CONTENTS

LIST OF TABLES

LIST OF FIGURES

Title: **INTEGRATED CONTROL OF PINK AND BASAL ROT DISEASES OF ONION**

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ABSTRACT

Two diseases of onion were investigated *in vitro* and *in vivo.* These diseases were pink root caused by *Setophoma (Pyrenochaeta) terrestris* and basal rot caused by *Fusarium* spp. The aim of the study was to investigate the role of integrated disease management to control them. Several *Fusarium* spp. and one isolate of *S. terrestris* were isolated from onion roots and bulbs collected from different fields of four governorates i.e. Sharkia, Gharbia, Monofia and Behaira. Based on the morphological characteristics, pathogenicity test and using IGS analysis with the aid of the two specific primers PNFo and PN22 for *Fusarium oxysporum,* results confirmed that not all isolates belong to *Fusarium oxysporum* species where 10 isolates only were genetically identified as *Fusarium oxysporum* species while the remaining four isolates were *F. proliferatum* (3) and one was *F. solani.*One isolate of *S. terrestris* and different isolates of *Fusarium* spp. shown to be pathogenic to onion were used in subsequent experiments. Three cultivars i.e. Giza-20,Giza red and Giz-6 were tested in a greenhouse conditions in soil infested with different isolates of *Fusarium oxysporum* f.sp *cepea*, *F.proliferatum* and *F. solani*. The interaction between *S. terrestris* and *Fusarium oxysporum* f.sp *cepea* or *F.proliferatum* was studied. Infestation of soil with each of them led to the occurrence of the disease, but infestation with the two pathogenic

fungi increased the disease incidence. Trials of integrated disease management under greenhouse and field conditions exhibited that using of biological agents, *Trichoderma viride*, *Bacillus subtilis*, *Pseudomonas fluoresnces* and *Glomus* sp. in comparison with the fungicide Maxim without or with amendment compost under greenhouse and field conditions. The highest disease incidence and severity% of onion pink root rot were recorded in case of control treatment (without bio-agents or their mixtures). Also, the lowest disease incidence and severity % of onion basal rot were recorded with treatments of Maxim fungicide and *Glomus* sp. treatments respectively in absence of compost added. Also, in the absence of soil compost addition, the highest bulbs yield was recorded with *T. harzianum* and *T. viride* treatments without or with compost, respectively.

Keywords: *Allium cepa* L., *Fusarium*, *Setophoma*, Pathogenicity, IGS analysis, Biological agents**,** Maxim, compost.