USE OF *AZOLLA* AS AN ALTERNATIVE SOURCE OF MINERAL NITROGEN FOR SOME CROPS

Submitted By

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Dedication

I dedicate this work to:

soul of

Prof. Dr. Magdi Ismail Mohamed Mustafa

Prof.of

Agric. Microbiology., Dep.ofAgric. Microbiol., Fac. of Agric., Ain Shams University For last help during this work.

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1- INTRODUCTION

Increasing population in Egypt led to a remarkable shortage in human food supply. Therefore, it was necessary to find a practical and guaranteed approach to provide enough food for facing the population increase. In this respect, more than one million feddans of desert area around the country are being cultivated with different crops including faba bean and soybean as one of the most important legumes that provide a considerable part of human protein requirements. Special attention paid for soybean as one of the most promising legumes enough to supply a considerable size of human protein requirements withreasonable costs (Shehata, 2004).

So, an attention directed towards the desert soils, characterized by sandy or calcareous nature. The fertility status of this soil is poor, in turn application of bio or organic-fertilization by using microorganisms or organic supplements to improve it through their activities and providing most of the essential nutrients required to plant growth and crop productivity (Radwan, *et al.* 1993). The organic matter content of Egyptian soils does not exceed 2% due to high temperature and dry climate in addition to the shortage of the organics manure (Riad, 1982). Therefore, it is necessary to add the organic fertilizers to improve the biological properties of the newly reclaimed sandy soils Bohn *et al*., (1985). *Azolla pinnata* can double its biomass in 3-5 days under optimum laboratory conditions while the doubling time taken in the field is generally more (Watanabe *et al*., 1977). *Azolla* contains 3-6 % N, 0.5- 0.9 % P, 2 – 4.5 % K on dry weight basis besides other major and minor nutrients. Abo Taleb *et al*. (2002) indicated that different ratios of farm yard manure (FYM) and poultry manure combined with bacterial