Cucumber (*Cucumis sativus)* is one of the most important crops worldwide. Damping-off caused by *Pythium spp.* are considered among the most devastating diseases and leads to product reduction in farms and greenhouses. Biological control compared to other management methods, is the best approach to reduce pathogenic agents in the greenhouse. Biological fertilizers arbuscular mycorrhizal fungus *Glomus mosseae*, nitroxin and vermicompost were used as biologic control factors, against *Pythium aphanidermatum*. Application of the fertilizers in the seed planting rhizosphere of cucumber cultivars ES-2862 performed in a completely randomized design with four replicates. Seedlings were inoculated with the pathogen in the trifoliate stage. Seedling resistance to the disease was assessed and seedling characteristics were measured. Analysis of data and comparison of mean charecteristics were performed using SPSS software and LSD test at 5% level. The results showed that there was significant difference between the treatments and ehe control. To investigate the molecular mechanism of cucumber seedlings to disease resistance, changes in expression *Cupi4* and *Chitinase* genes were measured using qRT-PCR. Data analysis was performed using pffafl and the expression levels of target genes were determined for all treatments. The results showed that the expression of these genes, were affected by treatments where mycorrhizal treatments revealed more incremental effect on the expression of the genes. According to the results, biological fertilizers not only can be used as biocontrol agents, but also they can improve plant cultural characters.

Key words: Cucumber damping off, Plant morphology, Resistance gene expression

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The Thesis Submitted for the Degree of M. Sc
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Effects of bio-fertilizers on strength of greenhouse cucumber to slime mould *Pythium aphanidermatum*

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