

Quantification of Enzymatic Activities of Proteins, Peroxidase and Phenylalanine Ammonia Lyase, in Growing Phaseolus vulgaris L, with Application Bacterial Consortium to Control Fusarium and Rhizoctonia

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Abstract : The common bean or Phaseolus vulgaris L. is the most important food legume for direct consumption in the world. Fusarium dry rot in the major fungus disease affects Phaseolus vulgaris L, after planting. In another hand, Rhizoctonia can be found on all underground parts of the plant and various times during the growing season. In recent years, the world has conducted studies about the use of natural products as substitutes for herbicides and pesticides, because of possible ecological and economic benefits. Plants respond to fungal invasion by activating defense responses associated with accumulation of several enzymes and inhibitors, which prevent pathogen infection. This study focused on the role of proteins, peroxidase (POD), phenylalanine ammonia lyase (PAL), in imparting resistance to soft rot pathogens by applied different bacterial consortium, formulated and provided by Biofertilizantes de Mexicanos industries, analyzing the enzyme activity at different times of application (6 h, 12 h and 24 h). The resistance of these treatments was correlated with high POD and PAL enzyme activity as well as increased concentrations of proteins. These findings show that PAL, POD and synthesis of proteins play a role in imparting resistance to Phaseolus vulgaris L. soft rot infection by Fusarium and Rhizoctonia.

Keywords : fusarium, peroxidase, phenylalanine ammonia lyase, rhizoctonia

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