



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Diana K. Lok	Project Number J1421
Project Title Effect of Caffeine on Mosquitoes	
Objectives/Goals The objective was to determine if caffeine could be a future larvicide. Therefore, one of my main goals was to find which concentration would kill majority of the population. A goal that was secondary, was to find if caffeine was really harmful to living organisms.	
Abstract Methods/Materials I crushed the caffeine pills into a fine powder and measured the amounts (0.05, 0.1, 0.2, 0.3) and poured in 1 liter of water into soda bottles along with the amount. Then I poured 80mL of each solution into 4 baby food jars. My instructor and I went in the field to collect the mosquito's , Culiseta incidens, egg rafts. When the eggs hatched I put 10 in each of the 20 baby food jars. Then I fed them every other day with crushed Total cereal, which I had determined in other experiments that it was the best food for the mosquitoes, every other day and then analyzed the data by using a formula, statistical analysis, to find if there was any significant difference, and the estimation of LD50 (the lethal dosage that would kill about 50 % of the population).	
Results There seemed to be no significant difference between the rates of development, but there was a significant difference in the adult emergence between the concentrations Control and 0.2gms/1000mL, control and 0.3gms/1000mL, 0.05gms/1000mL and 0.2gms/1000mL, 0.05gms/1000mL and 0.3gms/1000mL, 0.1gms/1000mL and 0.2gms/1000mL, 0.2gms/1000mL and 0.3gms/1000mL. However, there was no significant difference in control and 0.05, control and 0.1. It appears that between 0.1 and 0.2 there was a definite drop in adult emergences. The estimation of LD50 showed that we could hypothesize that 1.4gm/ liter of water, would kill about 50% of the population.	
Conclusions/Discussion A nuisance that have bugged humans and other creatures is a mosquito because they leave itchy and sometimes painful welts and carry diseases. If we could find a pesticide that would just destroy the mosquito population a vast number of problems would be solved. My hypothesis, that caffeine would have an effect on mosquitoes was correct. This experiment also proved that caffeine is harmful, proving that we should think the next time we consume soda, coffee, or any other caffeine containing substance.	
Summary Statement My project was to find the effect of caffiene on mosquitoes and to see if it is harmful.	
Help Received Mr. Lee, supervised the project, brought me to the field to collect mosquito egg rafts, taught me all the math formulas, including statistical analysis F method and estimation of LD50	