CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)

Morgan M. Mendicino

Project Number

31176

Project Title

Don't Neglect. Protect

Abstract

Objectives/Goals

This science project is trying to find out if sunscreen and polarized sunglasses protect bacteria from UV light. It is hypothesized that sunscreen and polarized sunglasses do protect from UV light because it states that sunscreen absorbs, scatters, and reflects the UV rays. The polarized sunglasses black lenses help with blocking out the UV rays.

Before testing, the following topics were researched; UV light, UV rays, UV light on bacteria/humans, bacteria, sunscreen, polarized sunglasses and good/bad bacteria, to better understand the project thoroughly. Some interesting information from this research, I would have to say would be that some bacteria are used for making healthy foods such as yogurt and cheese. Another interesting thing is that UV light/rays can help the human body, if only in a small dose, by killing harmful bacteria. To test the project, I took skin flora bacteria and in three different groups, polarized sunglasses group, sunscreen, and controlled, put them under the UV light for certain amount of times and compared the results.

The data from this experiment shows that sunscreen and polarized sunglasses protect bacteria from UV light. For example, at the 15 minute mark for each group, the sunscreen group had an average of 337 bacteria alive and the polarized sunglasses had an average of 74.5 live bacteria, where the controlled group had an average of 3.5 bacteria alive.

Methods/Materials

Project Materials: 1. Cotton tip applicators (sterilized). 2. 24 TSA Agar plates. 3. 15 wattage UV light bulb. 4. Cardboard box: Height-22.4cm, Width-29.4cm, Length-44.9cm,
Lid of box: Height-8.85cm, Width- 29cm, Length-45.8cm. 5. 30 spf CVS brand sunscreen. 6. Lab coat, 7. Safety goggles. 8. Gloves. 9. Skin flora (bacteria from skin, most likely hand skin). 10. UVA/UVB protection polarized sunglasses. 11. Liquid enrichment media (chicken broth). 12. Foil (any type will work). 13. Ruler (cm). 14. Syringe 10cc(mL), 21 gage. 15. Loops. 16. Vial tubes. 17. Bleach. 18. Incubator unit. 19. Magnifying glass.

General Materials: 1. Board for science fair. 2. Binder (3in.). 3. 50 plastic sheets. 4. #2 pencil. 5. Computer paper (8 ½ x 11). 6. Computer. 7. Scissors. 8. Tape/glue (duct and clear scotch). 9. College Ruled notebook to write in. 10. Colored pencils. 11. Markers. 12. Pen. 13. Stapler/Staples. 14. Colored paper.

Summary Statement

My project is to learn if sunscreen and polarized sunglasses would protect bacteria from the UV light.

Help Received

Doctor helped with watching and teaching of microbiology procedures; mother and father helped with making of board; used teacher's microbiology lab.

Preliminary