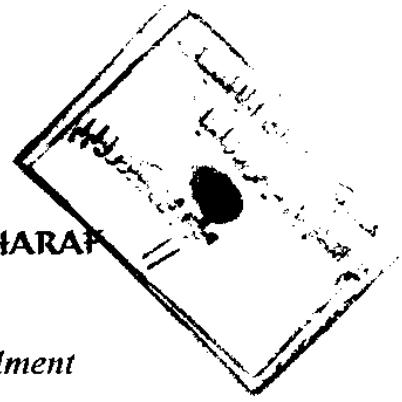
RESPONSE OF SOME MEDICINAL PLANTS TO INOCULATION WITH ASYMBIOTIC N_2-FIXERS



By

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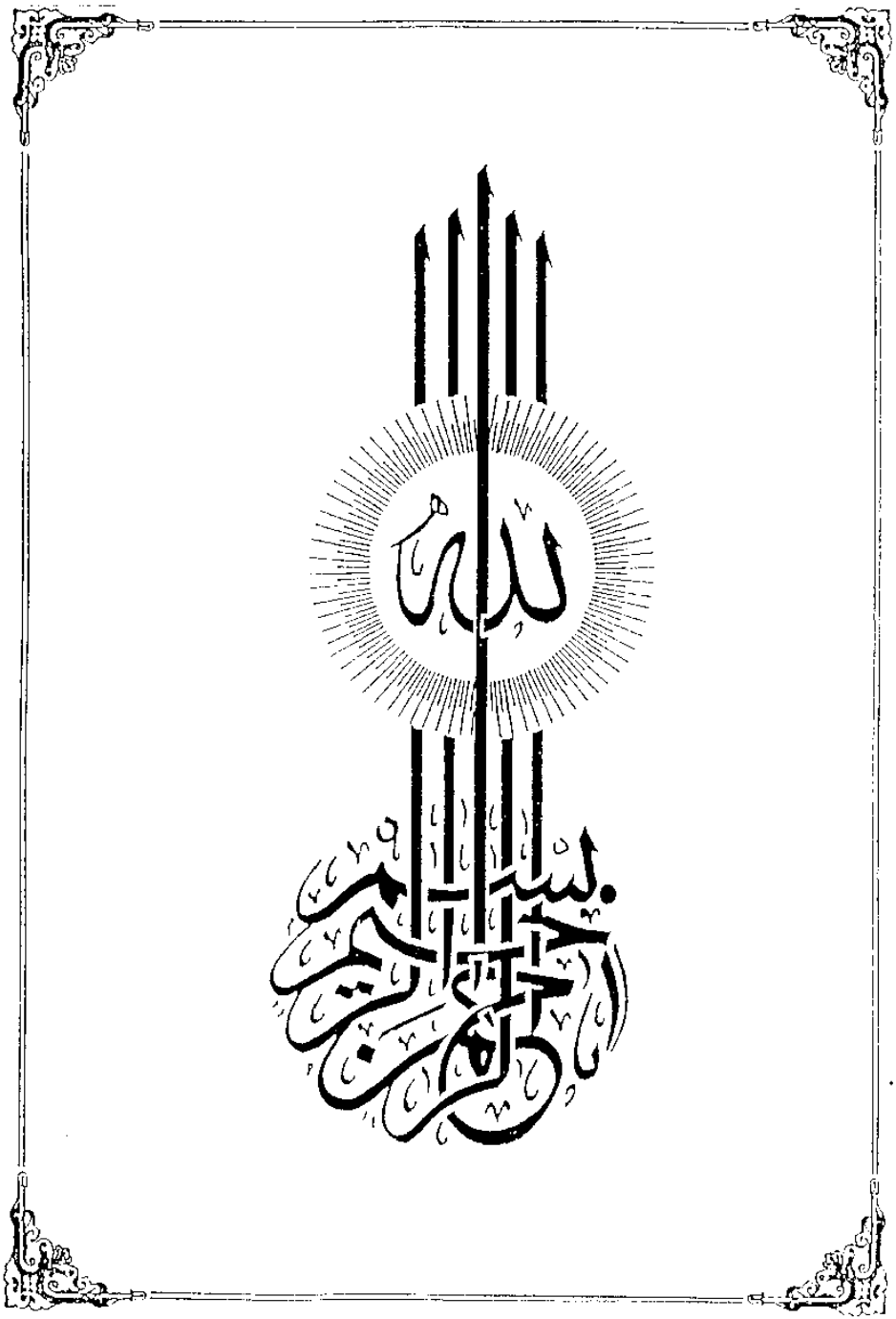

RESPONSE OF SOME MEDICINAL PLANTS TO INOCULATION WITH ASYMBIOTIC N_2-FIXERS

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ABSTRACT

This study was carried out to investigate the distribution of some wild plants in Egyptian deserts and their rhizospheric microbial content (total microbes, azotobacters and azospirilla). Three localities were subjected to investigation namely, a) The area around Cairo- Suez desertic way representing east Cairo desert, b) The area around Cairo-Fayum desertic way representing west Cairo desert, and c) The area around Cairo-Alexandria desertic way representing north-west Cairo desert. The collected plants were identified to throw some light on the presence of wild herbs in those deserts.

In trials to improve the growth and to maximize the production of medical substances by two medicinal plants, two field experiments were carried out, to evaluate the effect of inoculation with asymbiotic diazotrophs (*Azotobacter* and *Azospirillum)*, in comparison to the symbiotic one (*Bradyrhizobium*), inoculation with VA mycorrhizae, supplementation with different forms and doses of P-fertilizers and amendment with different doses of inorganic N-fertilizer, on the growth, rhizospheric microbial densities, N_2- ase activity, plant N and P-contents, mycorrhizal root infection and the content of medical substances of *Datura stramonium* and *Ammi visnaga*. These experiments were carried out in the presence of 0.5% garbage compost, as an organic manure.

The obtained results clearly show that inoculation with a mixture of azotobacters and azospirilla, amendment with the full doses of rock-phosphate and inorganic N-fertilizer, in combination with VAM inoculation, remarkably improved the growth of both medicinal plants (*Datura* and *Ammi*) and increased their contents of alkaloids and khellin respectively.

Key Words : Medicinal plants, *Datura stramonium*, *Ammi visnaga*, diazotrophs, *Azotobacter*, *Azospirillum*, *Bradyrhizobium*, VA mycorrhizae.

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