P.32 - Effects of cations on biological control of Sclerotinia sclerotiorum by Pseudomonas fluorescens

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Some of *Pseudomonas fluorescens* strains as biocontrol agents significantly inhibit growth and development of *Sclerotinia sclerotiorum.* Moreover, environmental factors affect biocontrol activities of these strains. In this study, bacterial strains of *P.fluorescens* CHAO and B_{119} accompanied with copper, zinc and calcium ions were used against *S. sclerotiorum*. In *in vitro* studies the extra cellular liquid exudates, produced by the bacterial strains in the presence of Zn^{2+} (1mM $ZnSo_4$, $7H_2o$), showed the highest inhibitory effect on germination of sclerotia and fungus mycelia growth. Under greenhouse conditions, combinations of each of CHAO and B_{119} with 33 • g/ml each of Zn^{2+} and Ca^{2+} (as $Cacl_2$, $2H_2o$) significantly reduced the percentage of the infected plants and increased the plant fresh weight compared to the mineral treatment alone. Addition of Zinc alone to hydroponics nutrient solution did not reduce sunflower seedling crown and root rot. Calcium at concentration of 33 • g/ml, when used alone, reduced the disease rate possibly through increasing the host plant cell membrane selective permeability and reducing the host root exudates.