International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2015): 78.96 | Impact Factor (2015): 6.391

Biocontrol of Cercospora Leaf Spot on *Trigonella foenum graecum L.* in Kota District Rajasthan

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Abstract: ***An extensive survey of Kota district resulted several fungal diseases occurring on Trigonella crop. Leaf spot caused by Cercospora traversiana was found to be more prominent and caused a great loss to the crop.To control the disease Trichoderma sps. Viz. Trichoderma viride, Trichoderma harzianum were experimented in vitro.***

Keywords: *Trigonella, Cercospora, Trichoderma*

1. Introduction

Fenugreek commonly known as "METHI" (*Trigonella foenum graecum* L.) Belongs to family Fabaceae, is an annual leguminous crop, which is extensively grown as a Rabi crop in the state of Rajasthan. Species of the genus Trigonella and particularly fenugreek are well known for their pungent aromatic, high nutritive and multi-therapeutical properties and serve culinary medicinal and industrial purposes. Various diseases on Trigonella has been noticed from Ethopia (Rouk & Mangesha, 1963), UK (Anonymous, 1970), Morroco (Petropolous, 1973), Bulgaria (A.P. Margina & J. De.gryuter, 1996), Australia (Max Jongebloed), Pakistan (M.Mushtaq, M.A. Haq. and M.H. Hashmi, 1998) and also from India.

C. traversiana is the only species of the Cercospora infecting Fenugreek (Cook 1978, Ryhy 1989). The development of ecofriendly control strategies to reduce disease intensity, dependency on synthetic fungicides and developing resistant cultivar for sustainable management of plant diseases.Acharya et al (2007) suggested some biological control agents which are environment friendly and socially acceptable. Trichoderma species belogs to a class of free living fungi beneficial to plants that is common in the rhizospore. They have been widely studied for their capacity to produce antibiotics, parasite other fungi and complete with deleterious plant microorganisms (Harman et al 2004). Several strains of Trichoderma have been developed as biocontrol agents against fungal diseases of plant.Therefore present investigation has been undertakan to know the inhibiting effect of Trichoderma sps. against the Leaf spot pathogen *Cercospora traversiana* in vitro on Trigonella cultivar RMT-1.

2. Materials And Methods

Bio-agents obtained indigenously as well other viz. Trichoderma viride, T. harzianum were evaluated for their efficacy under in vitro using dual culture technique against *Cercospora traversiana* fungus.

Twenty ml of sterilized and cooled potato dextrose agar was poured into sterile Petriplates and allowed to solidify. For evaluation of fungal biocontrol agents, mycelia disc of test fungus was inoculated at one end of the petriplate and antagonistic fungus was placed opposite to it on the other end. The plates were incubated at 27±1ºC and zone of inhibition was recorded by measuring the clear distance between the margin of the test fungus and antagonistic organism. The colony diameter of pathogen is control plate was also recorded. The percent inhibition of growth of the pathogen was calculated by using the formula suggested by Vincet (1947).

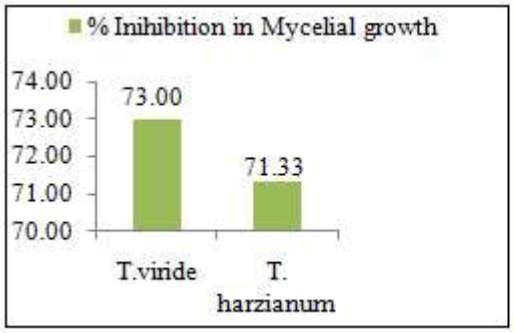
3. Results And Discussion

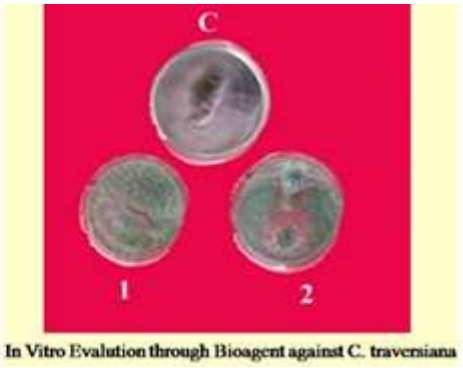
Two biocontrol agents' viz. Trichoderma viride and Trichoderma harzianum were evaluated against *C. traversiana* and the results are presented in Table-1, Fig-1 and Plate-1.

The results revealed that all the antagonists significantly reduced the growth of *C. traversiana*. After measuring the colony diameter of *C. traversiana*, it was noticed that maximum reduction in colony growth was observed in Trichoderma viridae (73.00%) which was significantly superior to Trichoderma harzianum (71.33%).

Table 1: Effect of Bioagents on % inhibition of mycelial growth of *C. traversiana*

S.No.	Bioagents	Percent inhibition of mycelia growth.
1	Trichoderma viridae	73
2	Trichoderma harzianum	71.33
SEm±		0.39
CD 5%		1.23
CV		0.88





In Vitro Evalution through Bioagent against C. traversiana

The results regarding the efficacy of Trichoderma species were in accordance with Faheem Amin et al (2010) who studied the ability of Trichoderma strains against Rhizoctomia solani (isolates from tomato), Sclerotium rolfsii (Causing collar rot of tomato) and Sclerotimia sclerotium (Causing web blight of beans) and found maximum inhibition of mycelial growth upto 71.41 percent in T. viride. Similar results were investigated by Y. Elad et al (1980) against Sclerotium rolfsii and Rhizoctonia solani by Trichoderma harzianum where significant disease reduction of 20% was found.

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