بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

STUDIES ON *FRANKIA* IN SOME EGYPTIAN SOILS

By
MONA MOHAMED SAID ABD EL-HAMED ZAYED
B.Sc. Agric.(Microbiology), Ain Shams Univ., 1994

**A thesis submitted in partial fulfillment
of
the requirement for the degree of**

Master of Science

**in
Agricultural Science
(Agric. Microbiology)**

**Department of Agric. Microbiology
Faculty of Agriculture
Ain Shams University**

2001

APPROVAL SHEET

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ABSTRACT

Mona Mohamed Said Abd El-Hameid Zayed "Studies on *Frankia* in some Egyptian Soils". Unpublished Master of Science Thesis, University of Ain Shams, Faculty of Agriculture, Department of Microbiology, 2001.

Four native *Frankia* iaolates were isolated from root nodules of two Egyptian actinorhizal plants (Casuarinas). The strains were designated as UF010, UF011, UF012, UF013 and *Frankia* UF001, UF002 were used as a reference strains. By light microscope all the isolates exhibited similar *Frankia* structure hyphae, sporangia and vesicles, being able to fixing atmospheric nitrogen. The growth patterns of the isolates and strains in BAP medium were similar to *Frankia* growth pattern. Differentiation between the four *Frankia* isolates and the two strains by their electrophoretic patterns of total protein , intrinsic antibiotics resistance test using (kanamycin sulfate, nalidixic acid, gentamycin sulfate, tetracycline, neomycin sulfate, chlramphenicol, streptomycin sulfate), their ability to use other carbon sources such as (sodium propionate, galactose, lactose, mannose, maltose, mannitol, sucrose, fructose, sodium citrate, sodium pyruvate) and electrophoretic analysis of the total DNA and plasmid DNA were carried out.

Reliable nodulation, number of nodules, dry weight of nodules and ARA of *C. cunninghamiana* seedlings were obtained by inoculating them with *Frankia* hyphae under defined greenhouse conditions, among the various morphological cell types (spores and vesicles).

Casuarina glauca and *C. cunninghamiana* inoculation with *Frankia* hypha and/or mycorrhizae were grown in loamy sand and clay soils under greenhouse conditions. High nodulation, ARA and growth parameter of plant were obtained with inoculation with *Frankia* and/or mycorrhizaefd

Key words : *Frankia* *Casuarina*, nodulation, nitrogen fixation, mycorrhiza, acetylene reduction activity and anbitiotics, loamy sand soil, clay soil.

Acknowledgment

Praise and thanks be to ALLAH, the most assisting and directing me to the way.

There are few opportunities in the most people's lives to demonstrate formally one's gratitude to people who have been mentors and supporters at different steps of our lives. Even though, we do not forget to stamp those feeling on paper.

I would like to express my sincere gratitude and deep appreciation to. Prof. Dr. Abd El Kader Hazem Yossef, professor of Agric Microbiology, Fac. Agric., Ain Shams Univ. for his kind and valuable not only supervision but also encouragement during the progress of this study and through all time which I stayed in this Faculty.

Deep thanks from my hart to Prof. Dr. Wedad El-Tohamy El-sayed Eweda for her sincere help, fruitful advising and valuable supervision not only at the scientific level but also at personal level

Many deeply grateful acknowledgments are extended to Dr.Shawky Mahmoud Selim, Associat Professor of Agric. Microbiology, Faculty of Agric., Ain Shams University. for his fruitful assistance and precious advice given throughout the study, preparation and completion of this thesis.

Thanks also are extended to all staff members, the colleagues and worker in the Department of Agric., Microbiology

Sincere thanks and deep gratitude are due to all my colleagues and staff members in Unit of Biofertilizers, for encouragement and unlimited help by offering all the materials needed in this study.

Deep thanks to all members of Molecular Cytogenetic Lab. For their helpful criticism and facilities granted that led to the accomplishment of this work.

Finally, deep gratitude to all my family members for their continuous help and encouragement through this work.

Mona zayed