



**Faculty of Science**

**STUDYING THE INTERACTION CHARACTERISTICS  
BETWEEN PLANT AND SOME ASSOCIATED  
RHIZOSPHERE MICROORGANISMS**

By

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B. Sc. (Microbiology), Tanta University 2007

A thesis

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## Faculty of Science

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Faculty of Science

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## **Aim of The work**

Fertilizers and pesticides are playing a vital role in crops productivity, while the use of these synthetic chemicals resulting environmental pollution and healthy risks. So that searching for bio fertilizers and bio pesticides as alternative bio resources can increase of soil fertility and crop productivity without any adverse effects besides sustainable crop protection.

This work aimed to investigate the level of interactions between sorghum plants and associated bacteria to obtain beneficial microbes able to use as growth promoting agents and to utilize under field conditions as bio fertilizers. Finally to show the pesticides activity of the bacterial isolates and sorghum root exudates bioactive compounds against some soil pathogenic fungi.

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## **DECLARATION**

This Thesis has not previously submitted for any other university. The references were being checked whenever possible; show the extent to which I have availed myself of the work of other authors.

Amany Mohamed Abouelkhier Balah

## Table of Abbreviations

Abbreviation	Meaning
ANOVA	Analysis of Variance
BOD	Biological oxygen demand
CMC	Carboxy Methyl Cellulose
COD	Chemical oxygen demand
EC <sub>50</sub>	Half maximal effective concentration
FTIR	Fourier transform infrared spectroscopy
HCN	Hydrogen cyanide
IAA	Hetero auxin hormone nIndole-3-acetic acid
LC-MS/MS	Liquid chromatography-tandem mass spectrometry
M + H	Molecular ion+ protons
MS	Murashige and Skoog media
M W	Molecular weight
m/z	Mass-to-charge
NA	Nutrient agar medium
OD	Optical Density Reading
PDA	Potato dextrose agar
PGPR	Plant growth promoting rhizobacteria
ppm	Parts per million
PVK	Pikovskayas agar
RA	Relative enzyme activity
SE	Solubilization efficiency
SMA	Skim milk agar

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