CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)
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Project Number
J2314

Project Title
Investigating How Temperature in Clovis California Affects the Mortality Rate of Aedes aegypti Eggs in Winter and Summer

Abstract

Objectives/Goals
The objective of this study was to determine what temperatures/environments it would take to make Aedes aegypti eggs no longer viable.

Methods/Materials
Get approximately 1,000 Aedes aegypti eggs already on germination paper.
Use a microscope to check the eggs for their viability. Look to see if the eggs are collapsed.
Place those 10 eggs in a controlled environment (Fridge, freezer, control(any room steadily set at 21°C) and vacuum oven) at one of the following temperatures:-13°C, 9.4°C, 21°C, 40°C.
Perform this procedure for tests that are 1 hour, 8 hours, and 24 hours long. Record the results of the hatch.
*Experimentation must be done in a supervised level 1 general laboratory.

Results
After several trials, data showed that the eggs most successfully stayed viable in the 9.4°C and 21°C environments. This proves that that is why the mosquito is thriving in such temperatures; the eggs don't lose viability there.

Conclusions/Discussion
I learned that Aedes aegypti eggs do not preserve their viability in extreme cold, and extreme hot temperatures. However, they do in temperatures such as 9.4°C and 21° C, which are more common in Clovis, California. After viewing the outcomes of my project, it is apparent that although the eggs should not be surviving in these temperatures, more often than not, they are.

Summary Statement
I showed that the irregular mortality rate of Aedes aegypti mosquitos in Clovis, California is almost completely dependent on temperature.

Help Received
Consolidated Mosquito Abatement District supplied me with eggs already on germination paper. An entomologist from that district advised me throughout experimentation.