different diseases which cause significant reduction in yield. There are many methods which are presently being used to control various plant pathogens including such as physical, chemical, biological, cultural or effective & efficient management of crop disease is generally achieved by the use of synthetic pesticides. Kiran etal; (2006). The recurrent and discriminate use of fungicides have posed a serious threat to human health and to the existing human eco geographical conditions as borne of than have already been proved to be either mutagenic, carcinogenic or tetratogenic . Keeping a view the drawback of chemical management of the plant disease, the use of plant extract is important in the management of plant diseases. The research were made to evaluate locally available plant extract.

MATERIAL & METHODS

1) Identification of infected plant :

The plants for identification were collected from the different fields in Ashti Taluka region. The collected plant material such as leaf, fruit and root were brought in the laboratory for identification of different fungal diseases.

2) Collection of infected plant parts :

The infected plant material of brinjal were collected in the Polythene bags and brought in the laboratory for further study.

3) Isolation of plant pathogenic fungi from infected plant:

The sample collected through roots and plants of brinjal. Roots and plant parts were collected from infected brinjal Parts for present study showing characteristic symptoms of

wilt, from the field of Agricultural research- center. Badnapur, Hariyali agric Jalna and agricultural Farms early summer to early autumn. The plant parts of the brinjal were identified under microscope to confirm the presence of *Fusarium solani* f. sp. Melongenae and the infected plant parts were cut in to pieces (2-3 mm), surface sterilized with 0.1% mercuric chloride solution for 30 seconds. The isolation was made from roots as well as from the foliar parts of wilted brinjal plants. Reddy V.K. and Reddy S.M. (1987). The plant parts of the brinjal were washed three times respectively with sterilized distilled water and transferred aseptically on Potato Dextrose Agar (PDA) media. The inoculated plates were incubated at room temperature (27±2°C) and observations were made daily for emergence of culture. Agoris G.N.(2000) After the development of the fungal colonies stock cultures were prepared using PDA in test tubes and stored in refrigerator at 4°C. Brinjal wilt pathogen was isolated from infected brinjal plants and was identified as per the monograph and standard procedures.

4) Identification of pathogenic fungi :

The isolated fungi were identified on the basis of their colour, morphological characters as well as sporulating structure and conidia under microscopy. The isolated pathogenic *fusarium (F. Solani and F. Oxysporum, F. Sp Lycopersici)* causing brinjal wilt respectively were identified on the basis of cultural and morphological characters (Barnett & Hunter, 1972; Booth, 1985). Pathogenic fungi identified are such as. For identification we take the reference from "The Illustrated Kingdom Of Fungi" by Dr. D. S. Mukadam.

5) Study of various effect and control of Brinjal pathogenic fungi.

a) Effect of plant leaf extract on pathogenic fungi :

In all twenty plants extract were analysed for the present study through using by vitro study. The *Azardirachta indica* extract was more effective in reducing mycelial pathogenic fungi . In other hand Datura metal is less effective to control the fungal growth.

b) Biological Control :

It is clear from our study that *T. Viride* caused maximum growth inhibition of *Alernaria Solani* and *Rhizopus stolonifer* followed by *Phytophthora sp.* In case of *Aspergillus niger* and *Aspergillus flavus* was less inhibition. *Rhizoctonia Solani, Cladosporium flavum.* and *Penicillium sp.* showed somewhat in uniform inhibition by *T. Viride* . Grainge M etal ; (1988).

c) Chemical Control :

Different fungicides such as Bavistin, Vitavex, Copper oxychloride, Thirum and Captan were tested at 100 ppm concentration for their effect on the growth of fungi. The fungicide were inhibitory effect on *Alernaria Solani, Fusarium roseum, Rhizoctonia Solani, Curvularia lunata and Rhizopus stolonifer* , these all pathogenic fungi were inhibited by using fungicide. Thus to control the fungal diseases of Brinjal we use different methods such as Bio control, Chemical and Plant part extract. Out of that leaf extract is more effective than that of other because due to chemical control we avoid different human carcenogenic diseases and it disturb environmental balance so that Biocontrol is also the best method control the fungal diseases of Brinjal.

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Table 1:Shows the effect of plant extracts in different solvents at 50% concentration on growth of *Fusarium.*

Sr.No.	Binomial	Percentage of inhibition		
		Water extract	Ethanol Extract	Acetone extract
1)	*Acalypha indica L.*	100	100	100
2)	*Adhatoda vasica Nees.*	100	100	100
3)	*Aloe vera (L) Burn. F.*	76	80	88
4)	*Andrographis paniculata Nees*	82	80	77
5)	*Azadirachta india Adr. Juss*	90	92	94
6)	*Azima tetracantha Lam.*	89	94	80
7)	*Culaba indica Lam.*	78	94	80
8)	*Cissus quadrangularis L.*	100	100	100
9)	*Coleus aromaticus Benth*	84	90	82
10)	*Crataeva religiosa L.*	84	92	82
11)	*Datura metal L.*	64	70	72
12)	*Jetropha curcas L.*	100	100	100
13)	*Leucas aspera Spreng*	68	70	80
14)	*Mimusops elengi*	70	76	82
15)	*Notonia grandiflora DC.*	80	85	76
16)	*Ocimum Sanctum L.*	90	91	90
17)	*Ricunus Communis L.*	82	74	80
18)	*Santalum album L.*	96	92	87
19)	*Sapindus emarginatus*	100	100	100
20)	*Vitex negundo L.*	97	90	92

Table 2.Shows the effect of different concentration of selected plant extracts using water extract method on *Fusarium* species.

Sr.No.	Concentration of extract	Percentage of inhibition			
		Adhatoda vasica	*Jetropha curcas L.*	*Sapindus emarginatus*	*Vitex negundo*
1.	10%	72	26	76	84
2.	20%	84	74	82	86
3.	30%	80	72	82	84
4.	40%	100	88	85	89

RESULTS AND DISCUSSION

In all, twenty plant extracts were analyzed for the present study through using by vitro study. Among 20 plants, 19 were prepared from fresh leaves and one from a succulent stem. In 20 plants extracts using Water, Ethanol and Acetone solvents that were examined for antifungal activity I against *Fusarium* species, it was found that all the plant extracts at 50 % concentration were effective in ,reducing mycelia growth. In the 20 plant extracts in different solvents 100%, inhibition was identified in only five plant extracts viz.

Acalypha indica L., *Cissus quadrangularis* L. *Adhatoda vasica*, *Jatropha curcus* and *Sapindus emarginatus.* Madavi, S. And R.P. Singh, (2005).

Ethanol Extract Method

Under Ethanol extracts method in of degree of inhibition were leaf extract of *Aloe vera* (L) Burm.f,. *Andrographis paniculata Nees*. And *Azima tetracantha* Lam.producing 80% inhibition followed by *Azaditachta indica* Adr. Juss. and *Ricinus Communis* L. (9%), *Ocimum sanctum* L- (91%) *Azadirachta indica* Adr. Juss., *Crataeva religiosa* L. and *Santalum album* L.. (92%). The leaf extract of *Cadaba indica* Lam. alone revealed inhibition of 94%. The leaf extract of Datura metal L . *Leucas aspera Spreng*. revealed minimum inhibition of 70%. Mishra M. and Tiwari S.N (1992), However, *Mimusops elengi*.(76%), *Ricinus communis* L..(74%) and *Notonia grandiflora* DC. (85%), recorded inhibition.

Acetone Extract Method

Acetone extracts in the order of degree of inhibition were leaf extract of *Azima tetracantha* Lam... *Coleus aromaticus Benth*. *Crataeva religiosa* L' And *Mimusops elengi* 82% inhibition followed by *Cadaba indica* Lam. o *Leucas aspera spreng.* and *Ricinus communis* L.. (80%). *Aloe vera* (L) Burm.f. (88%) *Andrographis paniculata Nees*.(77%)., *Azaditachta indica* Adr. Juss. (94%). *Ocimum sanctum* L. *and Santalurn album* L (87%). The leaf extract of revealed minimum inhibition of Datura metal L.70 % and *Notonia grandiflora* DC. (76%). Nene Y. and L., Thapiyal, (2000).

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