

## Biofertilization of Cucumber (*Cucumis sativus* L.) Using *Trichoderma longibrachiatum*

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**Abstract :** The need to increase the production of cucumber has led to the use of inorganic fertilizers. This chemical affects the ecological balance of nature by increasing the nitrogen and phosphorus contents of the soil. Surface runoffs into rivers and streams cause eutrophication which affects aquatic organisms as well as the consumers of aquatic animals. Therefore, this study was carried out in the screenhouse to investigate the use of a plant growth-promoting fungus; *Trichoderma longibrachiatum* for the growth promotion of conventional and in-vitro propagated Ashley and Marketmoor cucumber. Before planting of cucumber, spore suspension (108 cfu/ml) of *Trichoderma longibrachiatum* grown on Potato dextrose agar (PDA) was inoculated into the soil. Fruits were evaluated for the presence of *Trichoderma longibrachiatum* using a species-specific primer. Results revealed that the highest significant plant height produced by in-vitro propagated Ashley was 19 cm while the highest plant height of in-vitro propagated Marketmoor was 19.67 cm. The yield of the conventional propagated Ashley cucumber showed that the number of fruit/plant obtained from *T. longibrachiatum*-fertilized plants were significantly more than those of the control. The in-vitro Ashley had 7 fruits/plant while the control produced 4 fruits/plant. In-vitro Marketmoor had ten fruits/plant, and the control had a value of 4 fruits/plant. There were no traces of *Trichoderma longibrachiatum* genes in the harvested cucumber fruits. Therefore, the use of *Trichoderma longibrachiatum* as a plant growth-promoter is safe for human health as well as the environment.

**Keywords :** biofertilizer, cucumber, genes, growth-promoter, in-vitro, propagation

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