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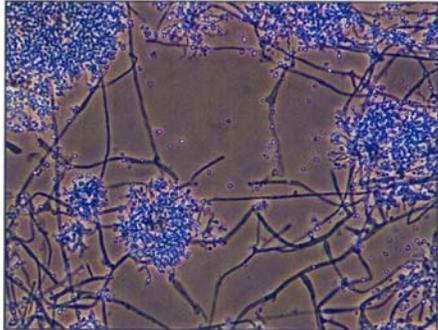
Date

Friday November 2, 2007

2 pages from Mario Lanthier

 Institute for Sustainable Horticulture

**BENEFICIAL FUNGI AND THEIR USE IN BIOCONTROL
WORKSHOP**
October 26, 2007
Kwantlen University College



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“Beneficial Fungi and their Use”, the 3rd in a series of biocontrol workshops organized by Kwantlen University College. It was held October 26 in Langley. See <http://www.kwantlen.ca/ish/events.html>.

This was a technical workshop with presentations by scientific researchers. About 70 persons attended, a large proportion were university and college students, also some persons from the industry.

Products discussed are not available in Canada but are in the process of registration and may be on the market in 2008.

Metarhizium anisopliae, a new biocontrol for root weevils

Dr. Denny Bruck, USDA-ARS, Corvallis Oregon

Metarhizium is a fungus that is entomopathogen (causes disease in insects).

- This fungus was recovered in 2002 from nursery soils in the Oregon and Washington.
- It can survive in the rhizosphere (region outside of plant roots where food is abundant).
- Registered as a pesticide in the United States (in process of registration in Canada).

The product is mixed into the potting soil or applied as a soil drench.

- The fungus spores cannot move and have to be placed on plants roots.
- Research: applied at 10⁶ spores / gram of soil, result is 96 to 100% insect mortality.
- For more information, see Journal of Environmental Horticulture September 2007, or a summary article at <http://www.ars.usda.gov/is/AR/archive/aug07/insects0807.pdf>.

Controlling root diseases with microbial agents

By Dr. Zamir Punja, Simon Fraser University (<http://www.sfu.ca/biology/faculty/punja/>)

Various pathogens cause root diseases in greenhouse production.

- Pythium causes damping off (seedlings) and root rot. Typical symptom: stem decay.
- Fusarium causes root rot and stem rot. Typical: brown discoloration, white mycelium.

PreStop is a new commercial product for biological control of root diseases.

- "Mycostop" and "RootShield" are already registered for use in greenhouse production.
- "PreStop" (fungus *Gliocladium c.*) is in process of registration (available 2008?).
- Fusarium stem rot: control 60% dead / PreStop 10% / Benlate 25% / Mycostop 45%.

Root colonization by PreStop is an important mechanism to ensure efficacy.

- When placed on petri-dish, no evidence that *Gliocladium* attacks *Fusarium* or *Pythium*.
- On selective media, *Gliocladium* produces glucanase, commonly found on plant roots.
- When placed on plant roots, *Gliocladium* is recovered at high levels 50 days later.

Microbial control of spider mites and thrips in Britain

Dr. David Chandler, University of Warwick in England

(<http://www2.warwick.ac.uk/fac/sci/whri/about/staff/dchandler>)

Current research is to determine commercial efficacy of selected products.

- "Naturalis-L" and "Botanigard" are commercial formulations of *Beauveria bassiana*.
- As stand alone treatments, they provide effective control of 2-spotted spider mites.
- When combined with a miticide, both products can be applied at much reduced rates.

The research protocol must go through numerous steps.

- Step 1: in laboratory, will the new product control the pest?
- Step 2: in small greenhouse, controlled research including introduction of desired pest.
- Step 3: in large greenhouse, application over the whole crop, natural pest infestation.

The Cuba experience with microbial pest management

Dr. Deborah Hendeerson, Institute for Sustainable Horticulture, Langley

The agriculture industry faced a crisis in 1982 when the Soviet Union withdrew its financial support. There is no access to American pesticides and fertilizers.

Disease detection has been enhanced by development of serological tests (ELISA). These kits are now exported outside the country.

Since 1990, the Institute of Plant Health is collecting soil samples for isolation of native micro-organisms. These are tested against root-disease pathogens. Native species of *Trichoderma* are now mass-reared at several regional facilities (some are former plants for alcohol brewing), for distribution to farmers.