

D-38 Possible mechanisms of action of two antagonists in *in vitro* suppression of sesame damping-off pathogen - *Rhizoctonia solani*

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Understanding the mechanisms of biocontrol of plant diseases is critical to the eventual improvement and wider use of biocontrol methods. Antibiotics and siderophores are considered as inhibitory compounds which can control (antagonize) the growth of pathogens.

Isolates of *Bacillus subtilis* and *Pseudomonas fluorescens* were tested against *Rhizoctonia solani* in both one tenth CDA and KB medium. Dual culture plant method and slide culture technique were used. Non-pathogenic *Fusarium solani* isolate was used for the comparative study of the mechanism. Blocks of agar containing siderophores without bacteria were also tested for antagonism.

In one tenth CDA medium both fungi were inhibited by *B.subtilis*. In KBA medium *Pseudomonas fluorescens* inhibited the pathogen but not *F.solani*. In slide cultures *R.solani* was strongly inhibited by the *Pseudomonas fluorescens* in KB medium and by *B.subtilis* in 1/10 CDA medium. Slight difference between 2 strains of *P.fluorescens* in antagonistic effect was observed. Blocks of siderophores also inhibited pathogenic growth.

Some extracellular substances which are produced by microorganisms may be the cause of antagonism *in vitro*. We propose that *B.subtilis* and *P.fluorescens* antagonize *R.solani* by antibiotics and siderophores, respectively.