

INDUCTION OF RESISTANCE IN *PHASEOLUS VULGARIS* TO ROOT ROT DISEASE, CAUSED BY *RHIZOCTONIA SOLANI*, USING JASMONIC ACID

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Abstract

Application of 10 μ M of Jasmonic acid (JA) as seed soaking significantly reduced % of root rot incidence in bean plants. Production of reactive oxygen species especially H_2O_2 was highly increased in both roots and shoots of *R. solani* infected-plants, as compared with non-infected control. JA significantly decreased the level of H_2O_2 in roots of 14 and 28 days old plants. Lipid peroxidation decreased in JA-treated plants, as compared with infected control. Activity of antioxidant enzymes (catalase, ascorbate peroxidase and superoxide dismutase) significantly increased in bean tissues in response to both pathogenic fungi (*R. solani*) and/or elicitor JA. JA-treated plants significantly increased total phenolic compounds and various phenolic acids except gallic acid in bean roots as compared with infected or non-infected control. Coumarin was induced only by JA. Additionally, activities of POX, PPO and PAL were greatly increased in both roots and shoots of bean plants infected by *Rhizoctonia solani*. JA treated plants showed the highest enzymes activity.

Key words: Jasmonic acid – *Rhizoctonia solani* – *Phaseolus vulgaris* – antioxidants – phenolic compounds