



# CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

<b>Name(s)</b> <b>Shruti Sridhar</b>	<b>Project Number</b> <b>J1615</b>
<b>Project Title</b> <b>The Antimicrobial Effect of Different Essential Oils on Staphylococcus</b>	
<b>Objectives/Goals</b> The purpose of this experiment was to determine whether common essential oils found in facial and skin products, clove oil, eucalyptus oil, and aloe vera, would have any effect on Staphylococcus. Eucalyptus oil was hypothesized to have the greatest bacterial inhibition.	
<b>Abstract</b> <b>Methods/Materials</b> The three oils were diffused into three filter disks each and placed in three agar plates with one colony of cultured Staphylococcus. After standard incubation, the plates were taken out and the diameter of the zone of inhibition, which is the circle of clear media around each filter disk, was measured. The oil with the greatest zone of inhibition was then used in the remaining tests of this three-part project. The minimum inhibitory concentration was found by dropping that oil into nine tubes, diluting the amount dropped by two for each tube. Staphylococcus was placed in all tubes, and after sufficient incubation, the first tube with inhibited bacterial growth was recorded as the MIC. The minimum bactericidal concentration was determined by plating the tubes, incubating the agar plates, and recording the first tube to kill the bacteria, starting from least oil concentration to greatest.	
<b>Results</b> The hypothesis was not supported at the end. The first experiment showed that clove oil had the largest zone of inhibition, the average diameter being 14mm. For the next two tests, clove oil was used and 0.0662 grams was found to be the MIC and the MBC in the first trial. In the second trial, 0.00414 grams of clove oil was the MIC, and 0.53 grams was the MIC. In conclusion, the hypothesis was not supported.	
<b>Conclusions/Discussion</b> In conclusion, the hypothesis was not supported. Clove oil was the most effective antibiotic. The MIC and MBC test results were very different, therefore inconclusive. Further testing would have to be conducted in order to gather more reliable data.	
<b>Summary Statement</b> My project aims to find the essential oil that has the best antimicrobial effect on Staphylococcus	
<b>Help Received</b> I want to thank my mentor, Mr. Carroll for all his guidance throughout the project	