



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> Mana Sadeghi	<b>Project Number</b> <b>J2012</b>
<b>Project Title</b> <b>Zap That Zit: Which Acne Medication Can Efficiently Clear Your Acne?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this project was to find the most effective treatment against acne. In my hypothesis I stated, if I use acne treatments with either benzoyl peroxide, salicylic acid, or natural ingredients (like charcoal), then the bacteria [E. coli] should be cleared evenly since each product should be equally effective against the bacterium. The question I asked was which affordable acne medication can efficiently clear acne.</p> <p><b>Methods/Materials</b> To conduct this experiment I used the Kirby-Bauer disk-diffusion method, in which disks are soaked with an acne medication, then placed on an E.coli enriched agar plate. I then checked the zone of inhibition, or the area around the disk where the bacterial growth was inhibited or stopped, after 12, 24, and 36 hours of incubation. In this experiment I originally used the acne medications PanOxyl, OXY, AcneFree, Neutrogena, Up &amp; Up, Clean &amp; Clear, Biore, Burt's Bees, and YesTo, along with agar plates, sterile glass rods, medicine droppers, forceps, gloves, urine cups, an autoclave, paper towels, water, and the E. coli bacterium. Later, the acne treatment SkinMedica was added into my project. All the products used fall into three categories based off of active ingredients: Salicylic acid, benzoyl peroxide, and naturally sourced ingredients.</p> <p><b>Results</b> After six trials and incubation periods of 12, 24, and 36 hours, I learned that the acne product SkinMedica is the most effective treatment with an average zone of 4.83mm at 12 hours, 5.67mm at 24 hours, and 7.5mm at 36 hours. The second most effective product is Clean &amp; Clear, followed by Up &amp; Up. The least effective products were PanOxyl and OXY, both of which had an average zone of 0mm at 12 and 24 hours, and 0.5mm at 36 hours. Overall the salicylic acid treatments on average work the most effectively, followed by the naturally sourced products, then the benzoyl peroxide products.</p> <p><b>Conclusions/Discussion</b> In conclusion, I learned that the acne washes made with salicylic acid on average work the most effectively against acne, and the benzoyl peroxide do not. I proved that SkinMedica is an effective agent against acne and that the agent benzoyl peroxide is not very effective in wash form, but may be more effective in a cream or lotion form. After adding a cost analysis per ounce to my project, I found that price has no correlation with the effectiveness of the product.</p>	
<b>Summary Statement</b> In this project I tested different affordable acne medications against the bacterium E.coli in order to find the most efficient treatment available, and reached my conclusion through the use of the Kirby-Bauer disk-diffusion method.	
<b>Help Received</b> I designed and performed all of the experiment myself, however my advisor aided me with grammatical errors in my writing	