

عنوان مقاله:

A novel gamma radiated mutant of *Trichoderma viride* for biodegradation of *Pythium ultimum* cell wall

محل انتشار:

اولین کنفرانس ملی پژوهش های نوین علوم طبیعی و زیستی در ایران و جهان (سال: 1396)

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خلاصه مقاله:

Trichoderma secreted several cellulases and glucanases to lysis the *Pythium* mycelia in mycoparasite process. Enhancement in these enzyme production in *T. viride* by gamma radiation is a useful mutation method, and resulted in increasing antagonistic potential against an important plant pathogen *Pythium ultimum*. In this study, proteomics analysis and cellulase assay were used to indicate the role of endo-glucanase and exoglucanase enzymes in bio-control. The results of cellulase enzyme activity of *T. viride* mutant isolates and its wild type strain after 48 h incubation at 180 rpm and 28 °C with different substrate (Avicel, Carboxy methyl cellulose and Bacterial cellulose) are shown the enhancement in the enzyme activity values of the mutant isolates. The specific exo-glucanase enzyme activity in Tv M21 mutant isolate approximately 2-2.5 times more than its wild type strain and also secreted 3 times more endoglucanase. This superior mutant showed up to 65% growth inhabitation against *P. ultimum* in dual culture test (5 times more than the wild type) and sharper spots belong to endo-glucanase, exoglucanase and β -glucosidase presented in SDS-Page and 2D Electrophoresis of this mutant. Overall, induced mutation by gamma irradiation could be a useful method to access such superior mutants and TvM21 could be a successful BCAs candidate for plan disease management programs of *Pythium* inoculated soils.

کلمات کلیدی:

Trichoderma viride; γ -irradiation; SDS-Page; 2D Electrophoresis; Cellulase

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