EFFECTS OF MINERAL NUTRITION ON SURVIVAL AND SYMBIOTIC ASSOCIATION OF SOME RHIZOBIAL STRAINS

Thesis

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By

MONA MOHAMED ABOU EL NOUR
B.Sc. in Botany 1983
M.Sc. in Botany 1990

Botany Department
Faculty of Girls
Ain Shams University

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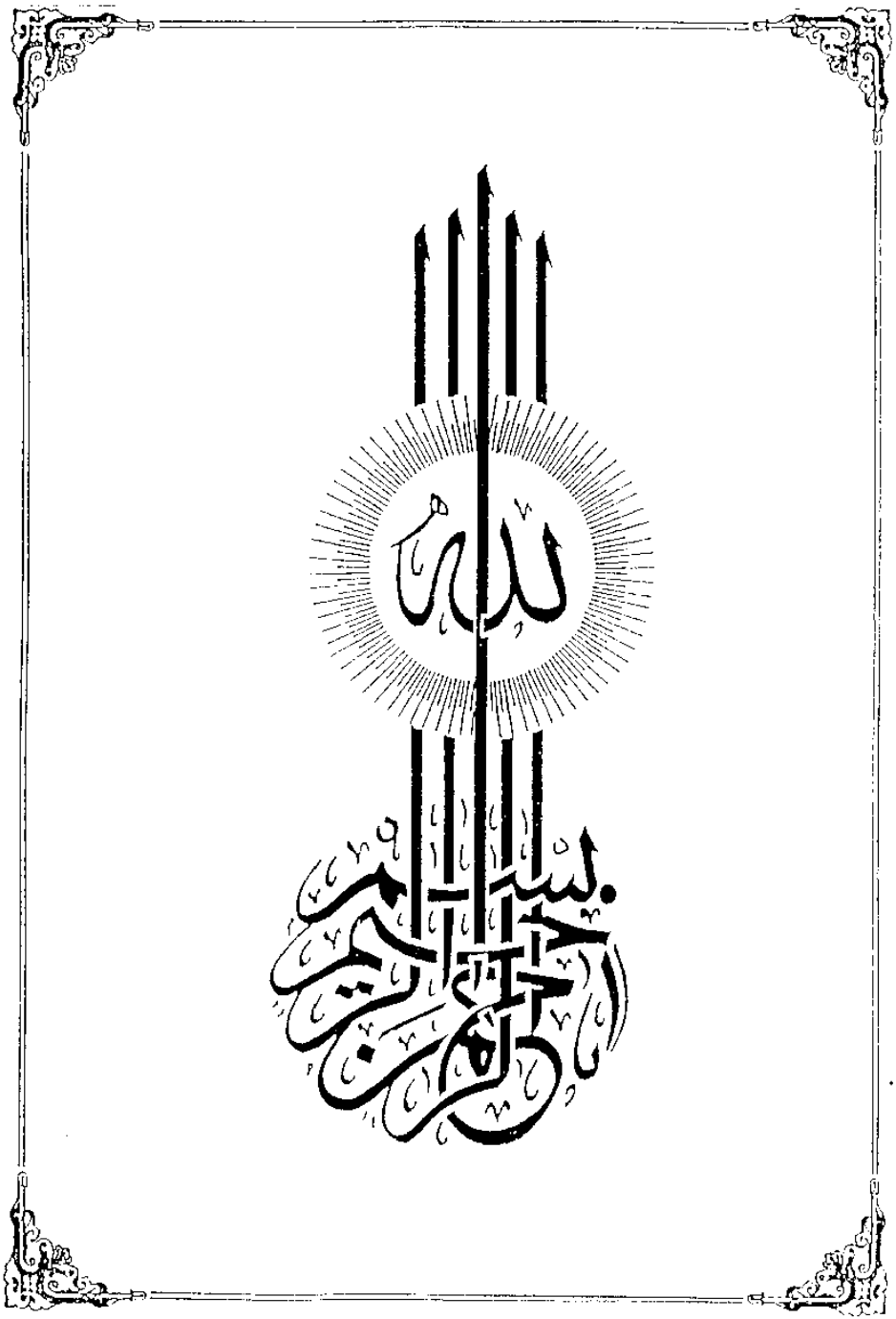
﴿ وَقُل رَّبِّ زِدْنِي عِلْمًا ﴾

صدق الله العظيم



Approval Sheet

Name : **Mona Mohamed Abou El Nour**

Title : **Effects of Mineral Nutrition on Survival And Symbiotic Association of Some Rhizobial Strains.**

This Thesis has been Approved by :

1- **Prof. Dr. Mehrashan Taha El-Mokadem** _____

2- **Prof. Dr. Fatma Abd El -Wahab Helemish** _____

3- **Prof. Dr. Samir M. Abd El-Wahab** S. Abdel-Wahab

TO MY PARENTS

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INTRODUCTION

1- Introduction

When plant nutrient problems are observed in the field, one is faced with the question "what is the best and most economical way to solve this problem?". Actually, workers have used soil amendments to correct deficiencies of macro and microelements, this possible solution can be completed by using different kinds of microorganisms, which are known to play a vital roles in physiological processes in ecosystem. One of the most benificial contributions of soil microorganisms to plant development is the supply of nutrients essential to plant growth.

In developing countries where food consumption exceeds production, the greater use of legumes can have a considerable beneficial effect, and therefore the symbiotic relationship between root-nodule of the genus *Rhizobium* and legumes is of special significance to legume production, as seed inoculation with effective strains of *Rhizobium* proved to be a benificial practice to ensure effective nodulation, good growth and high yield.