



Enhance Suppressive Effect of Compost on Soybean Rhizoctonia Root Rot by Soil Treatment with *Trichoderma harzianum*

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Abstract:

This study deals with in vitro, under greenhouse, and field efficacy of *Trichoderma harzianum* (Th1 and Th2), and two types of compost, plant compost (PC) and animal compost (AC) to control the soybean root rot disease caused by *Rhizoctonia solani*. In vitro study indicated that, *Trichoderma* spp. isolate Nos. 1 and 2 were the most effective on the pathogen growth, also both composts at 50% concentration were effective on the growth of the pathogen. The microbe population varied in the tested two composts (PC and AC), plant compost (PC) had a higher population of the recovered microbes than animal compost (AC) except in the case of fungi. Under greenhouse and field conditions, application of *T. harzianum* (isolates Nos. 1 and 2) and compost individually or in combination for controlling *Rhizoctonia* root rot disease showed a suppressive effect on severity of the disease and increased the yield of soybean. Under field conditions, treatments with (Th2) and (Th1+AC) caused the highest percentage of disease reduction. Treatments with PC and AC gave the lowest reduction of *Rhizoctonia* root rot disease compared with infected control.

Keywords:

Compost; Biological control; *Rhizoctonia solani*; Soybean; Root rot disease

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