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### **Exploration of secondary metabolites as biocontrol agents against sugar beet disease.**

Sugar beet pathogens are a major issue that greatly impact the yield of sugar beets harvested each year. Developing new strategies to combat sugar beet disease is vital for the growth and survival of the sugar beet industry. The sugar beet plant is home to its own microbial community that relies on the health of the sugar beet plant to ensure its survival. Therefore, certain sugar beet endemic microorganisms have developed their own strategies to defend themselves against sugar beet diseases. The aim of this study is to identify small molecule secondary metabolites from the sugar beet microbiome that aid in the defense against sugar beet pathogens. In this study we have identified a variety of secondary metabolites from *Burkholderia contaminans*, a bacterial species isolated from sugar beet leaves shown to inhibit the growth of the sugar beet pathogen *Cercospora beticola*. Additionally, the identification and biosynthesis of metabolites from *C. beticola* is a key aim of this study to better understand the strategies used by *C. beticola* to infect the sugar beet plant. Finally, explorations of metabolites from an entomopathogenic fungus isolated from sugar beet root maggot is underway to gain insight into strategies used to combat this pest.