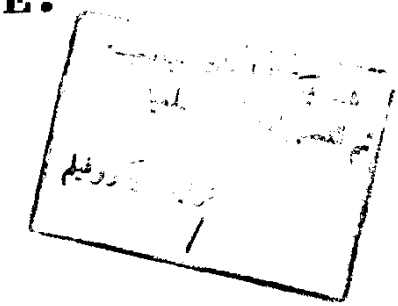
STUDIES ON *FUSARIUM* WILT DISEASE OF SESAME IN A.R.E.



BY

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A thesis submitted in partial fulfilment

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MASTER OF SCIENCE

in

(Plant Pathology)

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(B.Sc. Agric., 1983)

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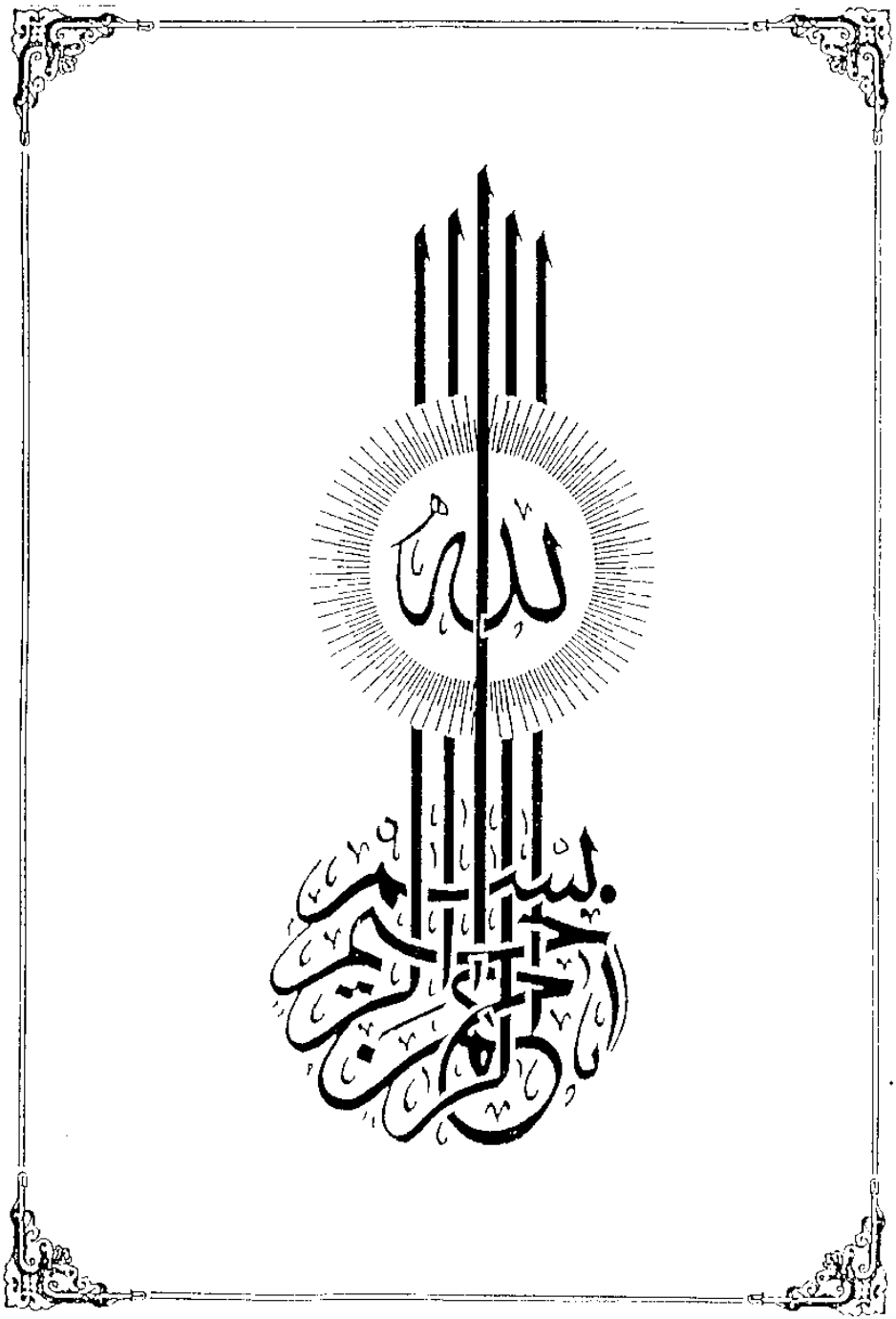

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ABSTRACT

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

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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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Contents

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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

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