



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Vishnu Sreenivasamurthy	Project Number 34434
Project Title Examining the Effect of Acidity and Alkalinity on Bacteria Growth Inhibition	
Abstract Objectives/Goals Will different chemicals affect the amount of acidity and alkalinity on the growth of E. coli bacteria in an inhibition zone? Methods/Materials The first step is to get all your materials organized and the refrigerated Petri dishes out of the refrigerator. Next, you cut out 45 paper discs and then place them separately from everything else. After that, you spread the E. coli across the dish. Next you immerse 5 discs into the ammonia and vinegar solutions and place them on the dish. Finally, you let the E. coli grow after 3 days and measure the inhibition zone. Results According to the average data of the size of the inhibition zones, it shows that the E. coli bacteria culture had a larger inhibition zone in the vinegar solution. The results showed: 5% - 5.4 mm, 10% - 2.5 mm, 15% - 4.6 mm, and 20% - 3.2 mm for vinegar. But, the results for Ammonia was as followed: 5% - 2.6 mm, 10% - 1.6 mm, 15% - 3 mm, and 20% - 3.2 mm. The Vinegar made the bacteria grow less (the bigger the zone, the less bacteria growth) because the acidity in the vinegar made the bacteria to die off and have less growth. But, since the ammonia is a base, there's a lower chance of killing the bacteria and the results shows that. Conclusions/Discussion From this experiment, I learned how to grow bacteria and how different acids and bases can effect different growth. Also, I learned how to examine and measure inhibition zones and I learnt about new things such as inhibition zones, E. coli bacteria, and acids and bases. Some follow up experiments could be using different acids or bases (Milk, bleach, lemon juice, etc.). Also, you could use different types of bacteria and see if they grow differently with different temperatures and liquids.	
Summary Statement This project is about examining the effect of acidity and alkalinity on bacteria growth inhibition and to find out if ammonia or vinegar inhibits growth the most.	
Help Received Ms. Hollenbeck helped examine and setup the experiment in her classroom; Mom helped with tri fold; Dad helped with getting all the information.	