



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Kapil Sinha	Project Number J1935
Project Title Bugs B Gone: Aphid Control through Home (Organic) Remedies	
Objectives/Goals The purpose for my experiment was to find out if there is a way to get rid of/preventing aphids on lettuce plants by using organic substances which are readily available in the kitchen.	
Abstract Methods/Materials 1. Use blender to chop/grate different organic substances 2. Measure each of the substances and put in Petri dishes 3. Measure 250ml water and heat it and put in an air tight container along with the measured amount organic substance 4. Keep them aside for 24 hours, in a cool place 5. Filter them using cheese cloth and a funnel to get the extract in the spray bottles 6. Label the spray bottles 7. Use the sprays to study the effect of organic substances as a pesticide and as a preventive 8. For preventive, spray lettuce plants, each with different organic substances and label it with different concentrations and also with different substances and put them in a cage (#1) 9. Using a suction pump, collect 50 winged aphids in a jar from a cage (#2) of infected plants 10. Place the jar filled with aphids in the cage (#1) and release the lid 11. After a week, count how many aphids were there on each plant 12. For pesticide, spray all the lettuce plants with different organic substances and manually count and put 10 aphids on each plant via paintbrush. Place each plant in a separate cage and label it 13. Record number of aphids dead/alive after 3 days 14. Repeat steps 2-14 for different sets Funnel, Airtight container, Microscope, Spray bottles, Flower pot, Labels, Blender, Coffee grinder, Paper towel, Pipette, Weighing balance, Large cage, Waterbed, Jar for aphids, Grater, Strainer, Magnifying headgear, Knife, Petri dish, Magnifying glass, Pestle, Heater, Disposable gloves, Trash bag, Cheesecloth, Small cage, Counter, Needle, Paint brush, Suction pump	
Results Garlic was the most optimum solution for using as a pesticide. Garlic/pepper (30g+30g) was the most optimum solution for using as a preventive.	
Conclusions/Discussion My hypothesis 1 was correct. Organic homemade pesticides were effective in preventing and removing aphids from lettuce plants. My hypothesis 2 was incorrect. The combination of ginger and red hot pepper was not the best organic pesticide. My hypothesis 3 was partially correct. In most cases, a stronger concentration was better than a lower concentration. Discussion I learned that the results should be considered logically, not just blindly looking at data. Qualitative information should also be considered.	
Summary Statement Organic, homemade pesticides will be effective in preventing and removing aphids from lettuce plants.	
Help Received Help received from Dr. Yong Biao Liu and his lab assistant Tiffany, who work at USDA lab.	