Creating an Organic Pesticide to Save the North American Ash Trees

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In the last 10 years, 25 million Ash trees in North America have been destroyed by emerald ash borer larvae; a number that continues to grow exponentially. The purpose of this project is to save the ash trees in North America from this foreign, invasive pest. To accomplish this, the virulence of entomopathogenic fungi from the family Metarhizium anisopliae was tested against emerald ash borer larvae (Agrilus planipennis) and as a preliminary trial: Japanese beetle grubs (Popillia Japonica.) The strains F52, DWR2009, DWR356 and MA1200 were screened against Popillia japonica at 1x108 spore/ml and 1x107sp/ml concentrations. For the Agrilus planipennis, the strains F52, DWR2009 and DWR356 were tested at 1x107sp/ml and MA1200 was tested at 1x106sp/ml. It was determined that the strain MA1200 was the most virulent against Popillia japonica and F52 the most virulent against Agrilus planipennis with a 100% death and sporulation rate. After the initial tests a few application trials were run. From these, it was concluded that the Metarhizium anisopliae fungus could penetrate the bark layer of an Ash tree and infect the larvae inside.

Awards Won:

Arizona State University: For the project that applies computer science to further inquiry in a field other than computer science

Google CS Connect Award

First Award of $5,000