

**BIOLOGICAL CONTROL OF SOIL-BORNE  
PHYTOPATHOGENS IN POTATO  
FIELDS**

By

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B.Sci.Agric.Fac. Agric., Ain Shams Univ., 1999

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## ABSTRACT

**Mohamed Abdel Aziz Afifi. Biological Control of Soil-Borne Phytopathogens In Potato Fields. Unpublished M.Sc.. Thesis, Arid Land Agricultural Graduated Studies and Research Institute, Faculty of Agriculture, Ain Shams University, 2019**

Seventeen bacterial isolates have been successfully isolated and purified from soil rhizosphere samples collected from different agricultural areas Buhayra, Sharqia and Alqilyubia of Egypt, and screened for production of chitinase enzymes had the highest chitinolytic activities amongst those investigated. Isolates *S3-C* and *S1-C* were identified by biochemical, physiological tests and 16s rRNA gene primer as *Bacillus cereus S3C*, GenBank NCBI accession MK185696 and *Bacillus cereus S1C* accession MK185697. The production of chitinase by *B.cereus S3C* and *Bacillus cereus S1C* was optimized using colloidal chitin medium amended with 1% colloidal chitin at 30°C after five days of incubation. *B.cereus S3C* had potential for cell wall lysis of many phytopathogenic fungi tested such as *Fusarium oxysporum* and *Rhizoctonia solani* potato phytopathogenic fungi by in vitro antagonistic test. The addition of *B.cereus S3C* chitinase was more effective than that of *B.cereus S1C* in increasing the resistance of Potato plants infected with various Soil-borne phytopathogenic fungi.

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