



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Ava Basile	Project Number J1601
Project Title "Lettuce" Discover a Solution to Inhibit E. coli Growth	
<p style="text-align: center;">Abstract</p> <p>Objectives This investigation tests common household product solutions, such as distilled water, chlorine bleach, white vinegar, baking soda, and salt, in order to determine which solution is most effective in eliminating E. coli bacteria from contaminated Romaine lettuce.</p> <p>Methods Blank paper discs were soaked in the various solutions listed above and placed on nutrient agar petri dishes streaked with E. coli, K-12. The effective bacterial growth inhibition of each solution was measured using calipers. The data collected established the relationship between household product solutions and their ability to inhibit growth of E. coli K-12.</p> <p>Results All bleach samples (negative control) consistently produced the largest average diameter of bacterial growth inhibition (1.86 centimeters: twice as much as the most effective solution, baking soda). The water (positive control) samples did not inhibit the growth of the E. coli. The baking soda solution was observed to be the most effective at inhibiting E. coli growth (0.87centimeter diameter). The results contradicted the hypothesis: it was predicted that either the salt or vinegar solutions would be most effective.</p> <p>Conclusions The baking soda solution was observed to be the most effective at inhibiting E. coli growth (0.87centimeter diameter). The results contradicted the hypothesis: it was predicted that either the salt or vinegar solutions would be most effective.</p>	
Summary Statement This investigation tests the ability of common household product solutions to inhibit E. coli K-12 bacterial growth.	
Help Received None. I conceived and designed this experiment after learning about the recent E. coli contaminated Romaine lettuce illness outbreaks.	