

Analyzing the Pesticidal Properties of *Trichoderma harzianum*

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The purpose of the project was to determine an alternative to synthetic pesticides. It was hypothesized that *Armadillidium* would not survive in the presence of *T. harzianum*. Phase I included four experiments. In Experiment I, *Armadillidium* were exposed to the symbiosis between corn plants and *Trichoderma harzianum*. 100% of control *Armadillidium* survived while 72% of experimental *Armadillidium* survived; *T. harzianum* had a significant impact upon the *Armadillidium* ($t = 2.75 > t_{.05} = 2.31$). In Experiment II, a choice chamber was used to determine if a preference is shown for control corn plants or *T. harzianum* corn plants. The *Armadillidium* spent 66.6% of the time on the control side and 22% on the *T. harzianum* side. Experiment III, also in a choice chamber, used agar plates inoculated with *T. harzianum*. The *Armadillidium* spent 65% of the time on the control side and 21.2% on the *Trichoderma harzianum* side. In Experiment IV, *Armadillidium* were fed *T. harzianum*. 96% of the control *Armadillidium* survived while 0% of the experimental *Armadillidium* survived; *T. harzianum* had a highly significant impact upon the *Armadillidium* ($t = 24 > t_{.01} = 3.36$). In Phase II, *T. harzianum* cultures were exposed to various pesticides in field concentrations. Only "Patch Pro Fungicide" had a highly significant impact ($t = 25 > t_{.01} = 3.17$) upon *T. harzianum*. Ultimately, the hypothesis was supported. Experiments I and IV demonstrate that *T. harzianum* can decrease the survivorship of *Armadillidium*. Experiments II and III suggest that *Armadillidium* are deterred by *T. harzianum*. Phase II indicates that *T. harzianum* can survive in field concentrations of insecticides and herbicides. Based upon these results, *T. harzianum* has the potential to act as a natural alternative to synthetic pesticides.

Awards Won:

First Award of \$5,000