



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Jack T. Hays	Project Number J2103
Project Title Antibacterial Effect of Rosemary, Lavender, and Thyme Essential Oils on Dog Bacteria in Carmel, California	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This experiment grew out of an interest in identifying natural ingredients that could potentially be used in dog hygiene products to manage bacteria proliferation.</p> <p>Methods/Materials Due to their aromatic and generally-alleged therapeutic natures, the following essential oils were tested against bacteria cultivated from the coats of two dogs in Carmel, California: rosemary, lavender and thyme. Each oil was tested for its ability to inhibit and/or kill bacteria cultivated from both dogs. Cultures (grown on agar in petri dishes) were checked for growth daily and all data was recorded. The experiment was broken into two Phases. In Phase I, cultures were cultivated and the essential oils were tested for their ability to inhibit and/or kill the cultures. Phase II of the experiment was aimed at confirming that inactive cultures in Phase I (presumed dead), were actually dead.</p> <p>Results Each essential oil showed an ability to inhibit the growth of new cultures. Only rosemary showed an ability to kill consistently, although thyme killed in 50% of the cases. Lavender did not appear to kill bacteria as effectively.</p> <p>Conclusions/Discussion Given the success of all three oils in inhibiting the growth of bacteria pulled from the dogs' coats, they would seem to be beneficial ingredients in dog cleansing products.</p>	
Summary Statement This project tested the efficacy of certain readily-available essential oils in inhibiting and killing bacteria cultivated from the coats of dogs in Carmel, California.	
Help Received Mr. Woodward, my Science teacher, provided me with guidance, my dogs donated bacteria and my parents bought petri dishes and agar for the experiment.	