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Controling the Fungal Diseases of Brinjal by Using Leaf Extract

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ABSTRACT

Different pathogenic diseases of Brinjal which affects to the plants growth and yield to a best of genetic potential. Different fungal disease of brinjal crop causing significant reduction in yield. In present study, different leaf extract was used to control diseases. The fungal identification based on morphological and cultural characters. The in vitro efficacy of different plant extracts viz, *Azardicha indica, Argemone mexicana, Datura stramonium, Eucalyptus globus* were tested to control brinjal diseses. Different concentrations 5, 10, 15 and 20% of plant extracts was used in the study. All the plant extracts showed significant reduction in the growth of pathogen. Among the different extracts 20% of *Azardiachta indica* was found most effective followed by *Argemone mexicana, Datura stramonium, and Eucalyptus globus*.

***Key words**: Brinjal,Extracts,Efficacy,Diseases*

INTRODUCTION:

The eggplant is native of India. Brinjal is grown as an important vegetable crop in all over world. It is grown in India over an area of 0.4 million hectares with an annual production of 7.8 million tones. (Raghvendra M.P. etal.,2002) Among the different diseases that attack Brinjal crop .Fungal diseases become a major disease causing significant reduction in yield.. The pathogen is a soil inhabiting fungus and forms in the senescing tissues of the diseased plant and may survive in the soil for many years. Effective and efficient management of crop disease is generally achieved by the use of synthetic pesticides.

Due to increased awareness about the risks involved in use of pesticides, much attention is being focused on the alternative methods of pathogen control. The recurrent and indiscriminate use of fungicides have posed a serious threat to human health and to the existing human eco geographical conditions as some of them have already been proved to be either mutagenic carcinogenic. Keeping in view the drawback of chemical

management of plant disease, the use of plant extracts in the management of plant disease is gaining importance. Perusal of earlier literature indicated that numerous attempts have been made in exploiting host resistance, modified cultural practices and fungicides. Considering the diseases of brinjal observed over the past several years. Objective of this research were made to evaluate focally available plant extracts to control different diseases.

Materials and Methods:

Plants used in the present study are *Azardiachta indica* which belongs to the family *Meliaceae* commonly known as "neem". The plant is found throughout India and its derivatives are of great use in agriculture, public health, medicines, cosmetics and many more. The leaves, bark, seed and flowers are bitter, astringent, acrid, depurative, refirigrant, demulcent, insecticidal, expectorant liver tonic, etc. An important of application of neem products in agriculture is their ability to nitrogen release from the nitrogenous fertilizers.

Ocimum sanctum, commonly known as "tulsi" belongs to the family *Lamiaceae* found throughout India. The plant is much erect, branched, softly pubescent under shrub, 30-60 cm high with red or purple sub-quadrangular branches, leaves simple, opposite , elliptic, whole plants is used as medicine for various diseases. *Tulsi* leaves contain a bright yellow volatile oil which is reported to possess antibacterial properties and acts as insecticide. *Eucalyptus globules* commonly known as *Eucalyptus,* which belong to the family Martaceae, one of the reputed fast growing trees of the world.

Datura stramonium plant is said to have been used as a narcotic as early as A.D. 37. It is one of the favourite sources of "knockout drops" It contain on alkaloid scopolamine which is said to produce hallucinatory effects. The smoking of the narcotic produces hallucinatory effects. The smoking of the narcotic produces pronounced diversions in ideas, emotions and even perception. The leaves and tops of *Datura stramonium* are mixed with lobelia herb, lobelia inflate , often called Indian tobacco , to make asthma powders, commonly used to seek relief from asthma cigarettes made of this mixtures are smoked. The extracts are prepared from roots and leaves, which are used as antifungal. Fresh leaves were washed through under tap water followed by sterilized water the leaves air , dried and were grinded with the help of pestle and

mortar by taking (1:1 w/v) one gram of extract was added in 1ml distilled water separately for each plant extract and filtered through Muslin Cloth and 100% plant extract solution was prepared . The extracts were poured in the flasks plugged with cotton and heated at 100°C for 10 minutes to avoid contamination .Different concentration (5,10,15,20%) of plant extracts was incorporated to potato dextrose medium agar for inoculation of the test pathogen in sterilized petridishes. The isolated pathogen was grown on potato dextrose agar medium was placed at the center of petridishes containing different concentration of the poisoned medium and incubated at 27±2 °C for 6 days . Radial growth (cm) of fungus was measured after inoculation till 6 days at an interval of 24 h.

Result and Discussion:

During the study of present investigation the different plants have its own importance in the point view of antimicrobial compounds. For this investigation 11 plant extracts were taken to check the antifungal activity against the major Brinjal pathogenic fungi. It is clear that the highest disease efficacy was seen from Datura against the *Phomophsis vexans*. The lowest efficacy was seen in *Argemone mexicana* against the *Fusarium solani*. *Annona squamosa* shows the fewer efficacies against all selected five fungi. *Azadirachta indica* shows more powerful against the *Curvularia lunata*. *Ipomoea fistulosa* shows the lowest activity.

It is clear that different medicinal plants were selected for study during the investigation highest percent of a disease control efficacy (DCE) was observed in *Annona squamosa* leaf extract against the *Phomophsis vexans* i.e. (75.27 %). The *Argemone mexicana* shows 64.20 % against the *Fusarium solani*. The *Azadirachta indica* showing 64.20 % efficacy against the *Curvularia lunata* and 62.15 % against the *Alternaria alternata*. Among these 11 medicinal plants *Azadirachta indica* showing highest 74.25 % efficacy against the *Aspergillus niger*. The *Ipomoea fistulosa* also showing the notable efficiency against the *Phomophsis vexans* 73.29 % and 72.63 % against the *Fusarium solani*. *Parthenium hysterophrus* shows disease control efficacy against the *Curvularia lunata*. During the investigation lowest disease control efficacy was observed against the *Phomophsis vexans. Calotropis procera* showing the less efficacy against the *Alternaria alternata*, *Aspergillus niger, Phomophsis vexans* and *Fusarium solani*. More disease control efficacy was seen for *Curvularia lunata*.

Against the *Alternaria alternata, Azadirachta indica* and *Ocmium santum* were seen more efficient. For the *Aspergillus niger, Azardirachta indica* 74.20 % *Annona sequamosa* 62.02 % *Ocmium santum* 73.20 % Showing more efficient. For *Curvularia lunata Azadirachta indica* 64.20 % *Annona squamosa* 60.30 % *Parthenium hysterophrus* 59.33 % showing the disease controlling efficacy. For *Phomophsis vexans* plant like *Annona squamosa* 65.77 % *Ipomoea fistulosa* 73.20 % *Argemone mexicana* 61.90 % showing the efficacy for the *Fusarium oxysporium. Ipomoea fistulosa* 72.63 % *Argemone mexicana* 64.20 % and *Ocmium santum* 60.00 % efficacy was observed.

Table 1
Percentage of disease control efficacy of leaf extract against fungi

Plant extracts	***Alternaria alternata***	***Aspergillus niger***	***Curvularia lunata***	***Phomophsis vexans***	***Fusarium solani***
Azadirachta indica	62.15	74.25	64.20	49.30	55.57
Argemone mexicana	55.30	45.50	54.23	61.90	64.20
Annona squamosa	57.20	63.20	60.30	65.27	50.30
Datura stramoniums	28.20	30.52	55.40	22.15	23.15
Calatropis procera	30.42	26.40	48.50	27.30	44.20
Ipomoea fistulosa	52.63	55.63	37.80	73.29	72.63
Ipomoea fistulosa	52.63	55.63	37.80	73.29	72.63
Jatropa curcas	36.15	46.15	30.12	46.20	35.12
Lantana camara	45.30	56.27	47.52	45.30	60.12
Parthenium hysterophrus	50.26	40.26	59.33	52.92	50.26
Ocimum santum	60.00	73.20	25.15	16.20	60.00
Nerium indicum	32.15	29.15	42.50	40.15	20.30

REFERENCES:

1. Abrahum T. A., Mathew and S. K. Gupta (1998). Biological control of root rots of French bean caused by *Rhizoctonia solani. Journal Mycology Plant Pathology.* 28 (2**)**. : 202-205.
2. Asha Shivpuri, O. P. Sharma and S. L. Jhamariya **(**1997**).** Fungitoxic properties of plant extracts against pathogenic fungi. *Journal Mycology Plant Pathology,* 27(1): 29:31
3. Datar V, V., 1987. Bioefficacy of plant extracts against *macrophomina phaseolina* (Tassi) Gold, the incitant of stem rot of ground nut. K. Mycol . Pl. Pathol., 36:77-79,
4. Kiran K., S. Liguraju and S.Adiver, 2006. Effect of plant extract on *Selerotoium rolfsii,* the incitant of stem rot of ground nut. J. Mycol. Pl. Pathol., 36:77-79
5. Madavi, S. And R.P. Singh, 2005. Management of mushroom pathogens through botanicals .Ind. Phyto, Pathol., 58:189-193 .
6. Nene Y. and L., Thapiyal, 2000. Poisoned food technique of fungicides in plant disease control 3rd Edn. Oxford and IBH Publishing Company, New Delhi.
7. Raghvendra M.P. Satish and K.A. Raveesha, 2002. Prosopis juliflora Swartz: A potential plant for the management of fungal diseases of crops. In: Asian Cong. Mycol. Pl. Pathol., University of Mysore (Abst) Oct 1-4, and PP: 136.