

***In vitro* assessment of *Trichoderma asperellum* isolated from plant rhizosphere and evaluation of their potential activity against some pathogenic fungi**

**Gamal Mohamedin Hassan and Nada Fathi Hemed**

*Department of genetics, Faculty of Agriculture, Fayoum University, 63514 Egypt.*

**ABSTRACT**

Hydrolytic enzymes producing *Trichoderma* species have long been recognized as an agent for controlling plant diseases caused by various phytopathogenic fungi. This study aims to isolate and characterize of new bio fungicides from Egyptian soils and assess of their antagonistic activity against some pathogenic fungi (*Fusarium semitectum* and *Alternaria alternata*). Four isolates of the *Trichoderma asperellum* were isolated from rhizosphere soil of different host plants collected from Fayoum governorate, Egypt. The isolates were characterized according to morphological characterization, microscopic observations and confirmed by sequencing of the ITS region of 18S rRNA. *Trichoderma asperellum* isolates were evaluated for their potential to antagonize the plant pathogenic fungi (*F. semitectum* and *A. alternata*) *in vitro* using the dual culture technique. Four out of twenty *Trichoderma* isolates (20%) were identified as *T. asperellum* based on morphological characteristics and confirmed by sequencing of ITS region of 18SrRNA. The four selected *T. asperellum* isolates (Tas 1, Tas 2, Tas 3 and Tas 4) were screened for their ability to produce chitinase on solid agar medium using bromocresol purple for developing the clear zone around colonies, and characterized due to its antagonistic effect against mycelial growth of pathogenic fungi. These results indicate that molecular systematic studies based on the sequence of ITS region are important for confirmation of phenotypic characterization of *Trichoderma* isolates. To the best of our knowledge, there is no information on the occurrence of *T. asperellum* in Egypt and this is the first report of the occurrence and isolation of *T. asperellum* from Egyptian soils.