CONSTRUCTION OF CERTAIN IMPROVED FUNGAL BIOCONTROL AGENT AGAINST SOME PLANT FUNGAL DISEASES

By

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B.Sc. Agric. sci. (Biotechnology), Ain Shams Univ., 2012

A Thesis Submitted in Partial Fulfillment

Of

The Requirements for the Degree of

MASTER OF SCIENCE

in

Agricultural Sciences

(Genetics)

Department of Genetics
Faculty of Agriculture
Ain Shams University

2019

Approval sheet

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ABSTRACT

Nada Khaled Abd El- Aziz: construction of certain improved fungal bio control agent against some plant fungal diseases. Unpublished M.sc., thesis, Department of Genetic, Faculty of Agriculture, Ain Shams University, 2019.

Four strains of *Trichoderma* (T1 , T2, T3 and T4) Belong to two species *Trichoderma harzianum* (T1) and *Trichoderma viride (*T2, T3 and T4) were tested against plant pathogenic fungus (*Rhizoctonia solani* , *Pythium* sp *and Fusarium oxysporum*). *In vitro* Test of the previous isolates that the T1 and T2 is most efficient strains. All isolates were evaluated for production of chitinases and β-1,3-glucanase. Using colloidal chitin as a substrate, *Trichoderma harzianum* (T1) strain was the most efficient in chitinase activity (160 ± 0.64 u/ml/min) , while *Trichoderma viride2* (T2) strain was the most efficient in (225 ± 2.20 u/ml/min).

The selected strains have been mutagenize to obtain variants capable to producing high levels of chitinase and β-1,3-glucanase by using UV (ultraviolet irradiation) 254 nm, CAMAG light, type TL-9001) in two steps mutagenize. Six mutants from strain (T1) and five from parental strain (T2).

The best strain in antagonism on the three pathogens after mutation was *Trichoderma harzianum* (T112). This improvement in extracellular enzyme production by mutant *Trichoderma harizanum.*

KEYWORDS: Genetic improvement, *Trichoderma*, biocontrol, chitinase, β-1,3-glucanase,UV irradiation, ISSR-PCR.

ACKNOWLEDGEMENT

I wish to express my deepest thanks to Allah who fulfilled my hopes and promises to offer every possible support for anyone in need to it".

I'm deeply indebted to thank the principle supervisor **Prof. Dr. Samir Abd El-Aziz Ibrahim**, who introduced me to the wonderful world of *Trichoderma*, for guidance and helpful discussions and constructive criticism.

I also wish to express my gratitude to the supervisor **Dr. Ashraf Bakry Abd El-Razik** for providing and funded me with a challenging and interesting project to develop my investigation and analytical skills. Without his help and effort, my research would have never been completed in time.

My thanks have to be extended to all my colleagues in (ACGEB) for their sincere help. Thanks to stuff members of Genetics Dept. Faculty of Agriculture, Ain Shams Univ., for their encouragement during the progress of this study, specially my best friend **Mai Mahmoud**.

Special thanks to my father **prof. Dr. Khaled Abdel Aziz Abd El- Atey Soliman** for his great efforts not only in my study but also in my life.

Finally, I could never have reached this point without the love support from my family. I do not have enough words to say how I am indebted to my **mother** , my sister **Maha** , my brother **Anwar** and my fiancé **Ashraf Magdy** for their continuous incentive support.

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