



RESEARCH ARTICLE

# Compatibility of certain biopesticides Azadirachtin formulations and sodium bicarbonate with *Trichoderma harzianum* (Th-43)

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## ABSTRACT

The sharp increase in the use of chemical pesticides in India in recent years has resulted in severe implications in the development of pesticidal resistance in key pest species, pesticidal residues in food chain and degradation in the quality of eco-system and human health. It is therefore, important to identify alternatives to chemical pesticide in plant protection without sacrificing the productivity and profitability of agriculture. Among various non-chemical options (host plant resistance, cultural, biological and integrated pest management), biopesticides which are target specific, eco-friendly and biodegradable are potential alternatives to chemical pesticides and are known to exhibit antifungal activities against certain plant pathogenic fungi. In the present investigation, studies were conducted to evaluate *Azadirachtin* formulations (Soluneeem, Mycostat) and Sodium bicarbonate for their compatibility with bioagents in order to increase their action spectrum. *Trichoderma harzianum* (Th-43) showed some degree of compatibility with Mycostat at lower concentrations (1000-4000 ppm) but was incompatible at higher concentrations (6000 ppm). The bioagent showed relatively less sensitivity with Soluneeem and Sodium bicarbonate thus, could be considered compatible by showing an additive effect. The present result will help to delineate the possibility of combining *Trichoderma harzianum* (Th-43) biocontrol agent and biopesticides for use in an integrated pest management.

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## INTRODUCTION

The present agricultural scenario signifies the importance of IPM strategies in crop protection. The long term exposure and high dose of fungicides have led to development of resistant strains in several fungal pathogens. From all angles efficiency, feasibility, economy and environmental sustainability, biocontrol of plant pathogens is one of the best management options available (Bagwan, 2003). Species of *Trichoderma* are common soil saprophytic hyphomycetes found in all climates throughout the world. Members of this genus have been studied as antagonists in biocontrol systems against various plant pathogens. These

fungi are very effective as biocontrol agents because their powerful extracellular lytic enzymes produce necrotrophic action on fungi through lysis of cell walls (Bacon *et al.*, 2001). *Trichoderma* is one of the most potent biocontrol agents used now a day's majority for seed and soil treatment due to its efficient antagonistic activity against various soil borne micro flora. Application of concerned antagonist is easy, economically feasible, save time and money besides reducing the amount of agrochemicals required to control a disease at field level both at pre-and post-infection stages (Kumar *et al.*, 2005). Therefore, a biological agent besides being effective should be compatible with the latest crop production practices including pesticides use. Reports on the greater tolerance of