UTILIZATION OF BIOFERTILIZERS TO IMPROVE GARBAGE COMPOST PROPERTIES FOR INCREASING WHEAT YIELD IN DESERT SOIL

By

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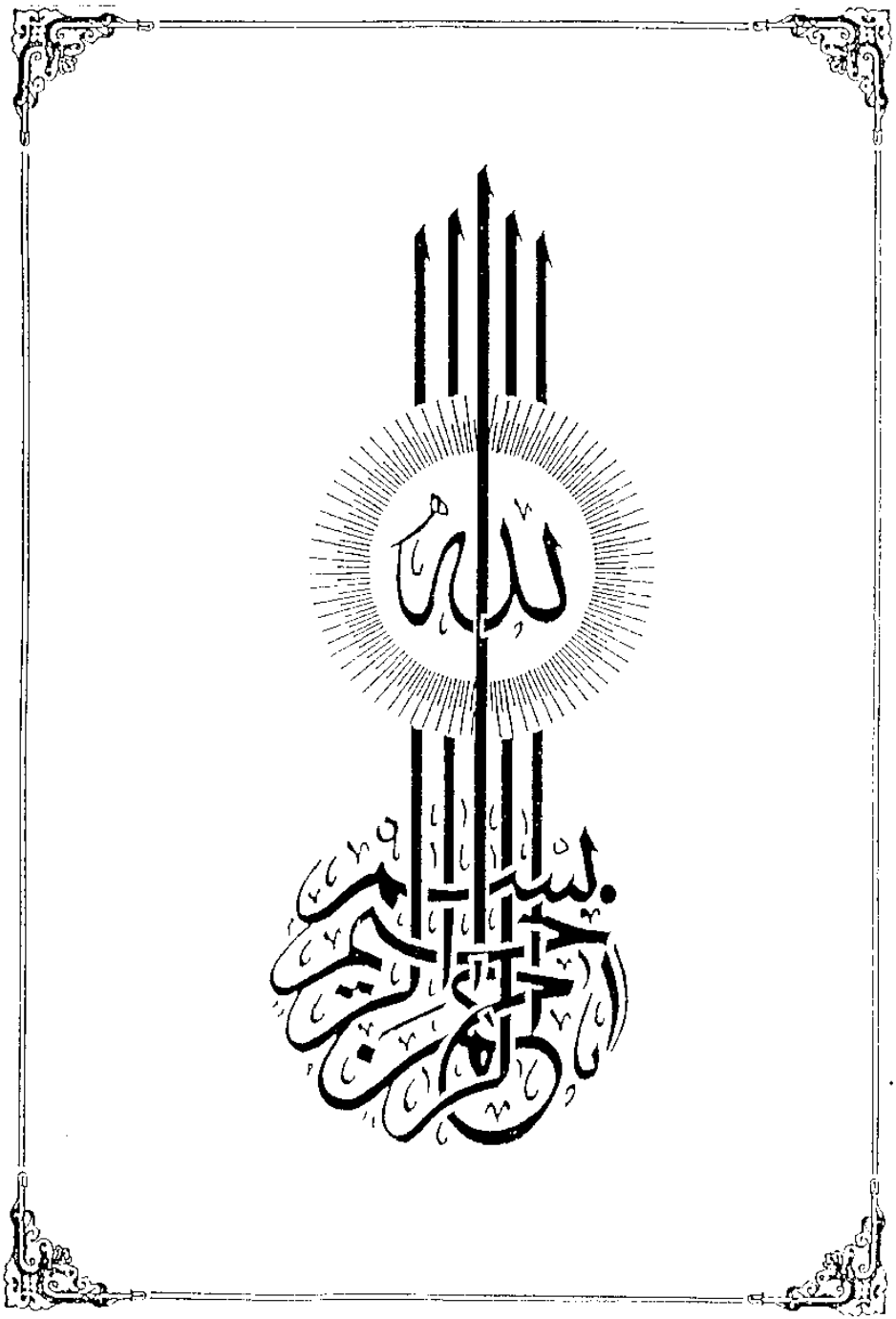

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LIST OF CONTENTS

LIST OF TABLES

1. INTRODUCTION

Ameliorating cultivation for maximizing plant prodction, particularly in desert soils, is considered to be of a prime importance, especially in developing countries, like Egypt, suffered from the shortage of cereals which represents the main food in.

Organic manuring of such sandy desert soils by the available organic manures (e.g., garbage and sheep manures) resulted in modifying their structure and water holding capacities. Moreover, addition of organic matter to soil, influences the solubility of certain soil minerals and makes them more readily availabl for plant and microbial growth, and increases the soil buffering properties. Organic matter in soil also serves as a soure of energy for the development of microorganisms and supplying them with certain essential nutrients required for their growth and activity (**Waksman, 1952; Baver, 1963; Bear, 1965**). Application of organic matter poor in its N-content (such as gargabe manure) needs a supplementation with nitrogen or some organic manures rich in their N-content (such as sheep manure) to stimulate decomposition and carbon mineralization of organic matter in soil (**Alexander, 1977**).

In the last few decads, a considerable amount of information has accumulated on the various association of diazotrophs and the roots of gramineae. Apparently, much of the attention has focussed on azotobacters and azospirilla as these

are mainly associated with cereal crops of great economic importance. Such attention offered some insights into the possibility of establishing these associations through seed inoculation (**Dobereiner *et al*, 1976, Monib *et al*, 1979; El-Shehaby, 1981; Lakshmann, 1982; Okon, 1982, Ishac *et al*, 1984 a,b,c,d, Eid *et al*, 1984; Yassen, 1993; Faid, 1994**).

Some organisms which possess the merit of solubilizing unavailable phosphates are of a major importance to soil fertility especially those of high pH level. Phosphate dissolvers were used as microbial inoculants (biofertilizers) for increasing soluble phosphates which are more readily absorbable by the growing plants (**Hanafy, 1972; Yassen, 1994**).

Therefore, the main target of present study is to evaluate the effect of garbage manure on the growth and yield of wheat plants cultivated in two different desert soils. Trials to improve its fertilizing properties by the application of sheep manure and/or biofertilization with associative N_2-fixers and P-dissolver were carried out. Organic carbon, total nitrogen, microbial densities and activity in wheat rhizospheric soil were also determined periodically. These were carried out in the presence of different doses of inorganic N-fertilizer.