

Trichoderma spp. from Brazilian agricultural ecosystems for biological control studies

Author(s) Daniel Diego Costa Carvalho^{2,1,3}, Irene Martins¹, Gisele Angélica de S. Louzada², Murillo LOBO Júnior³, Sueli Corrêa Marques de Mello¹

Institution(s) 1. CENARGEN, EMBRAPA RECURSOS GENÉTICOS E BIOTECNOLOGIA, PARQUE ESTAÇÃO BIOLÓGICA - BSB 2. UnB, UNIVERSIDADE DE BRASÍLIA,, L2 NORTE 3. CNPAF, EMBRAPA ARROZ E FEIJÃO, GOIÂNIA -GO

Abstract:

Species of *Trichoderma* present important characteristics that are exploited both by industry and by agriculture. For the latter, they can act as plant growth promoters by producing indol acetic acid, solubilizing nutrients, producing siderophores and even activating the plant's resistance system. However, what has been most investigated is the action of these organisms as biocontrol agents of plant pathogens. In this work, a collection of *Trichoderma* isolates was built up and characterized in order to carry out activities that make use of them. To this end, the work aimed to collect isolates of *Trichoderma* spp. from soil samples that originated from different ecosystems, and to determine the antagonist potential of the obtained isolates against some plant pathogens from the soil. For this, 230 isolates of *Trichoderma* were obtained. Screening for hyperparasitic activity was done using paired cultures. Isolates were attributed marks in accordance with a scale: 20% and 45% of them presented activity against *Fusarium solani* and *Sclerotinia sclerotiorum*, respectively; of these, 10% presented activity against both pathogens. Fifty-five isolates were chosen to be evaluated for a direct confrontation between colonies and for bioactivity of the secondary metabolites, in vitro. In the tests for direct confrontation between colonies, 60% of the isolates presented growth inhibition of *S. sclerotiorum*. In the tests for production of volatile metabolites, 53% of the isolates presented some level of growth inhibition of the pathogen. Finally, for non-thermo-labile metabolites, 44% of the isolates presented some level of inhibition. These isolates were selected for studies on species identification using molecular markers and greenhouse assays to evaluate the potential against *S. sclerotiorum*, *F. solani* and other pathogens.

Key words: antagonistic fungi, culture collection, Soil Pathogens