

Evaluation of beneficial rhizosphere and endorhizosphere microorganisms as bioinoculants for the control of soil borne root pathogens

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SPG Contributions	Project Status	Duration/Timeline of Project (Year to Year)	Total Project Cost
\$150,000.00	Completed	June 2015 – November 2017	\$150,000.00

Project Description

To isolate microorganisms from the rhizosphere and endorhizosphere of field pea roots and assess their biocontrol properties against *Aphanomyces euteiches*; to identify the biocontrol organisms using molecular techniques.

Outcome

This project was initiated to isolate and evaluate bacterial inoculants as potential biocontrol agents against aphanomyces. Of the 184 isolates inhibiting mycelial growth, 50 inhibited zoospore germination by at least 75%. Growth chamber trials subsequently identified 20 isolates that suppressed or reduced aphanomyces root rot in pea grown in a sterile system. When evaluated using non-sterile soils as the growth medium, three organisms in particular were identified as effective biocontrol agents. Bacterial isolates varied in their potential to inhibit the different life cycle stages of aphanomyces, and differed in their ability to control disease development in non-sterile soils, which suggests variations in the production and secretion of inhibitory compounds and/or differences in the mode of action exerted by inhibitory metabolites produced by the biocontrol bacteria. This study confirms the potential to develop effective biocontrol inoculants against aphanomyces.

Research Objective

OBJECTIVE 1

To isolate microorganisms from the rhizosphere and endorhizosphere of field pea roots and assess their biocontrol properties against *Aphanomyces euteiches*.

OBJECTIVE 2

To identify the biocontrol organisms using molecular techniques.