CONTENTS

Summary

- Isolation process from naturally infected plants showing wilt symptoms revealed 5 isolates belong to *Cephalosporium maydis*. Maize plants cv. Nab-el-gamal grown in infested soil showed the typical late wilt symptoms. Isolate CM2 was the highest virulence among the tested *Cephalosporium* isolates.
- All the tested inoculum densities(1, 2, 3, 4 and 5 %) of *C. maydis* are able to cause late wilt disease in maize plants. Disease severity increased by increasing inoculum densities. The highest disease severity was detected at 5 % inoculum density.
- Maize cultivars responded variably to infection by *C. maydis*., Out of thirteen tested cultivars one cultivar (T.W.C.310) was partially resistant while, Nab-el-gamal was the highest susceptible one to fungus infection.
- All tested antioxidants i.e. salicylic acid, citric acid and propyl gallate at concentrations of 400 ppm had a clear inhibitory effect on growth parameters of the pathogen.
- The highest inhibitory effect of the dry weight and sporulation were obtained using citric acid while, the highest inhibition of the linear growth, germinated spores and germ tube length was obtained using propyl gallate.
- The effect of culture filtrate components (ethyl alcohol, ethyl acetate and acetone precipitate) on growth parameters of *C. maydis* were indicated that the highest inhibitory effect on fungal dry weight and sporulation was observed at 400 ppm of ethyl acetate precipitate was added to growth media. The most pronounced inhibitory effect on linear growth was detected as a result of using ethyl alcohol precipitate. Moreover, the highest inhibition onspore germination and germ tube length was obtained by using 100 ppm of ethyl alcohol precipitate.

- Regarding the dry weight, linear growth and sporulation the highest inhibitory effect was obtained using coumarin. Meanwhile, xanthan hadan inhibitory effect on the germinated spores and germ tube length.
- Antioxidants have significantly effect on maize plants infected by pathogen. Propyl gallate significantly reduced thepercentage of discolored leaves. Moreover, plants treated with 100 and 200 ppm of propyl gallate was taller than those treated with any other tested antioxidants.
- Ethyl acetate precipitate was observed significantly increase plant lengthanddecreased the percentage of discolored leaves compared to all treatmentsor to control.
- Coumarin significantly decreased the percentage of discolored leaves caused by *C. maydis* andincreased plant length compared with all treatments.
- Data showed that treatment of maize grains with antioxidants (salicylic acid, citric acid and propyl gallate) had variable effect on oxidative enzyme activity (catalase, peroxidase and polyphenol oxidase) in different plant organs infected with fungus. Additionally, the highest enzyme activity was detected after treatment with propyl gallate.
- Treatment of maize grains with fungal culture filtrate precipitates (ethyl alcohol, ethyl acetate and acetone precipitates) had variable effect on oxidative enzyme activity (catalase, peroxidase and polyphenol oxidase) in maize organs infected with fungus. The highest enzyme activity was detected after treatment with ethyl acetate precipitate.
- Treatment of maize grains with xanthan and coumarin had variable effect on oxidative enzyme activity (catalase, peroxidase and polyphenol oxidase) in maize organspreviously infected with fungus. The highest enzyme activity was detected after treatment with coumarin.
- Treatment of maize grains with different tested substance(antioxidants, fungal culture filtrate precipitates and xanthan and coumarin) had variable effect on

total phenol contents in maize (root, stem and leaf) previously infected with fungus. The highest total phenol contentswas recorded after treatment with propyl gallate, ethyl acetate precipitate and coumarin.

- Treatment of maize grains with different tested substance (antioxidants, fungal culture filtrate precipitates and xanthan and coumarin) had variable effect on flavonoid contents in maize organs infected with fungus. The highest flavonoid contents was detected after treatment with antioxidants (salicylic acid followed by propyl gallate), ethyl acetate precipitate and xanthan.