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Research Article

Compatibility of *Trichoderma* isolates with selected fungicides *in vitro*

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ABSTRACT

Eighteen selected fungicides were evaluated for their compatibility to *Trichoderma* based on *in vitro* senstitivity of *T. harzianum* and *T. virens*. Observations on radial growth indicated that, carbendazim, benomyl, carboxin, propiconazole, hexaconazole, tricyclozole, tridemorph, chlorothalonil were incompatible with *Trichoderma* spp. showing 100 per cent inhibition of radial growth at field concentration. While dinocap, copperoxy chloride, fosetyl-Al captan, thiram and metalaxyl were found to be least compatible showing more than 70 per cent inhibition of radial growth. Bordeaux mixture, azoxystrobin and mancozeb were moderately compatible with radial growth inhibition in the range of 20-45 per cent. Only wettable sulphur was found to be highly compatible with least inhibition of radial growth (2.2%) of test *Trichoderma* isolates.

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INTRODUCTION

Soil borne plant pathogenic fungi such as *Fusarium, Phytophthora, Pythium, Rhizoctonia, Sclerotium etc.* cause diseases in most of the economically important crop plants. Chemical means of managing the diseases caused by these pathogens are not practicable owing to high cost of chemicals and environmental pollution. Biological control offers a novel approach when applied either alone or in combination with other management practices without the demerits of chemical control (Papavizas, 1985 and Mukhopadhyay, 1987). *Trichoderma* is one of the most common soil inhabitants and extensively studied biocontrol agent in the management of soil borne plant pathogens (Elad *et al.,* 1980).

Species of *Trichoderma* are being used either as seed treatment or soil application. In both the cases, the antagonist has been continuously exposed to different fungicides applied to the field either in soil or as foliar sprays. Fungicides sprayed aerially reaches the soil (by means of air currents or are washed off the plant surface due to rain) and is likely to influence the efficacy of native or applied biocontrol agents like *Trichoderma*. Hence, it is necessary to assess *Trichoderma* compatibility to fungicides in order to use in the Integrated Disease Management systems (Singh *et al*., 1995). Variations in tolerance of *Trichoderma* isolates to several fungicides reported earlier (Pandey and Upadhyay, 1998; Vijayaraghavan and Koshy, 2004) were based on arbitrary concentrations that were less than the field concentrations. Hence, the present investigation was conducted to evaluate the compatibility of two isolates of *Trichoderma* spp. *viz., T. harzianum* (isolated from cotton cropping system) and *T. virens* (isolated from citrus orchard) to selected fungicides at field concentration.

MATERIALS AND METHODS

In the present investigation, eight contact fungicides, *viz.,* copper oxychloride, Bordeaux mixture, wettable sulphur, mancozeb, thiram, captan, chlorothalonil and dinocap and ten selective systemic fungicides, *viz.,* carbendazim, benomyl, carboxin, metalaxyl, propiconazole, hexaconazole, tricyclazole, tridemorph, fosetyl-Al and azoxystrobin, were used to assess the *in vitro* sensitivity of *Trichoderma* isolates by using the