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Compatibility Test of Two Fungicides against *Trichoderma viride*.

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ABSTRACT

The use of chemical fungicides although is of paramount importance for elimination and reduction of fungal infections, they are beset with their harmful polluting characteristics. In order to eliminate the use of chemical fungicides a lot of research activity is on. The use of biological antifungal agents could be a good alternative to this problem. In the present study the comparative study was done using chemical and biological fungicides on *T.viride*. It was found that the commercially available biological fungicide has shown better results when compared with commercially available chemical fungicide.

Keywords: Fungicide, *T.viride*, biological fungicide, Chemical fungicide.

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INTRODUCTION

Agriculture depends on a variety of chemicals to contain and eliminate fungal infections leading to environmental pollution which affects the soil, water and air. Although the use of these chemicals cannot be completely eliminated, it is wise to find out a more biodegradable, more effective and at the same time less harmful to nature products. In this effect some biological products were successfully used in controlling various types of infections including those from fungus [1]. The advantages of the use of such biologicals are many, such as, they are easily available in nature; they are cheap, easy to procure and prepare, work specifically on a particular type of microorganism and most importantly are eco –friendly [2].

Azadiracta indica (neem) is considered to be one of the best biocontrol agent. A number of formulations with neem as one of the main ingredients has been prepared as insecticides, pesticides and other antimicrobial agents [3,4].

Trichoderma viride is an antagonistic fungal organism present in the soil and is highly effective for the control of seed and soil borne diseases of majority of economically important crops, especially pulses and oilseeds [5-9]. This study will be of great importance as this will give us a clear evidence as to which type of fungicide has more effect on the species.

The present study was to compare the fungicidal effects of two commercially available fungicides on *T.viride*. The aim was to compare the fungicidal effect of one biological fungicide, success and one chemical fungicide, saaf on *T.viride*. It was found that the biological fungicide had more effect on *T.viride* as compared to that of chemical fungicide. Our results, if proved further with more experiments, would indicate that the use of biological fungicides on soils rich in *Trichoderma* should be avoided so that we can save the microflora from elimination. Although the work is at its preliminary stage, nevertheless it is indicative of our aimed results.

MATERIALS AND METHODS

Requirement

- Pure culture of trichoderma
- Insecticides
- Potato dextrose agar
- Petri dish
- Flasks
- Cork borer
- 70% ethanol
- Autoclave
- Laminar air flow
- Burner
- Hot plate
- Test tubes

- Vortex mixer
- Micropipette and tips
- Measuring cylinder
- Non absorbent cotton

Procedure

Take eight flasks of 100 ml capacity and rinse it with distilled water. Weigh 1.95 g of PDA powder for each flasks and pour it in each flasks separately. Dissolve the PDA powder in 50 ml of distilled water in each flasks. Heat the flasks on hot plate by shking it continuously and close the mouth of flask with cotton plug. Sterilize media in autoclave at 121 °C for 15 minutes. Prepare four different dilutions of insecticides. Pour 1 ml of each dilution of insecticides in 50 ml of respective media. Pour enough media in respective petri dish to fill one four inch of the bottom. Left the petridish in laminar air flow and wait for about 20-30 minutes to solidify the medium. Two petri dishes is left containing only media to observe any contamination in PDA (control). With the help of sterile cork borer, cut discs of 8 mm diameter from the actively growing culture of *Trichoderma*. Transfer it in the centre of petri dishes containing the desired dilutions together with the media. Incubate the inoculated dishes with two replicates at 24 °C in B.O.D. incubator. Take observation on the radial growth colony on 2nd, 4th, 6th, 8th and 10th day after inoculation.

RESULT AND DISCUSSION



Figure 1: Shows the results of inhibition of growth of Trchoderma in biological and chemical fungicides.

Trichoderma viridie sample powder, biological fungal formulation, success, and chemical fungal formulation saaf were obtained from standard agriculture products shop from Chennai.

Trichoderma viride powder was dissolved in 100 ml distilled water to make 1% suspension culture. One ml each of this stock was serially diluted and cultured in PDB. At 10^{-3} and 10^{-4} dilutions good culture was observed when cultured on PDA plates.

The two fungicidal formulations were mixed in distilled water separately at 10^{-2} , 10^{-3} , 10^{-4} , 10^{-5} dilutions for further testing.

These formulations were tested for their antifungal activities on *Trichoderma viride* culture plates at different concentrations. It was observed that the best inhibition of growth was found in 10^{-3} concentrations for both the formulations. But it was observed that the antifungal activity was more pronounced with neem based biological fungicide as compared to that of chemical fungicide, Figure 1.

From the above results it is very clear that biological fungicide has more effect on *Trichoderma viride* when compared to chemical fungicide.

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