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التوثيق الالكتروني والميكروفيلم



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لم ترد بالأصل



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BIOLOGICAL STUDIES ON SOME ASSOCIATIVE NITROGEN FIXING BACTERIA

By

B18346

MONA MOHAMED MOHAMED ALY

B.Sc., Agric. Microbiology,
Faculty of Agriculture, Ain Shams University, 1992

Thesis

**Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science**

**In
Agricultural Science
(Agricultural Microbiology)**

**Cairo University
Faculty of Agriculture
Microbiology Department**

2003

SUPERVISION SHEET

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

" نرفع درجات من نشاء و فوق كل ذي علم عليم "

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ABSTRACT

This study was done to improve the yield of some important crops such as maize plant by using some nitrogen fixing bacteria. Three different isolates were identified as *Azotobacter chroococum*, *Azospirillum lipoferum* and *Bacillus polymyxa* and tested their activity for nitrogenase, phytohormons production and exopolysaccharides synthesis. Application of these strains were applied to improve growth and yields of maize (*Zea mays* cultivar Giza 9) inoculated with mixed inoculum of *Azotobacter*, *Azospirillum* and *Bacillus* by two methods of inoculation in presence of different levels of mineral nitrogen.

Results were as follows:

- Inoculation with mixed culture of nitrogen fixing bacteria gave significant increase in growth and yield of maize plants comparing to those obtained by un-inoculated ones (control).
- Nearly similar growth and yield of maize plants were obtained by full nitrogen fertilizer and 1/3 nitrogen dose combined with inoculation.
- The highest growth and yield of maize plants were obtained by plants inoculated with mixed diazotrophs and supplemented with 2/3 dose of mineral nitrogen fertilizer.

Supervision by
Prof. Dr. Hussein M. El-Kawas

Hussein El-Kawas



Dedication

To

My father, mother, sister and my brothers.

And specially for the memory of

My dear uncle Abdo

I would like to express my sincere thanks from my heart to them, who give me strong support and endless love that made me able to overcome difficulties facing up during the completion of this work.

Mona Mohamed Mohamed Aly

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