CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY

Name(s)

Maryam Ismail

Project Number

J1606

Project Title

Eliminating the Zit: Finding an Effective Treatment in Exterminating Bacteria

Abstract

Objectives

The objective of this project is to study the effect of different acne agents on E. coli bacteria and to find an effective agent in eliminating E. coli bacteria.

Methods

For this project, the Kirby Bauer Disk Diffusion Method was utilized. E. coli was spread on nutrient agar plates. The agents were diluted to 3 different strengths: 0.5%, 1%, and 2% of the active ingredient. Paper disks were dipped in the different strengths of the medicines and placed on the agar. Water was used as the negative control and drugstore iodine as the positive control. The plates were incubated for 48 hours at 37 degrees Celsius. Zones of inhibition were measured after incubation. Proper sterile techniques were used throughout experimentation.

Results

I compared the effectiveness of the agents at different strengths after conducting multiple trials of the disk diffusion method. I found out that Benzoyl Peroxide worked most efficiently in killing the bacteria, followed by Salicylic Acid, Glycolic Acid, and Sulfur. Additionally, I calculated the average ratio of diameters of zones of inhibition between the three concentrations of agents. I found out that as the strength of the agent increases, the effectiveness increases as well.

Conclusions

Based on the data gathered, it was shown that Benzoyl Peroxide was the most effective in treating acne, as it killed the largest amount of E. coli bacteria.

Summary Statement

My experiment tested different acne agents on E. coli using the Kirby Bauer Disk Diffusion Method and found that Benzoyl Peroxide was the most effective treatment.

Help Received

I conducted my project and experimentation independently under the supervision of my science teachers, Zeba Haq and Haadiyah Razzack, at my school. They helped me during my project and reviewed my results.