



CALIFORNIA STATE SCIENCE FAIR 2014 PROJECT SUMMARY

Name(s) Praveen Batra; Michael Kwan	Project Number J2201
Project Title The Effects of Farnesol on Pogonomyrex barbatus in a Controlled Environment	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The red harvester ant, or Pogonomyrex Barbatus, is a common species of ant in the Southwestern United States, and are responsible for many infestation in homes, and in public places across the region. A chemical found naturally in plants, called farnesol, has been tested on the argentine ant, and have produced promising results. Our goal for our experiment was to see if this chemical would be effective against the red harvester, and to possibly apply it to real life situations.</p> <p>Methods/Materials Our experiment had two experimental (farnesol) and three control (water) groups. For each group, we placed some ants in a flat plastic square container, using a second container as a lid. Down the center of the container would be a streak of farnesol or water. After spreading the fluid down the center (we attempted to spread it evenly, but due to the small amounts of water/farnesol we used and the effects of water cohesion, this was not always achievable), we set the timer for 5 minutes and recorded every time an ant crossed the line or was turned away. We used two different levels of farnesol/water: 40 microliters and 80 microliters.</p> <p>Results Unfortunately, we were unable to obtain significant results due to two main issues: control of the ants and spreading of the water/farnesol. Due to difficulties controlling the placement of ants in the container, different tests had varying levels of ants, not all of which were mobile, and as a result the ratios of crossings/deterrences could not be easily compared.</p> <p>Conclusions/Discussion There is great potential for modifications for our experiment, as there are parts of our procedure that could be improved on as well as expanding to include different types of ants. A part of the experiment that had not lived up to our expectations was the center barrier. The liquid, both farnesol and water, would clump into little droplets partway through our experiment, making a physical barrier and also leaving some gaps in our line down the middle. Also, the erratic movement of these ants would be a part that would need improvement, as some of them did not even attempt to approach the center line. Therefore, future experimentation would require better methodologies and excecution to be successful.</p>	
Summary Statement Our project worked at finding a viable ant repellent safe in homes and public uses, but our experimental design led to minor failures and slightly inconclusive results.	
Help Received We would like to thank Harker Labs for their facilities, and our advisors, Mr. Akhil Mehta, Mrs. Kristen Morgensen, and Mr. Thomas Artiss.	