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Optimization of Delivery Systems to Improve Plant Growth and to Manage Wilt and Rot of Tomato Through *Trichoderma harzianum* PBAT-21

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Abstract

Biopriming of tomato (variety Pant T-3) seeds with *Trichoderma harzianum* bioformulation PBA-1 was most effective in increasing the plant growth response (shoot and root length, shoot fresh and dry weight, root fresh and dry weight, vigour index and yield) and in reduced the seedling mortality due to *Fusarium oxysporum* f. sp. *lycopersici* and *Sclerotium rolfsii* under glass house conditions. Similarly seedling dip in PBA-1 suspension @ 10g l⁻¹ comprising of 2 x 10⁶ cfu g⁻¹ of the product for 90 min was effective in plant growth parameters and suppressed soil borne diseases caused by *Fusarium oxysporum* f. sp. *lycopersici* and *Sclerotium rolfsii*. Amendment of soil with PBA-1 (@1kg q⁻¹ FYM) along with seedling dip in PBA-1 solution (@10 l⁻¹ water) was effective in the management of fusarial wilt and root rot disease caused by *Fusarium oxysporum* f. sp. *lycopersici* and *Sclerotium rolfsii* respectively which in turn increased the yield of tomato. Similarly combined application of consortia comprising of *Trichoderma harzianum* and *Pseudomonas fluorescens* were also effective in the suppression of wilt and root rot diseases beside the plant growth promotion.

Key words: Biological control, disease management, plant growth response, tomato, *Trichoderma*

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