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MANAGEMENTOF FUSARIUMSOLANI CAUSING DRY ROT OF ELEPHANT FOOT YAM BY BIOCONTROL AGENT.

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ABSTRACT :

Trichodermaharzianum and *T. koningii* were used as biocontrol agent against sensitive and resistant isolates of *Fusariumsolani* causing dry rot of Elephant Foot Yam [*Amorphophalluspaeoniifolious* (Dennst.) Nicolson]. *Trichodermaharzianum* was comparatively effective in controlling the growth of sensitive and resistant isolates of *F. solani.*

Key Words : *Elephant foot yam,Biocontrol, Fusarium solani, benomyl.*

INTRODUCTION

Plant diseases are caused by various pathogens of which fungi and fungal-like organisms (FLOs) cause more plant diseases than any other group of plant pathogens. The fungal pathogens can be effectively controlled by the use of fungides. But these fungicides also affect soil microorganisms like decomposers and mycorrhizal fungi etc. Fungicidesalso show hazardous effect on human health. Soil and water pollution occur due to use of fungicides (Rani *et al.* 2017). There is need to decrease the fungicide use. It can be achieved by the use of biocontrol agents. Biological control of plant pathogens involves the use of an organism or organisms to reduce disease. *Trichoderma* spp. are the most commonly used biofungicides for the management of soil borne plant pathogens. *Fusariumsolani* is a soilborne pathogen. According to Dekker (1976) bio-control offers a chance to improve crop production within existing resources and avoid growing problems of buildup of resistance of chemical pesticides to the target pathogen population.

The fungal pathogen *Fusarium solani* infectsElephant foot yam [*Amorphophallus paeoniifolious* (Dennst.) Nicolson], a tropical tuber crop belonging to family Araceae and develops dry rot. Two *Trichoderma* species were used against the sensitive and resistant isolates obtained through MIC tests.

MATERIALS AND METHODS

Trichodermakoningii and*T. harzianum* were assessed for their antagonistic property against benomyl sensitive and resistant isolates of *Fusariumsolani* by dual culture technique as described by Morton and Stroube (1955). Sterilized Czapek Dox agar medium was poured into petriplates at 20 ml per plate and allowed to solidify. An 8 mm diameter mycelial disc each from the margin of 7 day old culture of *Trichoderma* isolates and the sensitive and resistant isolates of *F. solani* were placed on the opposite of the plate at equal distance from periphery. In control plates (without *T. harzianum*), a sterile agar disc was placed at opposite side of sensitive and resistant isolates of *F. solani.* Inoculated plates were incubated at 26±3°C until the end of the incubation period (8 days after

inoculation). Two, four, six and eight days after the incubation period, radial growth of pathogen isolates was measured. Results shown as mean colony growth of the causal pathogen in the presence of the antagonist and its growth on the control plate. The outcome of three readings was used to measure the percent inhibition of the pathogen (Skidmore and Dickinson, 1976) by following formula:

% PIRG = R1 – R2 / R1 X 100

Where,

PIRG = percent inhibition of radial growth

R1= radial growth of the pathogen inthe absence of the antagonist (control)

R2 = radial growth of the pathogen in the presence of the antagonist.

RESULTS AND DISCUSSION

Biological control is a viable strategy against soil-borne diseases. As an environmentally-sound alternative for these control measures. Biological control offers an attractive method against soil-borne diseases (Berg *et al.,* 2001). *Trichoderma*spp. are the most commonly used bio-fungicides for the management of soil borne plant pathogens. *Trichodermaharzianum* and *T. koningii*were used as biocontrol agent against *Fusarium solani*. *Trichodermaharzianum* was comparatively effective in controlling the growth of sensitive and resistant isolates of *F. solani.*

Table 1. In vitro inhibition of growth of sensitive and resistant isolates of Fusarium solani by Trichoderma spp. indual culture method.

Sr. No.	Antagonist	Radial Growth Inhibition	
		Sensitive FS-9	Resistant FS-3
1	*Trichoderma koningii*	55.00%	69.67%
2	*Trichoderma harzianum*	62.50%	66.29%

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