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In vitro efficacy of fungitoxicants against *Alternaria solani*

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ABSTRACT

An experiment was conducted to find out the efficacy of five fungitoxicants *viz.* bio-agent *(Trichoderma harzianum),* botanicals (Neemicide and Prabal), Vermiwash and fungicide (Mancozeb) against *Alternaria solani* by poisoned food technique. It was revealed that Mancozeb (0.25%) and Vermiwash (30%) were more effective in inhibiting the growth and sporulation of the test fungus, subsequently followed by *Trichoderma harzianum* and Neemicide (0.3%), while Prabal (0.1%) was less effective.

Key words : *In vitro,* Efficacy, Fungitoxicants, *Alternaria solani*.

INTRODUCTION

Tomato has multiferous uses in food industry. It is used for both fresh consumption as well as for processing purpose as soups, salad, pickles, sausages, ketchup, puree, chutney, jam and many other products (Thomson and Kelley, 1957). Tomato has high medicinal value. It acts as a promoter of gastric secretion and blood purifier. It is a mild and natural stimulant, which helps to reduce the concentration of poison in the blood system.

Many factors operate in successful cultivation as well as marketing of quality tomato, of which diseases play an important role. Among the fungal diseases, early blight incited by *Alternaria solani* is one of the catastrophic diseases. It is becoming more serious in tomato growing tracts.

MATERIALS AND METHODS

Source of all the fungitoxicants used is given in Table 1.

Table 1 : Bio-agent, Botanicals, Vermiwash and Fungicide used for experiment

Sr. No.	Name of fungitoxicant	Source / manufactured by
1.	Vermiwash	MIS Shetkari Mitra,Gandool khat, Saurabh Siddhaye,Sawantwadi and ASPEE, Agriculture Research and Development Foundation farm A/p Met/Nare, Tal. Wada, Dist. Thane
2.	*Trichoderma harzianum* culture	Department of Plant Pathology, College of Agriculture, Dapoli, Dist. Ratnagiri.
3.	Prabal	Nature Life Science Pvt. Ltd., Pune - 33
4.	Mancozeb 75% WP	Krishna Bio-Tech Pvt. Ltd. Veraval (Shapar), Gujarat
5.	Neemicide	Krishi-Tech, M.LD.C., Satara

In this technique, nutrient medium was poisoned with fungitoxicant on which the test fungus *Alternaria solani* was grown. Potato dextrose agar medium was used as basal medium. The medium was distributed in 100 ml lot in each 250 ml Erylenmeyer flasks. These flasks were sterilized in autoclave at 1.054-kg/cm^2 pressure for 20 min. After medium had cooled down to 45°C temperature, the requisite quantity of each fungitoxic ant except *Trichoderma harzianum* was added in each flask, so as to get desired concentration.

All the fungitoxicants except *Trichoderma harzianum* culture were thoroughly mixed in the medium and poured in the sterilized Petri plates. Four replications per treatment were maintained. The pure culture of test fungus, *Alternaria solani* was separately grown on PDA for six days until the petri plates were fully covered. The fungal discs of 5 mm diameter were cut with the help of sterilized cork borer and transferred aseptically under the laminar flow to the centre of each Petri plate, containing poisoned PDA. The PDA plate without fungitoxicant and inoculated with a fungal disc, served as a control. The plates were incubated at room temperature (28 $\pm$ 1° C) and observations for colony diameter were recorded until the whole plate in control treatment was fully covered with mycelial growth.

To test the efficacy of *Trichoderma harzianum* against test pathogen following method was used (Asalmol *et al.*, 1990).

The culture disc of pathogen and test organism measuring 5 mm in size were cut and placed aseptically in plate containing 20 ml PDA keeping three culture discs of pathogen 4 cm away radially and one disc of test organism at centre in the plate.

Per cent inhibition of growth of test fungus was calculated by the following formula as per Arora and Dwivedi (1979).

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