



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Tony Ho	Project Number J1412
Project Title Effect of Salt Substitute on the Growth and Development of the Mosquito Culiseta incidens	
<p align="center">Abstract</p> <p>Objectives/Goals Controlling mosquitoes has been an important task for scientists. Various ways of controlling mosquitoes have been conducted by researchers for many decades. The purpose of my experiment was to test the effect of salt substitute as to compare with common table salt, on the mosquito Culiseta incidens under a laboratory condition. It was hypothesized that if salt substitute affecting the growth and development of the mosquito depends on the concentration of the salt, then any concentration beyond the range of tolerance will affect them in terms of the rate of growth and the survival rate, the greater the concentration, the greater the effect.</p> <p>Methods/Materials 1. Obtained mosquito eggs from the field (Alum Rock Park) 2. After eggs hatched for 48 hours, ten fist-instar larvae were placed in each of five baby food jars filled with 80 ml of various salt solutions (Potassium chloride). These solutions were 2/1000 (2 grams of salt substitute in 1000 ml of H₂O), 4/1000, 5/1000, 6/1000, 7/1000, 8/1000. 3. The larvae were fed with .5 gram of fish food every 3 to 4 days until they became pupae. 4. Observations were made daily. 5. When pupa is observed, a piece of nylon stocking would be put over, so that the emerging adult mosquitoes will not fly away. 6. All adult mosquitoes would be sucked up by a mechanical aspirator and the gender of the mosquitoes would be determined.</p> <p>Results The results show that there was no significant difference in the rate of development and among the control, 2/1000, 4/1000, 5/1000 groups. The same was true among the 6/1000, 7/1000, and 8/1000 groups. However the 6/1000, 7/1000, and 8/1000 groups took significant longer to reach the adult stage than the control, 2/1000, 4/1000, 5/1000 groups. In terms of the rate of adult emergence, there were significant differences among various groups except between 2/1000 and 4/1000 groups, and among 6/1000, 7/1000, 8/1000 groups.</p> <p>Conclusions/Discussion The finding clearly shows that as the concentration of salt substitute increases, the adult emergence rate decreases. The LD 50 of salt substitute for the mosquito was 4.42 parts/1000, not significantly different from the LD 50 of the table salt. The mode of action of salts on the destruction of the mosquitoes is related to osmotic pressure.</p>	
Summary Statement My project is to investigate if there is a greater salt concentration, there would be a greater effect on the growth and development of the mosquito Culiseta incidens and to compare the results of salt substitute with table salt.	
Help Received Mr. Lee gave me papers to figure out the LD 50 and the Least Significant Differece and reviewed my works.	