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

PRODUCTION OF A BIOFERTILIZER CONVENIENT FOR DESERT SOILS TO LIMIT THE ENVIRONMENTAL POLLUTION RESULTED FROM INORGANIC MANURING

By

HODA HASSAN MOHAMED ABDEL-AZEEM

B.Sc. Agric. (Plant Pathology),
Ain Shams University, 1974
M.Sc. Environ. Agric. Sci., Instit. Environ. Studies and Res. Ain Shams University, 1994

Thesis submitted for the Degree of Ph.D.

Of

the requirements for Doctor of Philosophy degree

In

Environmental Science
Department of Agricultural Science

Institute of Environmental Studies and Research
Ain Shams University

1998

Approval Sheet

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Date of examination: 28/ 12 /1997

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ACKNOWLEDGEMENT

Praise and thanks be to ALLAH, the most merciful for assisting and directing me to the right way

This work has been carried out under the supervision and direction of **Prof. Dr. M.A. El-Borollosy,** Prof. of Agric. Microbiology, Fac. Agric., Ain Shams Univ., **Prof. Dr. M.A. Shatla,** Prof. of Agric. Biochemistry of the same faculty, **Dr. H. El-Kassas,** Assoc. Prof. Pedology, Inst. Environ. Studies and Res., Ain-Shams Univ. and **Dr. Bothaina F. Abdel-Ghani,** Head of Microbiol. Unit., Desrt Res. Cen.

I wish to express my sincere thanks to them for suggesting the problem, supervision, progressive criticism, keeping interest and guidance.

Thanks are also due to all my colleagues and staff members in Soil Fertility and Microbiology Dept., Desert Res. Center for encouragement and providing facilities.

ABSTRACT

Hoda Hassan Mohamed Abdel-Azeem. Production of a biofertilizer convenient for desert soils to limit the environmental pollution resulted from inorganic manuring. Unpublished Ph.D. thesis, University of Ain Shams, Institute of Environmental Studies and Research, Department of Agricultural Sciences.

Carbon and nitrogen sources of basal media used for propagating salt and drought tolerant strains of *Azotobacter chroococcum*, *Azospirillum lipoferum* and *Bacillus megatherium* were substituted with other suitable, available and inexpensive ones. In such concern, raw materials and agro-industrial by-products were tried. Submerged and surface culture techniques were compared for maximizing the growth of tested biofertilizers. The microbial viability on different carrier materials was traced during 4 months at room temperature. This was carried out for each organism singly and in a combination of all of them in a trial to prepare a multi-inoculant biofertilizer. A pot experiment was designed for cultivating wheat plants, in which the most suitable multi-inoculant preparation was applied as a biofertilizer in comparison to inorganic fertilizers. The obtained results show that media containing yellow corn meal free of combined nitrogen, containing molasses and dried yeast, and containing molasses and corn gluten were the most suitable media for maximizing the growth of *Azotobacter*, *Azospirillum* and *Bacillus* respectively under submerged culture conditions. Imported alginate and wheat bran (as an available and cheap material) proved to be the most suitable carriers for a mixed culture of the three organisms. Wheat plants inoculated with

such mixed biofertilizers showed significant increases in growth and yield.

Key words: Biofertilizers, Diazotrophs, P-dissolving bacteria, Microbial carriers, *Azotobacter, Azospirillum, Bacillus megatherium*.