

Flow cytometric sorting of nematode life stages

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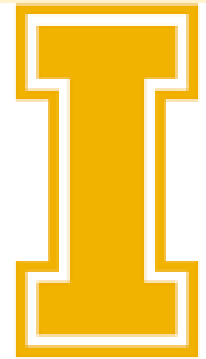
Phytochemicals on PCN hatching

Syamkumar Sivasankara Pillai and Louise-Marie Dandurand



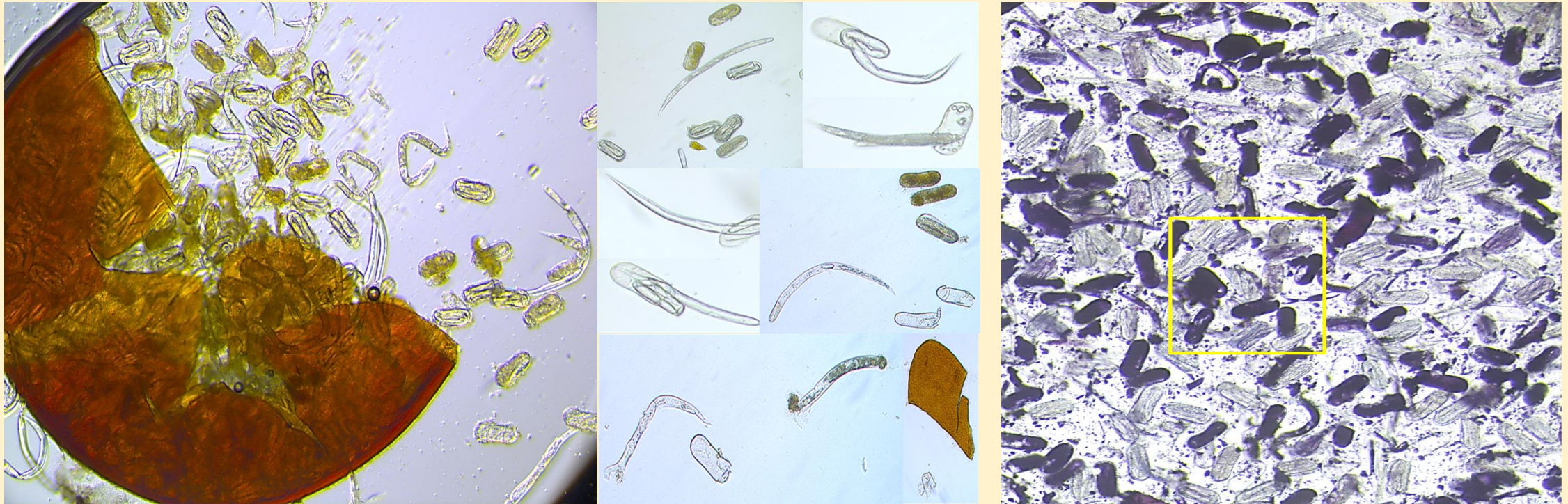
G. Ellingtonae Genome Annotation Jamboree

March 14, 2019, Corvallis, OR

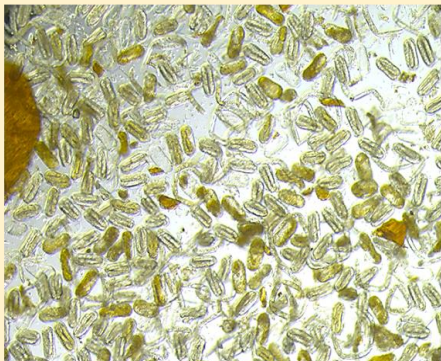


University
of Idaho

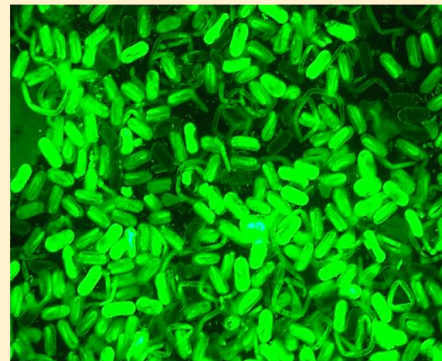
Nematode life Stage - Sorting & Viability



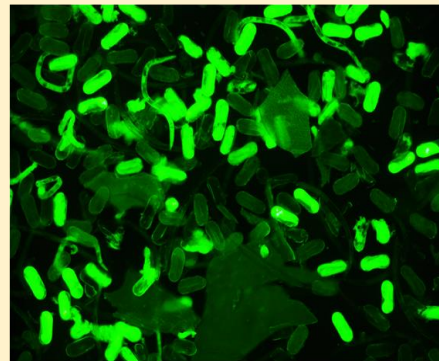
Acridine Orange – 20 ug/ml



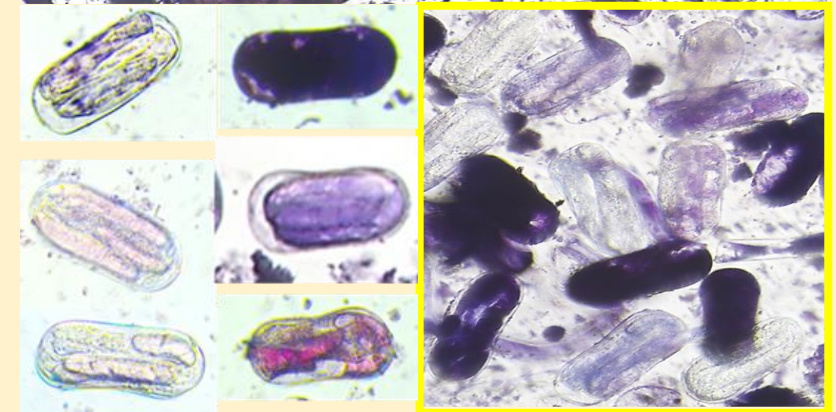
Bright Field- Heat Killed



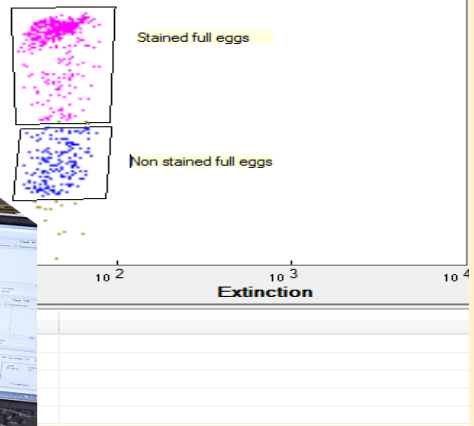
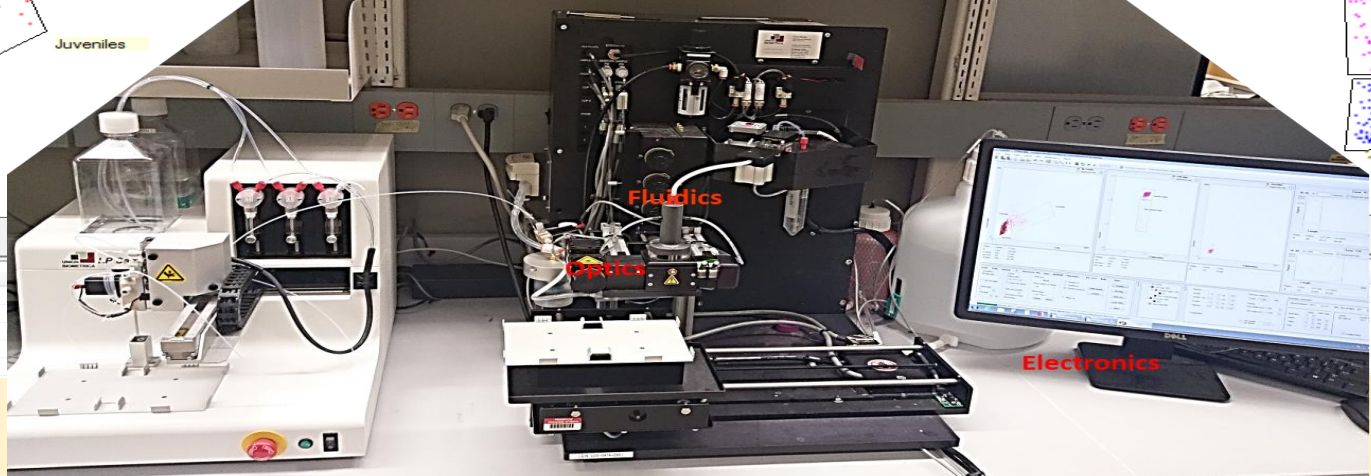
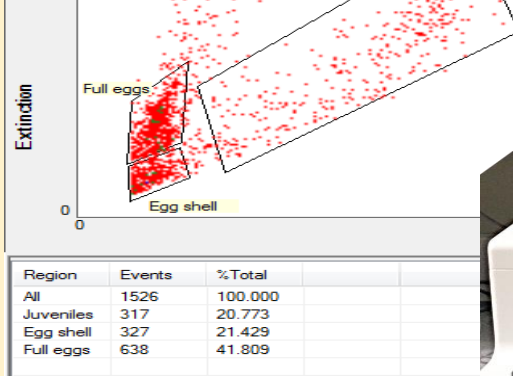
FTIC – Heat Killed Cyst



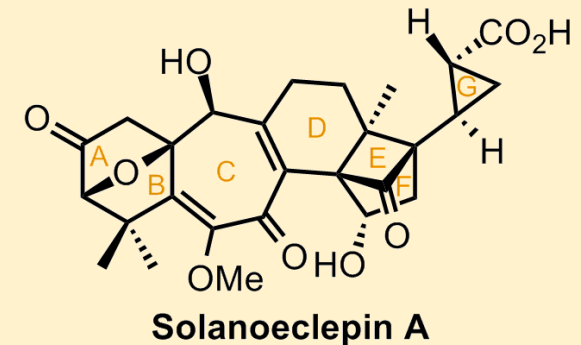
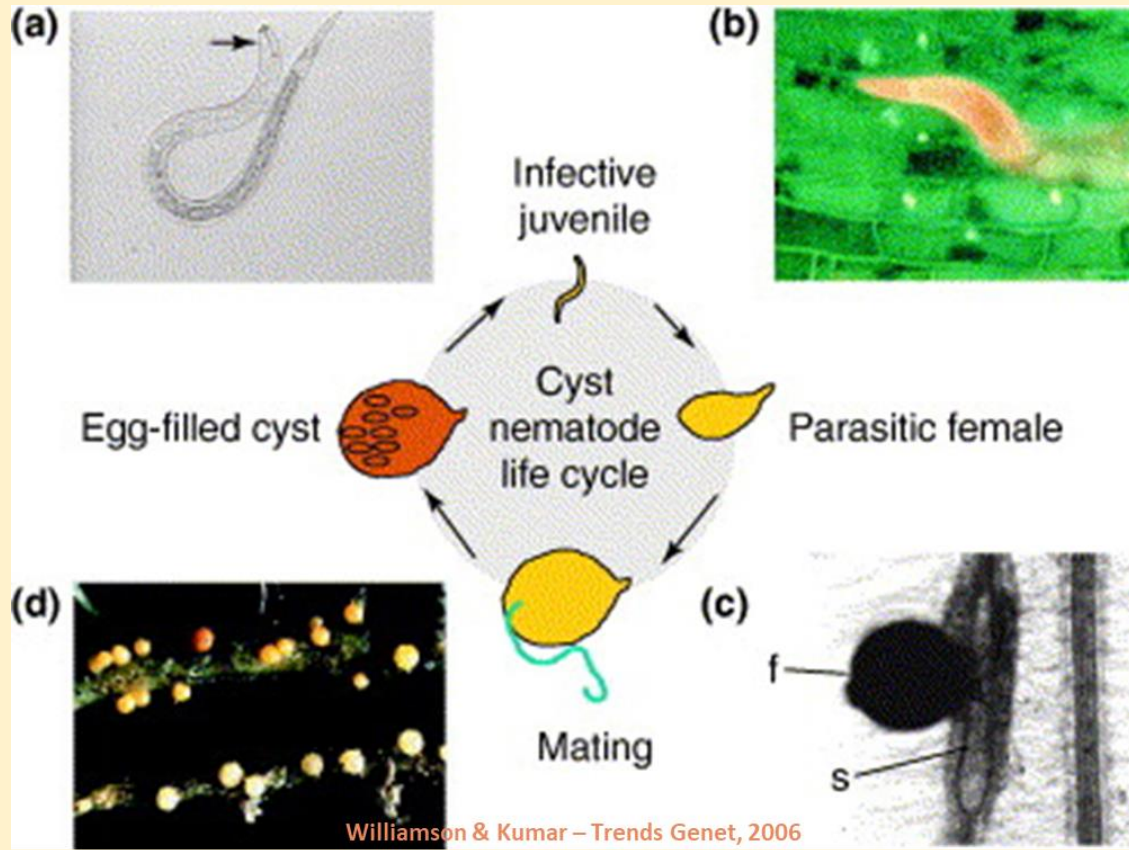
FTIC – Live Cyst



Fluorescent staining and flow cytometric sorting of potato cyst nematode life stages

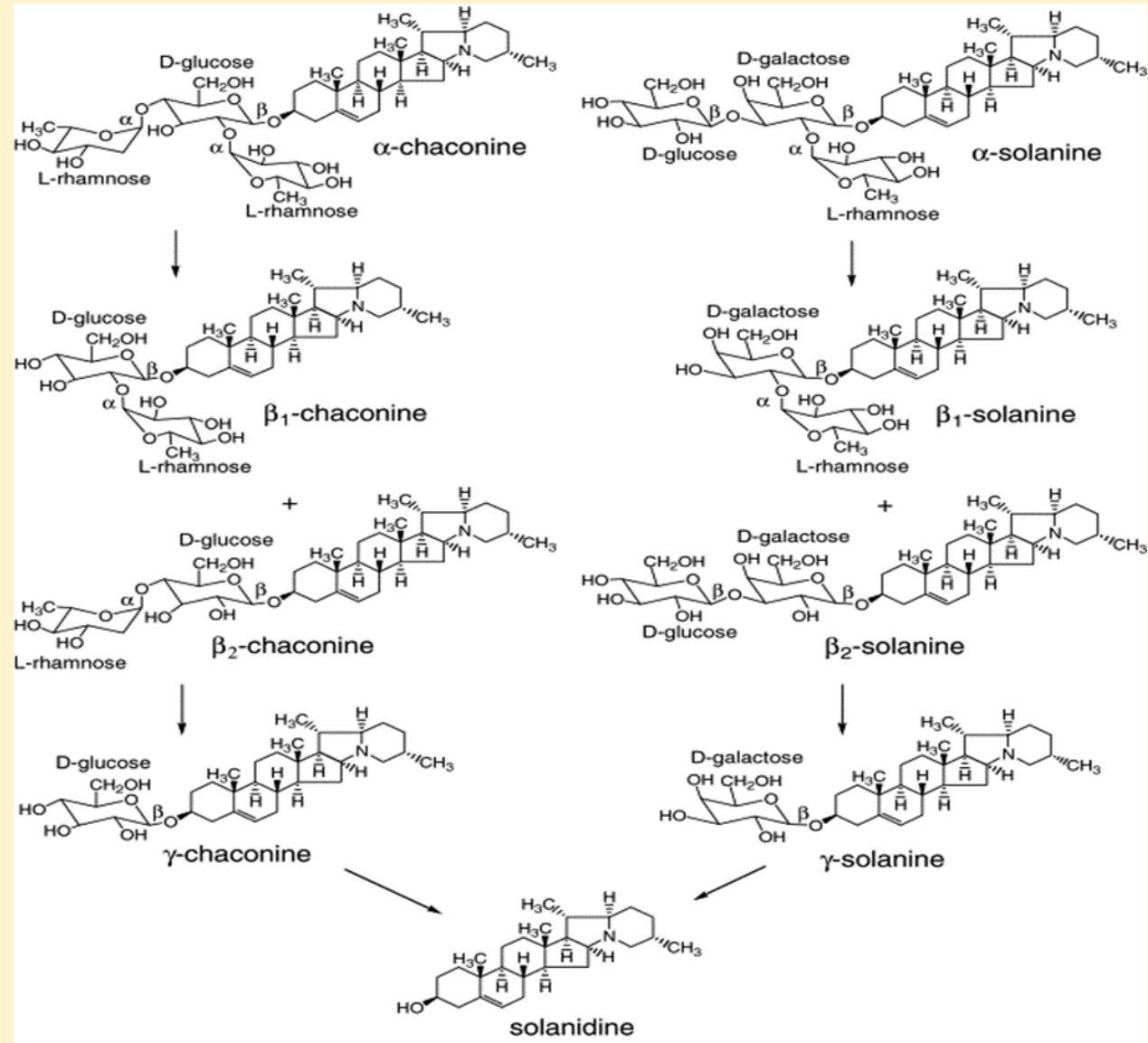


Search for potential phytochemicals as biocontrol

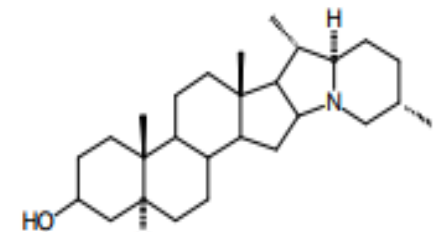
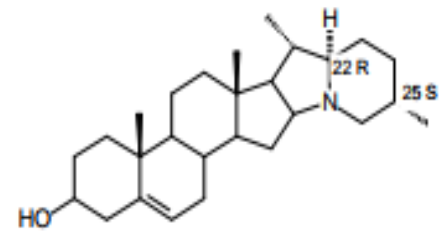


Anti-nutrients - Glycoalkaloids

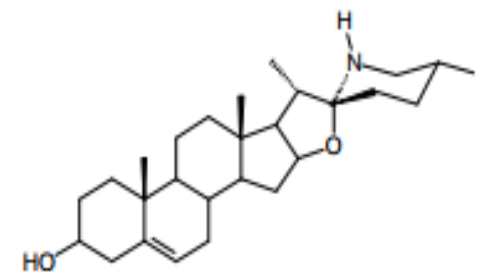
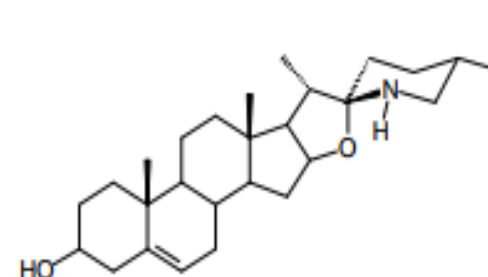
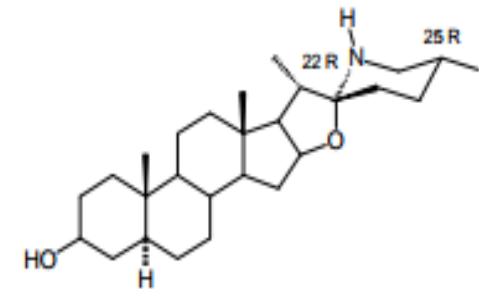
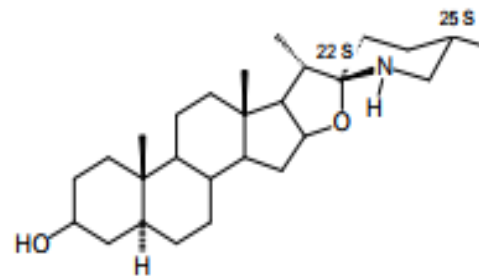
- ❖ Associated with plant resistance to pests and pathogens, toxic for microbes to humans.**
- ❖ Anti-parasitic (Leishmanicidal -flat worms, Trypanocidal, Schistosomicidal –protozoans),
Molluscicidal (kill snails), Antifungal, Lower cell viability, Induce programmed cell death,
Membrane damage, Disruption of cell content**
- ❖ Spermicidal, inhibits spermatogenesis**
- ❖ Birth control -Oral contraceptive**



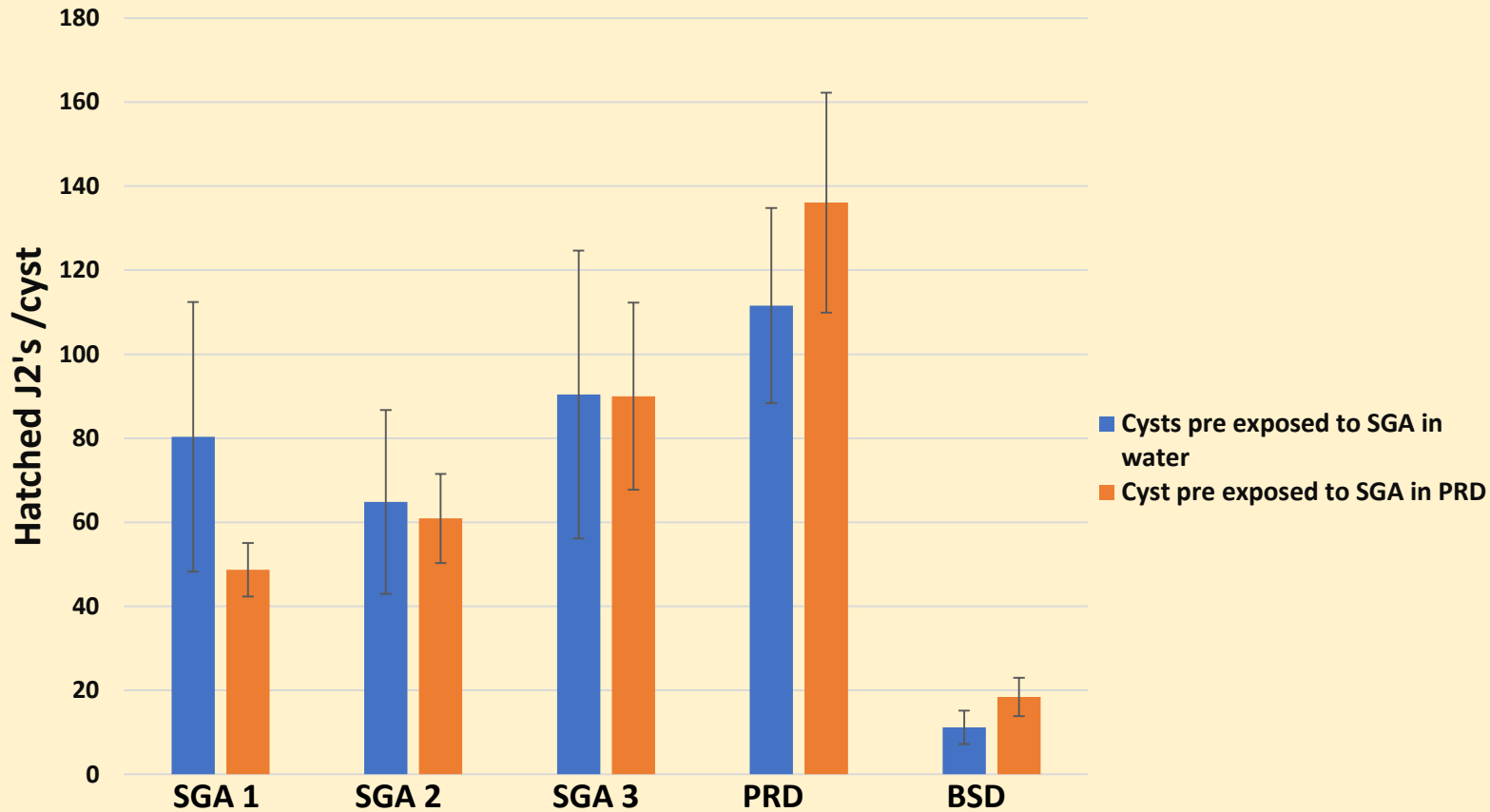
Solanidanes



Spirosolanes



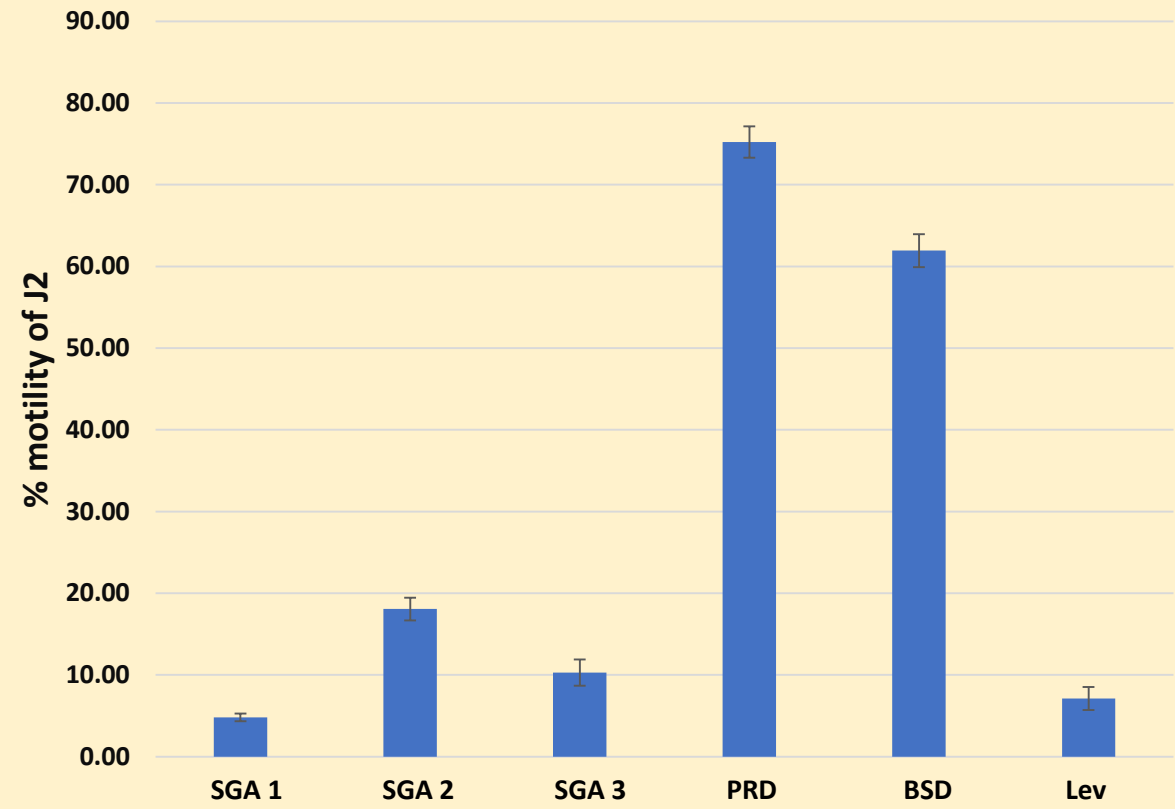
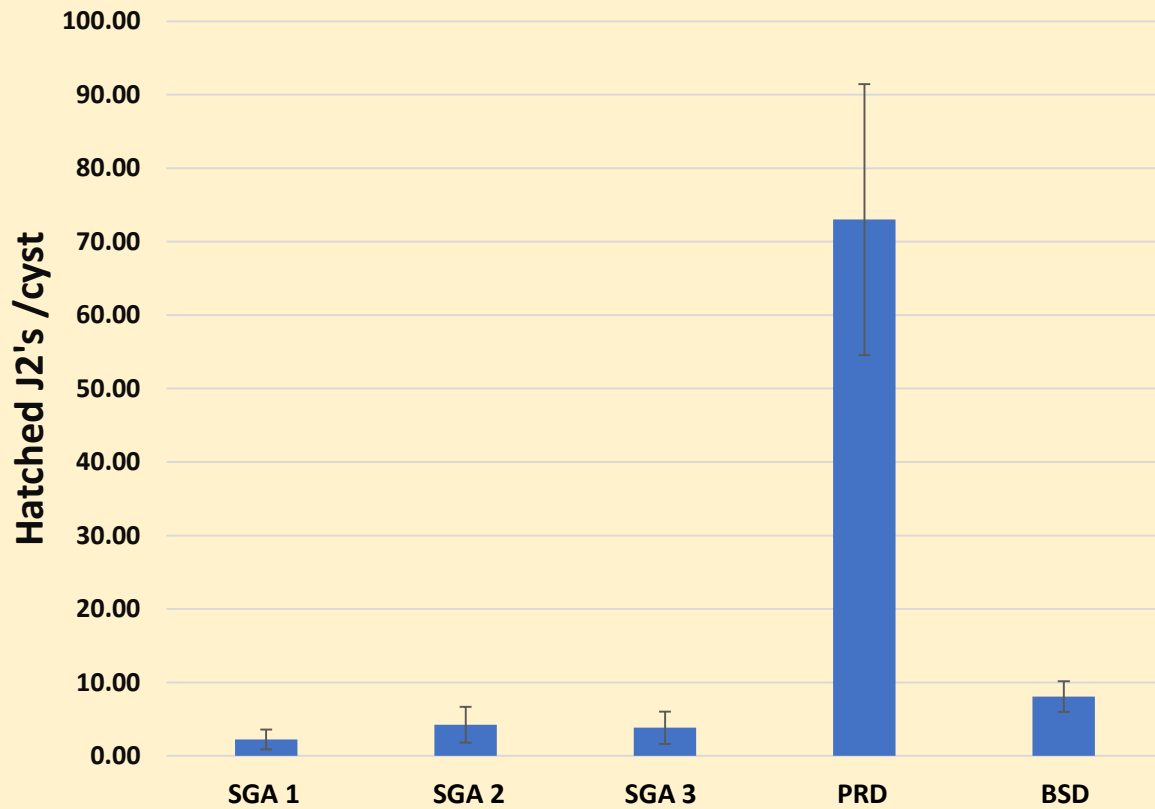
Effect of SGA treatment on PCN



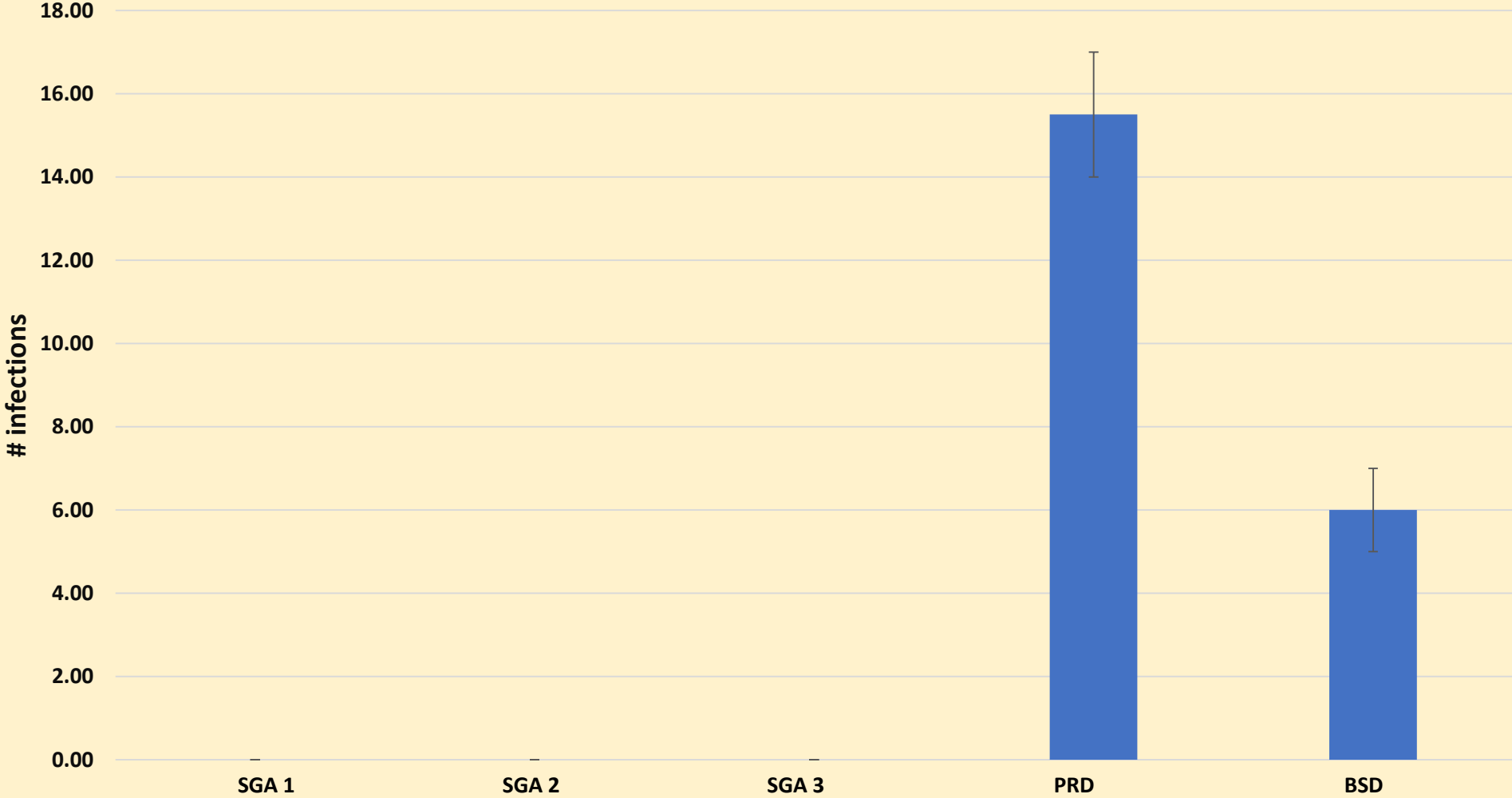
Many plants store chemicals in the form of inactive glycosides.

These can be activated by enzyme hydrolysis, which produces active chemicals as a form of chemical defense against pest and predators.

Effect of SGA treatment on PCN



SGA treated J2's on Russet Burbank infection



Acknowledgements

- Northwest Potato research Consortium
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- PCN Team, University of Idaho



Thank You