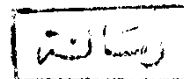
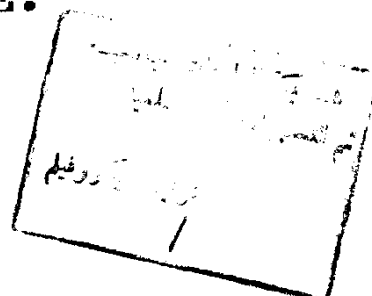


STUDIES ON *FUSARIUM* WILT DISEASE OF SESAME IN A.R.E.

BY

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A thesis submitted in partial fulfilment
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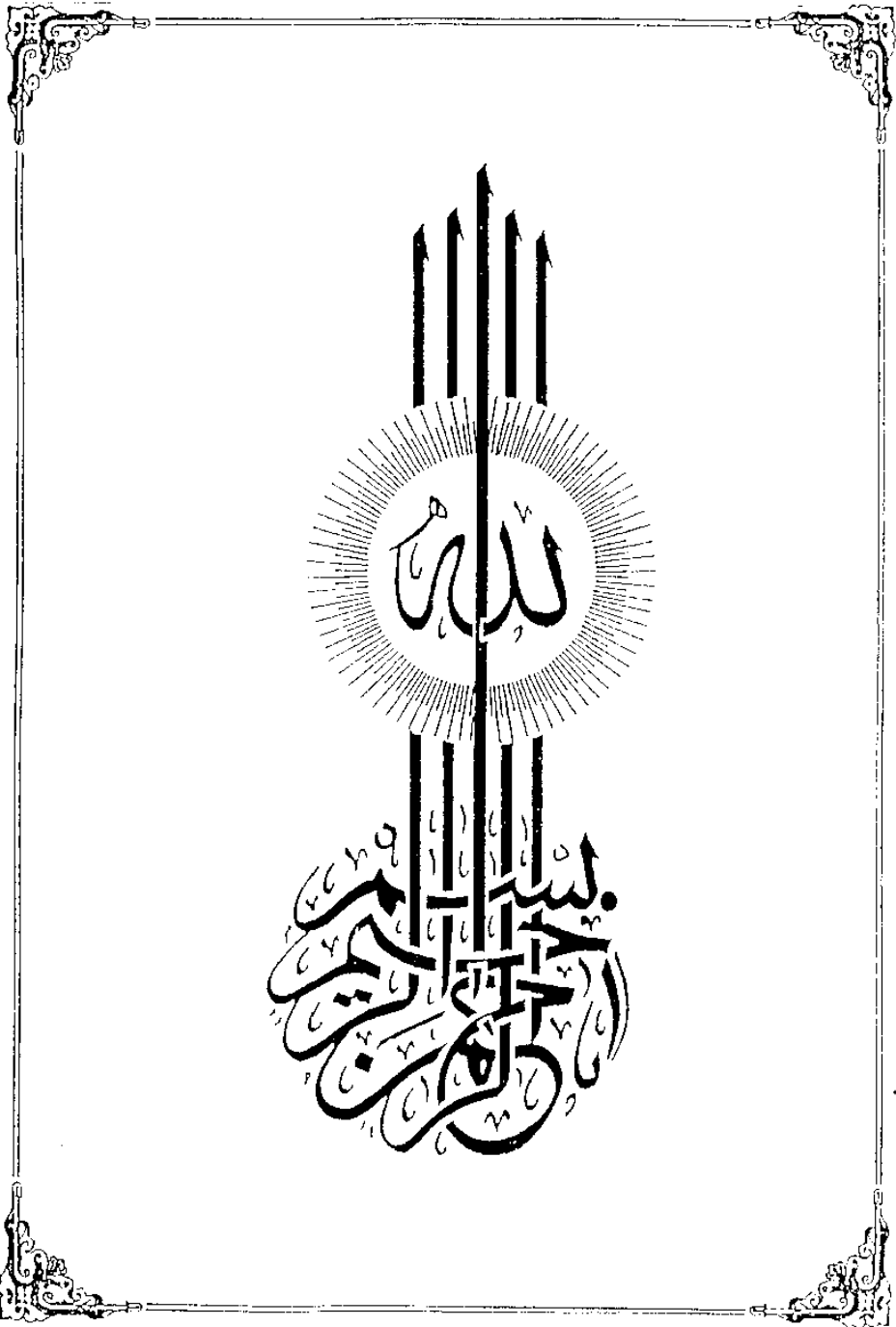
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ABSTRACT

Fusarium wilt of sesame is one of the main destructive diseases of this crop in most countries and Egypt. *Fusarium oxysporum* f. sp. *sesami* is the causal pathogenic fungus. The

interrelation ship between the causal organism and sesame rhizosphere was studied. Agricultural practices, i.e., date of sowing, varietal susceptibility, fertilizer and fungicidal treatment were investigated to minimize disease incidence.

- * First June is the best dates of sowing reduced percentage of infection, disease severity and gave higher yield of sesame seeds.
- * Half recommended dose of NPK gave a less percentage of infection, disease severity and gave higher yield.
- * Normal recommended dose of micro elements gave a less percentage of infection, disease severity and gave higher yield.
- * 62.5 kg feddan agriculture sulphur added to the soil before sowing reduced the percentage of infection, disease severity and gave a higher yield of sesame seeds.
- * All fungicide treatments as seed dressing by Vitavax/Captan alone or together with V./Captan, Benlate or Daconil as soil drensh effectively reduced disease severity. *Fusarium* spp. counts were decreased in sesame rhizosphere. Benlate caused an increase in bacterial count especially at flowering and fruiting stages of growth. Biocontrol agents *Trichoderma* sp. and *Aspergillus terreus* were increased in Benlate and Daconil treatments, and this may be the reason of decreasing disease incidence.
- * Biocontrol agents bacteria (*Bacillus* spp.) , Fungi (*Aspergillus* spp. and *Trichoderma* spp) and *Streptomyces* spp. were studied by using petri-dish technique. *Trichoderma harzianum* was the best biocontrol agent against the pathogen under such conditions. *Trichoderma harzianum* effectively reduced disease incidence in low inoculum density, but in case of high inoculum density in sterilized soil, the fungus had no effect.

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KEY WORDS

- Actinomycetes
- *Bacillus megaterium*
- Bottles technique
- Cultivars
- Daconil
- *Fusarium oxysporum*
- Nitrogen
- pathogenicity
- Rhizospheric
- *Streptomyces*
- Sesame (*Sesamum indicum* L.)
- *Trichoderma*

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INTRODUCTION