



## Study of the bacteria-bacteria interactions within the mixture of plant beneficial bacteria used for plant protection against soft-rot pathogens.

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### Abstract

Plant pathogens can cause up to 40% of yield losses and huge deterioration in quality. Traditional methods used against plant pathogens, mainly dependent on the usage of chemicals, although reliable, pose a major threat towards natural environment. Because of that, biological plant protection, as an ecologically friendly alternative, is becoming more appreciated. It relies, inter alia, on the usage of beneficial bacteria to fight plant pathogens. Soft Rot Enterobacteriaceae (SRE) are one of the most important bacterial plant pathogens causing soft rot disease of potato tubers in storage and black leg of potato plants in the field. Strains used for biocontrol purposes must be highly competitive and able to contradict a broad range of pathogens.

Within my PhD project I will examine interaction between biocontrol strains, selected previously in dr Robert Czajkowski's LIDER project. Chosen strains show promising protective properties on potato (*Solanum tuberosum*) tubers against soft rot disease. So far, we have known that these bacteria display antagonistic activity towards each other *in vitro*. It is yet to be established how they interact in the natural environment and how will it affect their overall performance. During my PhD studies I plan to examine interactions between these bacteria on plant, and their implications for biological plant protection. I will use strains natural resistance to examine the competition between given strains and study their volatiles interaction.

I believe that deeper insight into interaction network between plant, biocontrol strains and pathogens is needed for more successful usage of microorganism in the process of fighting plant diseases. I hope that my results will shed light on how biocontrol product should be designed in the sense of strains used, their composition and methods of their application.

