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شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

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APPLICATION OF BIOFERTILIZERS IN POTATO PRODUCTION

By

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B.Sc. Agriculture (Agric. Microbiology), Ain Shams Univ., 1984

M.Sc. Agriculture (Agric. Microbiology), Ain Shams Univ., 1993

**A thesis submitted in partial fulfillment
of**

the requirement for the degree of

Doctor of Philosophy

in

**Agricultural Science
(Agric. Microbiology)**

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

2002

719
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APPROVAL SHEET

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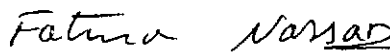
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ABSTRACT

Ayman Mohamed Yassen "Application of Biofertilizers In Potato Production". Unpublished Doctor of Philosophy Dissertation, University of Ain-Shams, Faculty of Agriculture, Department of Agric. Microbiology, 2002.

To evaluate the effect of biofertilization, a mixture composed of active strains of asymbiotic N_2 -fixers (*Azotobacter vinelandii* A1), phosphate solubilizer (*Bacillus megaterium* F5), potassium releaser (silicate bacteria- *Bacillus circulans* Ta1), siderophore producer (*Pseudomonas fluorescens* As1). Moreover, was evaluated an antagonistic microorganism (*Pseudomonas fluorescens* G2) against the phytopathogen *Ralstonia solanacearum* causing rot disease of potato plants was also added to the biofertilizers mixture, in the presence of different levels of N, K and different P-sources on growth and yield of potato plant.

For achieving these goals, two pot experiments and confirmatory field experiment for potato cultivation was carried out.

Also, a comparative study was carried out between different carrier materials, peatmoss, vermiculite and rice husk to evaluate their effect on survival of five strains of bacteria used as multi-biofertilizer and biobactericide agent during 90 days of storage at 5 and 30°C. These carriers were inoculated either with inocula in a density of about 1×10^8 cells/ml or with a heavy density of inocula being about 1×10^{10} cells/ml.

The obtained results clearly showed that application of a mixture of biofertilizers in based on rice husk as a carrier increased potato yield and growth characterized saved not less 25% of the amount of needed nitrogenous and potassic fertilizers and substituting half the amount of super-phosphate

with rock-phosphate of potato P-fertilization.

Key words : Biofertilizers, biological control, carrier,
peatmoss, vermiculite, rice husk, rock-phosphate,
Azotobacter vinelandii, *Bacillus megaterium*,
Bacillus circulans, *Pseudomonas fluorescens*,
Ralstonia solanacearum.

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 in the laboratories and facilities of the Unit of Biofertilizers, Fac. Agric., Ain Shams University under the supervision and direction of **Prof. Dr. Y.Z. Ishac** (GOD BLESS HIS SOUL), **Prof. Dr. E.A. Saleh** and **Prof. Dr. Fatma R. Nassar**, Professors of Agric. Microbiology, Fac. of Agric., Ain Shams Univ.

I wish to express my deepest gratitude to them for suggesting the problem, supervision, keeping interest and progressive criticism.

Special thanks are due to **Prof. Dr. M.A.EL-Borollosy**, Prof. of Agric., Microbiology and Director of Unit of Biofertilizers, Fac. Agric., Ain Shams Univ. for his help in preparing the manuscript.

Thanks are extended to all my colleagues and staff members in the Unit of Biofertilizers and Agric. Microbiology Dept., Fac. Agric., Ain Shams Univ., for providing facilities and encouragement.

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