

Characterization of antifungal compounds involved in the biocontrol of *Leptosphaeria maculans* in canola

R. Ramarathnam and W.G.D. Fernando*

Department of Plant Science, University of Manitoba, Winnipeg, MB R3T 2N2, Canada

Blackleg, caused by *Leptosphaeria maculans* (Desmaz.) Ces. & de Not. (*Phoma lingam*- Anamorph), is a destructive disease of Canola (*Brassica napus* and *B. rapa*). Biocontrol of the pathogen with the use of antagonistic bacteria, overcoming the limitations of the traditional methods of disease control (i.e. chemical control), seems to be the most viable and ecofriendly option. Bacteria were screened for their antifungal activity on plate (*in vitro*) and plant assays (cotyledon stage- *in vivo*) to identify potential biocontrol agents of the pathogen. Forty-three potential biocontrol agents were identified, which had high antifungal activity on both plate and plant assays. The agar diffusible antifungal activity seems to indicate the role of antibiotics in biocontrol. Initial experimental data from sirodesmin PL inhibition assays, the toxin produced by *Phoma lingam*, with living bacterial cells and bacterial broth extracts, seem to indicate that the control of the disease is mediated more through inhibition of germination of spores rather than the inhibition of the toxin activity. The potential biocontrol agents from the cotyledon assays will also be tested on the rosette stage (4-leaf stage) for their disease control activity to identify the best biocontrol agents. Thin layer chromatography assays with *Cladosporium* spores were performed, which indicated the presence of antifungal compounds in the bacterial broth extracts. The antifungal compounds will be isolated, purified and characterized, through flash chromatography, HPLC and NMR respectively, and the antifungal antibiotic profile of the best biocontrol agents will be presented at the congress.