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## ***ABSTRACT***

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### **ABSTRACT**

**Title of Thesis :** Control of peanut root-rot using some chemical substances.  
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This study was carried out to control the peanut root-rot disease by using NPK fertilizers and different chemical substances such as Humic acid, Sulfur and Gypsum. Six isolates of *Rhizoctonia solani* (the causal fungus of the peanut root-rot disease) were isolated and identified from diseased peanut plants growing in different locations of El-Behera Governorate. Of which, isolate No. 6 was the most aggressive as it incited pre- and post-emergence damping-off on two peanut cultivars (Ismailia 1 and Gregory). Based on the pathogenicity experiment, Gregory cultivar was more susceptible than Ismailia 1; therefore, Gregory was used in further experiments. NPK fertilizers at the rate of 150-200-50 kg/fed gave the lowest percentage of pre- and post-emergence damping-off in Gregory cultivar under greenhouse and field experiments. The same rate also exhibited the best growth characters and number of pods/plant. In another trial, the soil application or seed dressing by Humic acid, Sulfur and Gypsum, alone or in combinations, decreased the root-rot diseases of Gregory cultivar under greenhouse and field conditions. In the induced resistance experiment under greenhouse, Copper sulphate (used as inducer at rate of 4 mM/L) showed the lowest reducing percentage of disease 15 and 15% compared with control 40 and 30% pre- and post-emergence damping-off, respectively. Moreover, Potassium phospho-di-base gave the best effect on reducing the percentage of peanut pre-emergence damping-off reach 12% followed by Calcium chloride reach 14.5% at concentration of 4 mM/L in two growing seasons 2015 and 2016 compared with control reach 35.5%. In conclusion, NPK fertilizers (at the rate of 150-200-50 kg/fed), Humic acid, Sulfur and Gypsum not only decreased the peanut root-rot disease caused by *R. solani* but also enhanced the growth characters and number of pods/plant.