Analysis of gene expression of proteases of Trichoderma virens during confrontation with plant pathogens in vivo.


INTRODUCTION: The genus Trichoderma with teleomorfismo in Hypocrea comprises a group of saprophytic fungi and micoparasitas widely used as biological control agents of soil borne plant pathogens. Among the mechanisms proposed for the biocontrol of Trichoderma species are mycoparasitism by production of cell wall degrading enzymes of plant pathogens, antibiotic production volatile and non-volatile competition for nutrients, rhizosphere competent and induction of defense responses in plants. In recent years, several efforts have been made to better understanding of molecules involved in mycoparasitism. MATERIAL AND METHODS: Species of Trichoderma virens by qRT-PCR and the gene of alpha-tubulin as normalizador. was evaluated gene expression from Trichoderma virens antagonism during before contact, the after contact and contact with the hyphae number of fungal pathogens Rhizoctonia solani and Sclerotinia sclerotiorum. The "primers" were designed based on the sequences of the genes encoding these enzymes deposited in the database DOE Joint Genome Institute (http://www.jgi.doe.gov/). The genes were aspartate proteases protease, Carboxypeptidase, cysteine protease, Subtilisin peptidase, trypsin, serine protease metallopeptidase. RESULTS AND DISCUSSION: Initial results showed that during before contact between Trichoderma virens x Rhizoctania solani and T. Virens x Sclerotinia sclerotiorum, the "primers" were designed based on the sequences of the genes encoding these enzymes deposited in the database DOE Joint Genome Institute (http://www.jgi.doe.gov/). The genes were aspartate proteases protease, Carboxypeptidase, cysteine protease, Subtilisin peptidase, trypsin, serine protease metallopeptidase. RESULTS AND DISCUSSION: Initial results showed that during before contact between Trichoderma virens x Rhizoctania solani and T. Virens x Sclerotinia sclerotiorum, genes for carboxypeptidase, cysteine protease, serine protease and trypsin were expressed. When observing the condition of contact between T.virens and Sclerotinia sclerotiorum aspartate protease gene expression has required further showing 60% expressed in relation to genes carboxy, cysteine, serine proteases and trypsin. By analyzing the after contact the trypsin gene is required 50% more in comparison of T. virens x S. sclerotiorum compared to the confrontation of T. virens and R. solani. The expression was very different between the clashes of isolads Trichoderma and plant pathogens as well as for contact times. Leading us to believe that specific classes of proteases are required at different stages of contact of Trichoderma and pathogen.

Keywords: plant pathogens, Trichoderma virens, gene expression
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