

ASSESSMENT OF GENETIC DIVERSITY IN DIFFERENT ISOLATES OF *TALAROMYCES FLAVUS* BY RAPD MOLECULAR MARKER

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ABSTRACT

Antagonistic fungus, *Talaromyces flavus*, mediates growth inhibition on many soil borne pathogenic agents by producing glucose oxidase, chitinase and pectinase enzymes. In this study, genetic diversity of different *T. flavus* isolates related to different cultivation regions of cotton, potato, tomato and greenhouse cucumber was determined by Random Amplification Polymorphic DNA (RAPD) markers. Results showed that majority of isolates in RAPD groups belonged to different regions of one host plant. However, most isolates in RAPD sub- groups belonged to the cultivation regions of each crop. In electrophoresis patterns of PCR- RAPD products by using different primers, three molecular phenotypes were observed. In first type, there were two fragments with 750 bp and 250 bp in size. In second type, there were the fragments bigger than 250 bp and smaller than 750 bp as well as above-mentioned two fragments. However, there were the fragments bigger than 250 bp and smaller than 750 bp in third type.

In electrophoresis patterns related to isolates obtained from cultivation regions of cotton, tomato and potato, all three molecular phenotypes were observed but only third type was observed in those related to isolates obtained from cucumber greenhouses. Based on the observation from first and second types in *T. flavus* isolates obtained from cultivation regions of cotton, tomato and potato, it is concluded that these phenotypes may be related to glucose oxidase enzyme because this enzyme is activated by glucose and *T. flavus* isolates with high glucose oxidase activity are observed only in the rhizosphere of the plants such as cotton, potato and tomato where their root exudates contain high levels of glucose.

KEYWORDS: Genetic Diversity, Random Amplified Polymorphic DNA, *Talaromyces flavus*