



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

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<b>Project Title</b> <b>Archenemy: Acne</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> This project aimed to demonstrate the range of effectiveness of acne treatments in preventing the growth of <i>Bacillus subtilis</i> (<i>B.subtilis</i>) bacteria. The experiment was carried out using two types of over-the-counter acne medication: a 10% Benzoyl peroxide ointment and 2% Salicylic acid treatment pads, as well as, natural remedies dating back to 2500 B.C. The natural remedies included: calendula oil, distilled white vinegar, lemon juice, Manuka honey, sulfur, tea tree oil, and urine.</p> <p>It was hypothesized that both over-the-counter acne treatments and some natural remedies would inhibit the growth of bacteria but that benzoyl peroxide would result in the largest zone of inhibition.</p> <p><b>Methods/Materials</b> The experiment involved using the Kirby-Bauer disk-diffusion method to measure the effectiveness of each treatment. Sterile discs saturated with various treatments were placed on agar plates where bacteria were growing. Acne treatments effective in stopping bacteria growth formed circular areas around the discs (inhibition zones) where bacteria did not grow. The diameters of these zones were measured and recorded.</p> <p><b>Results</b> Of the nine treatments tested, all but two were able to inhibit the growth of the <i>B.subtilis</i> with the zone diameters ranging from 0.0 to 18.3mm. Benzoyl peroxide showed the largest mean inhibition zone diameter.</p> <p><b>Conclusions/Discussion</b> While the findings confirmed the hypothesis with regards to OTC (over the counter) acne medication, they also indicate that alternatives could be used with almost the same result.</p>	
<b>Summary Statement</b> My project is trying to find the most effective/alternative treatment(s) for acne.	
<b>Help Received</b>	