CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
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Project Number
S1418

Project Title
The Effect of Hair Dye on Hair Strands

Abstract

Objectives/Goals
How will the time hair is emerged in dye affect the intactness of the hair shaft?

Methods/Materials
First, submerge hair dye for different periods of time (20 mins, 40 mins, 60 mins, 80 mins, and 8 hours). After each sample of hair is dyed for its allotted amount of time, wash and dry hair. Take 5 strands of hair from each time period and analyze the hair, and count the breaks under 100X. Materials:Blonde hair, Loreal Red Hair Dye, Horsehair paintbrush, Distilled water, stopwatch, and microscope.

Results
The average amount of breaks in 16 mm of hair dyed for 20 mins is 1 break. The average amount of breaks in 16 mm of hair dyed for 40 mins is 1.7 breaks. The average amount of breaks in 16 mm of hair dyed for 60 mins is 2.1 breaks. The average amount of breaks in 16 mm of hair dyed for 80 mins is 3.1 breaks. The average amount of breaks in 16 mm of hair dyed for 8 hours is 3.7 breaks. The longer hair is submerged in dye, the more breaks were found. The fastest rate of damage occurred in 80 mins, and rate of damage decreased dramatically after 80 mins.

Conclusions/Discussion
The data I have collected demonstrates that as time increases, breaks in the hair shaft increases. Although dasmage increases at a steady rate from 20 mins to 80 mins, the rate of damage decreased after 80 mins. I believe that this decrease in hair damage is due to ammonia being used up as reagents

Summary Statement
Determining the extent of hair damage due to the time hair is submerged in hair dye.

Help Received
UCI supplied microscope, NCSF focus grant gave money, Dr. Debra supervised, Angelica Nangit and Natasha Narayan helped carry out experiment.