



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>Diego A. Denis-Arrue</b>	<b>Project Number</b> <b>J2104</b>
<b>Project Title</b> <b>Microbe Busters</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to find out which cleaner or disinfectant works best to inhibit the growth of bacteria from sour milk.</p> <p><b>Methods/Materials</b> The method I used for testing was a disc inhibition test in which a filter paper disc was saturated with different cleaners/disinfectants and placed on an agar plate that was swabbed with sour milk bacteria. After 4 days I checked the growth on the plate as well as the zone of inhibition around the disc and measured the clear zone around the paper disc. I determined which disinfectant worked best by the size of the area of inhibition.</p> <p><b>Results</b> I obtained the greatest average zone of inhibition from Hydrogen peroxide (30mm.), followed by Pine-sol (27.67mm.), and then bleach (22.33). The other set of cleaners/disinfectants had a zone of inhibition below 20mm. in the following order: Green Works (15.67 mm.), vinegar (15.33), and Trader Joe's brand cleaner (10 mm.).</p> <p><b>Conclusions/Discussion</b> The best disinfectant in my experiment was Hydrogen Peroxide since it had the largest area of clearing. Even though it was the most effective I would not use it as a cleaner at home because it has a bleaching effect on different surfaces. Pine-sol was the cleaner I would use because in my results, it was the commercial product that killed the most bacteria. Out of the two environmentally friendly products that I tested, Green Works gave the best results. In two of the products I used, vinegar and Trader Joe's brand cleaner, there were colonies of bacteria growing in the zone of inhibition which means that the bacteria mutated and developed resistance to these substances.</p>	
<b>Summary Statement</b> In my project I wanted to test which cleaners are most effective at killing sour- milk bacteria.	
<b>Help Received</b> My advisor and mother read my report and results and gave me suggestions on how to write and present my report. My mom helped with the gathering and disposal of the materials I used for this experiment.	