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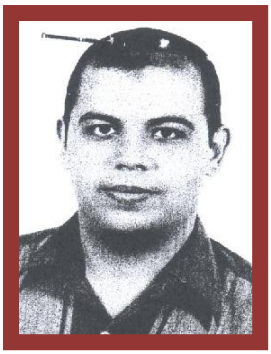

INDUCTION OF SYSTEMIC RESISTANCE AGAINST CUCUMBER MOSAIC VIRUS IN ARABIDOPSIS THALIANA BY RICHODERMA ASPERELLUM SKT-1

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ABSTRACT

Trichoderma asperellum SKT-1 is a microbial pesticide that is very effective against various diseases. Our study was undertaken to evaluate T. asperellum SKT-1 for induction of resistance against yellow strain of Cucumber mosaic virus (CMV-Y) in Arabidopsis plants. Disease severity was rated at 2 weeks post inoculation (WPI). CMV titre in Arabidopsis leaves was determined by indirect enzyme-linked immunosorbent assay (ELISA) at 2 WPI. Our results demonstrated that among all Arabidopsis plants treated with barley grain inoculum (BGI) of SKT-1 NahG and npr1 plants showed no significant reduction in disease severity and CMV titre as compared with control plants. In contrast, disease severity and CMV titre were significantly reduced in all Arabidopsis plants treated with culture filtrate (CF) of SKT-1 as compared with control plants. RT-PCR results showed increased expression levels of SA-inducible genes, but not JA/ET-inducible genes, in leaves of BGI treated plants. Moreover, expression levels of SA- and JA/ETinducible genes were increased in leaves of CF treated plants. In conclusion, BGI treatment induced systemic resistance against CMV through SA signaling cascade in Arabidopsis plants. While, treatment with CF of SKT- 1 mediated the expression of a majority of the various pathogen related genes, which led to the increased defense mechanism against CMV infection