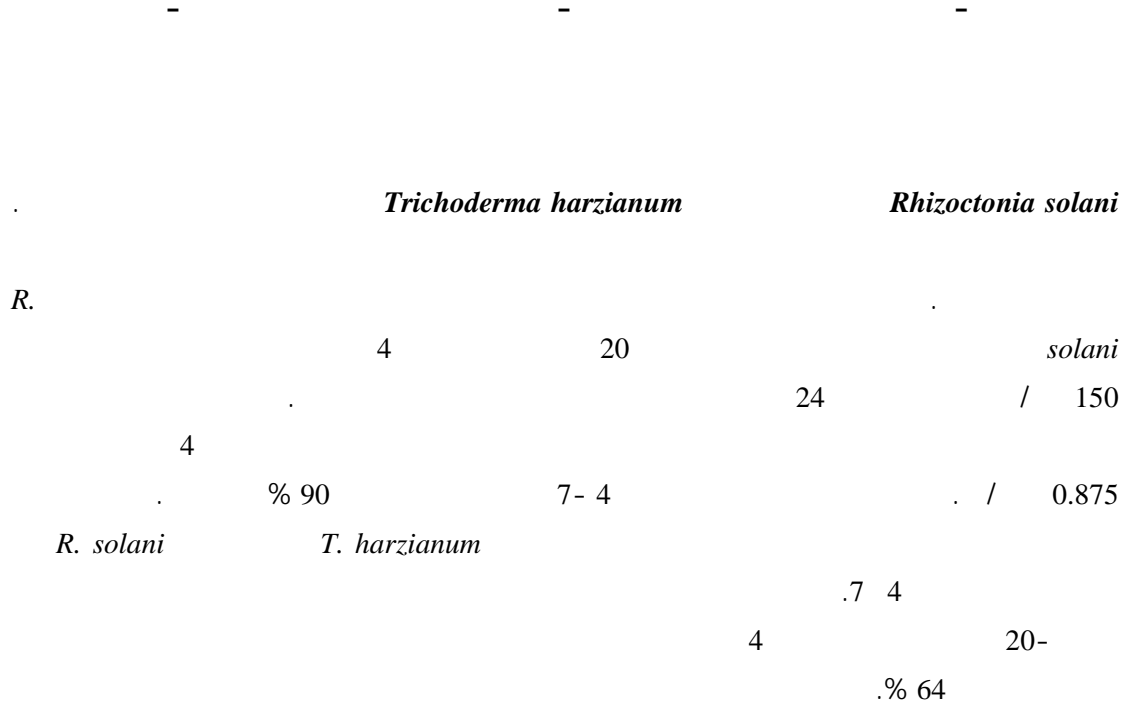


*Rhizoctonia solani*

*Trichoderma harzianum*



**Antagonism mechanism of *Trichoderma harzianum* against *Rhizoctonia solani***

**Zena Hadi Obead**  
Department of Biology  
Babylon University

**Jawad K. Abood**  
Babylon University

**Rebab Omran**  
Department of Biology  
Babylon University

**Summary**

*Trichoderma harzianum* isolate was tested for in vitro antagonism toward the plant-pathogenic fungus *Rhizoctonia solani*. Enzymatic mechanisms of *T. harzianum* were investigated by using chitinase the cell wall-degrading enzyme (crude exudates). The trial implicated to explore the effect of environmental parameter e.g. carbon source, incubation period, pH level, temperature rang, agitation and aeration on chitinase. The results demonstrated that the fresh and dried mycelium were production highest level of enzyme when used as a carbon source at pH 4 and 20°C with agitation and aeration (150 rpm) for 24 h. The optimum pH for activity and stability of crude chitinase was also investigated. The results showed that the highest activity of this enzyme (0.875 unit/ ml) was obtained at pH 4 while highest level of stability (90%) was occurred at pH (4-7). Crude exudates of chitinase enzyme that produced by *T. harzianum* was greatly inhibited the growth of *R. solani* (64%) at pH 4 compared with other treatments.