



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

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Project Title The Effects of Nerium oleander on Mutant and Wild-type Drosophila melanogaster	
Abstract Objectives/Goals To test which part of Nerium Oleander (flowers, leaves, or bark) can most effectively be used to create an organic biodegradable insect pesticide safe for our environment. We predict the bark will be the most affective because it contains the highest concentration of toxic sap. If the toxins (neriine and oleandrin) are lethal enough to exterminate the flies then it has potential to be a pesticide. Methods/Materials We extracted toxins from the leaves, bark, and flowers of the plant using ethanol and spun it down in a centrifuge. After creating a 10% dilution using distilled water; extracts were used to hydrate the fruit fly medium and 10 fruit flies were placed into each tube. Mutant and wild fruit flies were both tested in this experiment to observe if genetics will affect the results. A positive control (distilled water with fruit fly growth food) and negative control (10% ethanol with fruit fly growth food) were used in each trial. Observations were recorded daily. Results Within two hours a reaction had occurred; flies were twitching on their backs while others had unnatural rapid movements in all tubes except the positive and negative controls. The following day, only two wild-type flies (red flower), one wild type (bark), nine wild-type (leaves), and seven mutant type flies (leaves) survived. In days, there was only one mutant fly (leaf) and one wild-type fly in each bark and red flowers alive. Within one week, all positive flies lived while five mutant and one wild flies were dead in the negative control. We believe the deaths were natural. During the second week the flies in both the positive and negative controls was reproducing. Out of the sixty flies used for this test with the pesticide, only one wild-type fly survived in the red flower extract. Conclusions/Discussion We've come to the conclusion that not only the bark, but all parts of Nerium Oleander can work as an effective and natural insect pesticide. With just one fruit fly surviving out of the hundred exposed to the Nerium Oleander pesticide, there is no doubt that the toxins from Nerium Oleander are effective enough to be used as an organic pesticide for agriculturists and gardeners in the future. Today, our society is becoming more "green" and eco-friendly, producing a biodegradable pesticide from Nerium Oleander will be highly marketable in the future due to its widespread availability and low production cost.	
Summary Statement We tested the toxicity of different parts of the Nerium Oleander on mutant and wild-type Drosphila Melanogaster resulting in an organic pesticide.	
Help Received Used lab equipment at Silver Creek High School under the supervision of Ms. Tran.	