

INTRODUCTION

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In Egypt, agriculture is mainly dependent on chemical fertilizers, whose its consumption per feddan, is more than the average of the whole world. However, because of shortages in some fertilizer supplies and the current cost of energy which is used for their production, the cost of fertilizers has risen tremendously and will continue to rise. In addition to that, the efficiency of fertilizers used in Egypt is low either as result of high pH of soil and calcium carbonate levels in the case of chemical P-fertilizers, or due to nitrate leaching or NH_3 volatilization from the nitrogen fertilizers. In view of the economical and environmental problems of using the chemical fertilizers, utilization of biofertilizers would not only result in increasing soil fertility and crop production through its addition nutrient supply, but would also help in solving sanity and environmental problems, as well as would save foreign currency for Egypt.

Azotobacter and *Azospirillum* are a well known living heterotrophic bacteriam, which plays a beneficial role in corp production, considerable amounts of nitrogen are fixed through inoculation with *Azotobacter* and *Azospirillum* on the growth of cereals and other crops. This may be due to supplementing the growing plants with fixed nitrogen and growth promoting substances. Studies in this field showed that inoculation with these microorganisms can save 25% of the normal field rate of inorganic N fertilizers and at the same time they promote plant production.

Phosphorine and *VA-Mycorrhizal* play an important role in soils of Egypt which are poor in available phpsphorus.

The aim of the present work is to evaluate the effect of soil inoculation with nitrogen fixers namely (*Azotobacter* and *Azospirillum*) and phosphate

solubilizing microorganism namely *Phosphorine* and *VA-Mycorrhizal* fungi, on growth of cereal (wheat) and legumes (soybean) crops as fertilized with either super phosphate or Rock phosphate. Also, the effect of inoculation with different inoculants on the availability of nutrients (N, P and K) for the tested plants was studied. In addition to that the goal of the present investigation is to give a clear view about the interaction between mineral and biofertilizers in the presence of wheat (cereal crop) and soybean (legumenous crop).