



بسم الله الرحمن الرحيم

Sudan University of sciences and technology
College of Agricultural Studies
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**The effect of biological control of (*Trichoderma harzianum*) against
Fusarium solani in potato.**

تأثير المكافحة الحيوية (لفطر الترايكوديرما هرزيانم) ضد فطر الفيوزيريوم سولاني في البطاطس

A Thesis submitted in partial of the requirements for the B.Sc. Honors in plant protection.

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الآية

بسم الله الرحمن الرحيم

قال تعالى:

﴿هُوَ الَّذِي أَنْزَلَ مِنَ السَّمَاءِ مَاءً لَكُمْ مِنْهُ شَرَابٌ وَمِنْهُ شَجَرٌ فِيهِ تُسِيمُونَ
(*) يُنْبِتُ لَكُمْ بِهِ الزَّرْعَ وَالزَّيْتُونَ وَالنَّخِيلَ وَالْأَعْنَابَ وَمِنْ كُلِّ الثَّمَرَاتِ
إِنَّ فِي ذَلِكَ لَآيَةً لِقَوْمٍ يَتَفَكَّرُونَ (*)﴾

صدق الله العظيم

الآيتين (10-11) من سورة النحل

DEDICATION

To my Father (May Allah have mercy on him),

To my mother

To my brothers

To my sister

To my all my Family.

To my Friends Hejazy, Abdulla, Hassan.

To my ant Hamadan Algam for great help to finish this work.

To my Super Dear brother Adam Abdalmanfor given my Support
and assistance to complete this work, thanks you very much.

To my teacher Dr. EKhlass Hussein Mohammad Ahmad for her
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ABSTRACT

This study was conducted at the laboratory of the plant Pathology Department of plant Protection, College of Agricultural studies, Sudan University of Science and Technology 2020. The aim of this study was to evaluate the effects of *Trichoderma harzianum* against the growth of *Fusarium solani* *in vitro*. The fungi are an important in causing significant reductions in yield. The fungi were identified based on morphological and cultural characters as *Fusarium solani*. The results showed that *Trichoderma harzianum* effectively suppress the growth of the *Fusarium xysporum*. The results obtained that the inhibitory effect of *Trichoderma harzianum* was more pronounced compared to the control. *T. harzianum* for antagonistic potentials against the fungus showed the best performance the growth rate of *T. harzianum* 1.72, 1.88 and 1.88mm) cumbered with the control 0.5, 0.8 and 1.1mm) three, five and seven days after inoculation. *T. harzianum* contains substances that have an effect against the growth of fungi, and it can be investigated for confirmation in other studies.

ملخص الاطروحة

أجرت هذه الدراسة في مختبر علم أمراض النبات، قسم وقاية النبات، كلية الدراسات الزراعية، جامعة السودان للعلوم والتكنولوجيا 2020 لتقييم تأثير فطر التريكوديرماهارزيانم على نمو فطر الفيوزيريوم سولاني في بيئة بطاطس ديكستروز أجار (PDA) تحت ظروف المعمل كان الهدف من هذه الدراسة هو تقييم تأثيرات *Trichoderma harzianum* ضد نمو *Fusarium solani* في المختبر. الفطريات مهمة في إحداث انخفاض كبير في إنتاجية المحصول. تم التعرف على الفطريات بناءً على الخصائص المورفولوجية والمزرعية. أظهرت النتائج أن *T. harzianum* يثبط بشكل فعال نمو *F. solani*. أظهرت النتائج أن التأثير المثبط لـ *T. harzianum* كان أكثر وضوحًا مقارنةً بالشاهد. لقد أظهر *T. harzianum* تأثيراً مضاداً للفطر. أفضل أداء هو معدل نمو *T. harzianum* 1.72، 1.88 و 1.88 (م) مقارنة بالشاهد 0.5 و 0.8 و 1.1 (م) بعد ثلاثة وخمسة وسبعة أيام من التلقيح. يحتوي *T. harzianum* على مواد لها تأثير مضاد لنمو الفطريات، ويمكن التحقق منها بتأكيداتها في دراسات أخرى.