EXTRACELLULAR GLYCOSIDASES OF *PYTHIUM IRREGULARE*

Dimitre A. Ivanov[1], Mark A. Bernards[1]
[1]Department of Biology & the Biotron, The University of Western Ontario, London, ON, Canada N6A 5B7

The ginseng (*Panax quinqufolius* L.) pathogen *Pythium irregulare* (Buis) is able to selectively metabolize the 20(*S*)-protopanaxadiol ginsenosides Rb1, Rb2, Rc, Rd, and gypenoside XVII *in vitro* via extracellular glycosidases, leading to the formation and partial assimilation of ginsenoside F2. To determine whether there is a correlation between the activity of ginsenoside metabolizing β-glucosidases and the pathogenicity of *P. irregulare* towards ginseng, the production of ginsenoside-specific glycosidases and pathogenicity of various isolates of *P. irregulare* were determined. For this, 10 isolates of *P. irregulare* were selected on the basis of their genetic variability and the host plant they were isolated from (including ginseng), and obtained from the Canadian Collection of Fungal Cultures. These isolates were cultured *in vitro*, in the presence of ginsenosides and the level of ginsenoside-specific glycosidase activity in their extracellular proteins was measured. Meanwhile ginseng seedlings were inoculated with the same suite of *P. irregulare* isolates and scored for disease symptoms to estimate the relative pathogenicity of each isolate towards ginseng plants. When combined this data shows a positive correlation between glycosidase activity in *P. irregulare* and the pathogenicity of this organism towards ginseng.

Presenting Author: Mark Bernards
Preference: Oral
Student/Post-Doc competition: No