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ANTIFUNGAL ACTIVITY OFDIFFERENT LEAF EXTRACTSAGAINSTALTERNARIA ALTERNATA(Fr.) KEISSLER

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ABSTRACT:

The present investigation was carried out to isolate the fungal pathogen of *Alternariaalternata*(Fr.) Keisslerfrom some ornamental plants.Theantifungal activity was studied by using different selected medicinal plant leaf extracts. The fungal pathogen was isolated on potato dextrose agar medium. The crude extracts were prepared from *Adhatodavasica*L., *Aegle marmelos*L., *Annona squamosa*L., *Azadirachtaindica*L., *capsicum annum*L., *Daturainoxia*L., *ocimum sanctum*L., *Neriumindicum*L.*etc.* Out of these extracts *Azadirachtaindica*L. has given promising results in cup plate method. The study of antifungal activity is useful for bio-control of fungal diseases

Keywords :Fungal leaf spot, anti fungal activity.

INTRODUCTION:

Ornamental plants are grown in world for beautification and commercial purpose. They are mainly cultivated for attractive flowers and foliage but some of them beneficial for medicinal and industrial value (Reshma*et al* 2017) These ornamental plantsare susceptible to the different diseases. Mostly the Fungal diseases found on plants.(Chavan 2012) They usually affected on leaves, buds,flowers etc. For the management of fungal diseases used biological and chemical methods. Medicinal values of different leaf extract have been reported by many workers (Dabur *et al,* 2007; Britto*et al*2011;Ibrahim and Salem, 2014).The present investigation is to control of one of fungal pathogen *Alternariaalternata*(Fr.) Keissler by doing *in vitro* experiment. The crude leaf extract of different medicinal plants namely *Adhatodavasica,*L. *Aegle marmelos*L., *Annona squamosa* L., *Azadirachtaindica* L., *capsicum annum* L., *Daturainoxia* L., *ocimum sanctum* L., *Neriumindicum* L. *etc* were used for antifungal activity.

Materials and methods:

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Collection and isolation of disease samples:

Diseased plant materials were collected from different regions like gardens, fields, orchards of Aurangabad district. The diseased samples were kept in pre-sterilised polythene bags and brought to the laboratory for further investigations. The fresh samples were used for isolation of the pathogen.

b) Isolation & Identification of fungal pathogen: The infected leaves were washed with 0.1% $HgCl_2$ solution for about 30 to 60 seconds and then washed with sterilised distilled water. A piece of infected tissue from the infected plant part was used for isolation of fungi. The infected tissue segment were cut aseptically and transferred to medium known as Potato Dextrose Agar (PDA). The isolation was carried out at 24 ± 2^{o}C and the growth of the pathogen was observed after 7 days. The isolated fungus was purified and multiplied on PDA slants. These slants were used for further study.

Preparation of leaf extracts:

The leaves of medicinalplants were collected from different areas. Leaves were thoroughly washed under tap water and then rinsed with sterile distilled water. 5gms of leaves were crushed in mortar and pastel. The paste was made by adding 10 ml sterile distilled water. Then a paste werecentrifuged to ultracentrifuge for 20 min at -4℃ at the 11000 rpm.

Cup plate method: It is a method of studying antifungal activity. For this the antifungal suspension was prepared by adding 10 ml sterile distilled water to 2 days old fungus culture. Five drops of antifungal cell suspension were poured in sterilized petriplates (9 cm diameter) on to which The 20 ml of Potato Dextrose Agar was pour on petri plates thoroughly mixed and allowed to solidify.

In the centre of the medium a cup cavity of 8mm diameter was made with sterilized no. 4 cork borer. This cup was filled with 0.1 ml of the leaf extract by using of micropipette. Petridishes were incubated for 5 to 6 days at 25±2℃. And the observations were recorded

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as diameter of inhibitory zone measured in 3-4 angles and mean was considered for accuracy. Cup cavity filled with sterile distilled water was used as control in experiments

RESULTS AND DISCUSSION

As per the observations on cultured nutrient agar plates, antifungal activity of Leaf extract evaluated against *Alternariaalternata*(Fr.) Keissler The highest zone of inhibition observed in *Azadirachtaindica*L. (Mean =16.5mm), *Daturainoxia* L.(mean = 11.5) *Capsicum annum L.* (Mean = 10.25) as compare to other leaf extracts.

Table 1. Antibacterial activity of leaf extract. Showing Zone of inhibition.(in mm)

Sr no	Name of plants	Exp A	Exp B	Exp C	Exp D	Mean
1	*Adhatodavasica* L.	-	-	-	-	-
2	*Aegle marmelos*L.	-	-	-	-	-
3	*Annona squamosa* L.	-	-	-	-	-
4	*Azadirachtaindica* L.	18	15	16	17	16.5
5	*capsicum annum* L.	10	11	10	10	10.25
6	*Daturainoxia* L.	14	11	11	10	11.5
7	*ocimum sanctum* L.	-	-	-	-	-
8	*Neriumindicum* L.	-	-	-	-	-

The Antifungal activity against *Alternariaalternata* a studied by Zakir and Mosallanejad in 2010. Singh *et al* were also recorded antifungal activity against *Alternariaalternata* in 2014.The antimicrobial acitivity of ethnolic leaf extract were studied by Khalil 2012 in Sudan also

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Antibacterial acitivity of *A.indica* was dony by Mohmmad and Omer 2015.Sheema and Durai also studied antifungal activity against *Alternariabrassicae* by using aqueous leaf extract in 2014. Chudhary*et.al* were also recorded antifungal activity of Ethanolic extract against diseased rice plant. Satpute and Vanmare (2017) were studied antifungal activity of *Tamarindusindica* L. Against pathogenic Fungi in Aurangabad Maharashtra.

REFERENCES

Britto A.J. and GracelinD.H.(2011)Antibacterialactivity of a few medicinal plants against *Xanthomonascampestris* and *Aeromonashydrophila.Journal ofBiopesticides***4**(1):57-60.

Chavan S.P.(2012) studies on Fungal Diseases of Some Medicinal and Aromatic Plants from Osmanabad District, Ph.D. Thesis Dr. BabasahebAmbedkarMarathwada University Aurangabad.

Chaudhary D., Khan M.S. ,Shah A.P., Yadav A.P.(2019) Antifungal Activity of Three different Ethanolic Extract against Isolates from Rice Plant. *J.Anal. Tech. Res*.**1**(1):47-63.

Dabour R., Gupta A, Mandal T.K, Singh DD, Bajpai V, Gurav AM, Lavekar GS, (2007)**.**Antimicrobial activity of some Indian medicinal plants. *Afr. J. Trad.* CAM **4**(3): 313-318.

Ibrahim H.M. and Abu-Salem F.M. (2014) Antibacterial acitivity of some medicinal plant extracts *Int. Jou. Of Bio, Biomole, Agri., food., and Biotech. Engineering***8**(10):1168-1173.

Mohammed H.A. and Omer A.F.A. (2015) .Antibacterial Activity of *Azardirachtaindica* (Neem) leaf extract against bacterial pathogen in Sudan. *Am.j.res. Comm*..**3**(5):246-251.

ReshmaV.S.,Kumar P. And Chaitra G.S.(2017) Significant Role of Ornamental Plants as Air Purifiers. *Int. J.Curr. Microbiol. App. Sci.* **6**(8):2591-2606

Satpute S.B. and VanmareD.J.(2017) In vitro Antifungal acitivityof*Tamarindusindica* L. Extract against Pathogenic fungi. *Int.J. Bot. Stud*. **2**(3):25-28.

Singh G., Gupta S. and Sharma N.(2014)*In vitro* Screening of Selected Plant extracts Against *Alternariaalternata*. *J.Exp.Bio. Agri. Sci.***2**(3):345-351.

Sheema K.K. and Dural M. (2014) Fungicidal Acivity of Aqueous Leaf Extract on *Alternariabrassicae. Int.J. Pharm. And Phyto Resea*.**6**(4):801-805.

Zaker M. and MosallanejadH.(2010) Antifungal activity of some of plant extracts on *Alternariaalternata* ,the causal agent of *Alternaria* leaf spot of Potato.*Pak.J. Bio.Sci*.**13** (21): 1023-1029

