Effect of *Beauveria bassiana* on Tarnished Plant Bug

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INTRODUCTION:

The tarnished plant bug, *Lygus lineolaris,* is one of the most serious pests of cotton in the Mississippi Delta. Scientists have been working for many years to solve the ongoing problem of this insect. Tarnished plant bugs have developed resistance to most insecticides used in cotton (Snodgrass etal. 2009). There is a growing interest in alternate control methods. *Beauveria bassiana,* specifically the NI8 strain isolated from bugs in the Mississippi Delta, has been studied and is currently being studied as a tool to make the tarnished plant bug more vulnerable to insecticide. My presentation summarizes an experiment with *B. bassiana* on cotton plants, and the effect it has on the tarnished plant bug. It also illustrates how contamination can have a huge effect on experimental results.

MATERIALS AND METHODS:

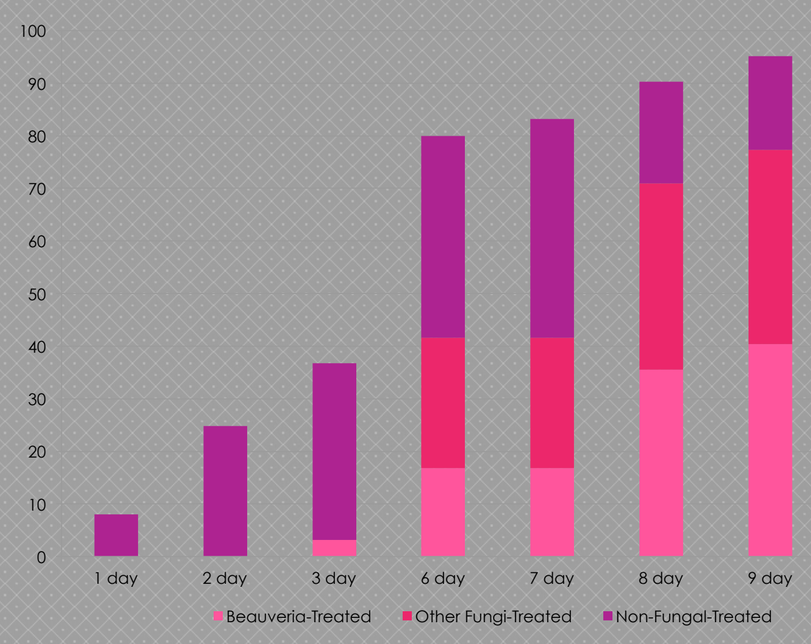
Artificial evaluation diet: Prepared in the NBCL.
Lygus Adults: Obtained from lab colonies of *L. lineolaris*.
Microscope cover slips
Ribbon
Sponges
B. bassiana: Isolate NI8 Tween 80

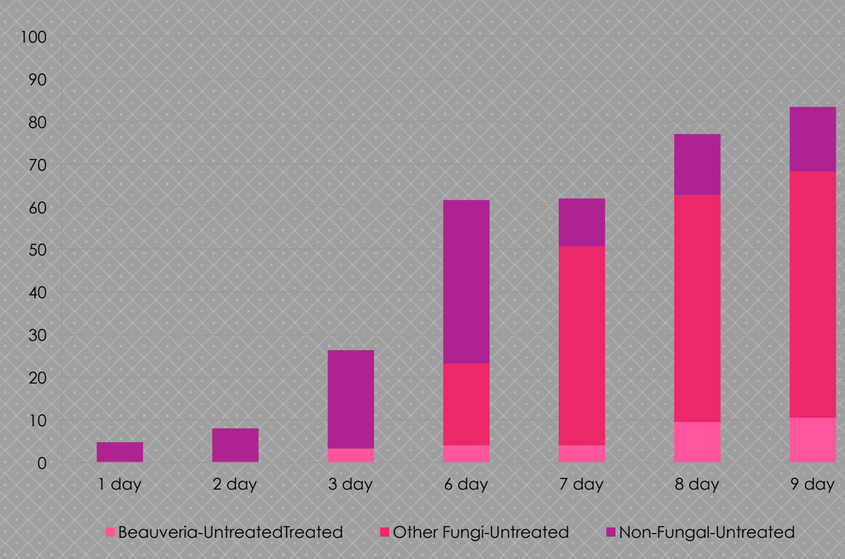
THE EXPERIMENT:

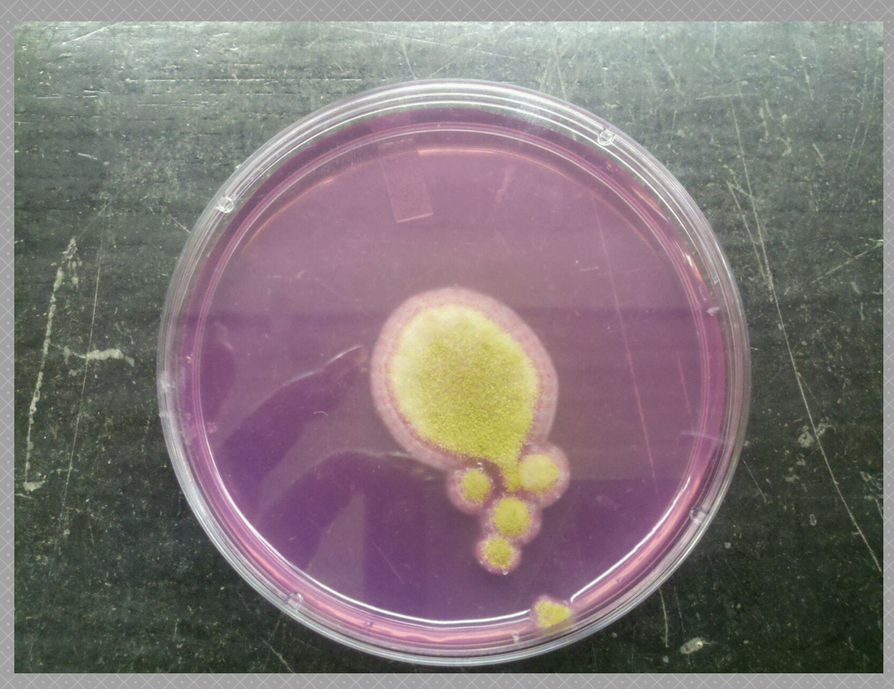
There were ten plots: M3A, M1A, M3B, M1B, M1C, M3C, M3D, M1D, M3E, and M1E. Plot numbers that contain "1" were control plots. Those that contain "3" were NI8 Tween 80 plus *B. bassiana*.

Cover slips were pinned to the upper leaves of the cotton plant. The cover slips were held in place with an insect pin inserted through the slide and leaf to a sponge backing. A ribbon was also attached for easy retrieval after the *B. bassiana* is sprayed.

A total of twenty-five leaf tissues were collected from each plot. One-day-old adults were placed on the leaf tissue for twenty-four hours before being transferred onto the artificial evaluation diet.







RESULTS AND DISCUSSION:

Observations were made daily to observe the survival and sporulation of the fungus.

Mortality in the treated plots were 8%, 25%, 37% 80%, 83%, 90%, and 95% on days 1, 2, 3,6, 7, 8, and 9 post- treated respectively. Untreated plots were 5%, 8%, 23%, 38%, 11%, 14% and 15% over the same time period. Mortality due to *B. bassiana* infection reached 40% at nine days post-treated. In untreated, there was 10% due to *B. bassiana* infection. Infection from other fungi was 52- 80% in the study, indicating the importance of correct identification of fungi associated with dead tarnished plant bug.

This conclusion of possible contamination was determined after the recognition of the fungus. We used a medium of MDRB to test for *aspergillus flavus*. The petri dish was placed in an environmental growth chamber at 25^{0} and grown for 5-7 days. After observing the mortality rate of the contaminated fungus, *aspergillus* may be another alternate for tarnished plant bug management.

REFERENCES:

Snodgrass, G. L., J. Gore, C. A. Abel, and R. Jackson. 2009. Acephate Resistance in Populations of the Tarnished Plant Bug (Heteroptera: Miridae) From the Mississippi River Delta. Journal of Economic Entomology **102**: 699-707.

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