CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
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Project Number
J1101

Project Title
Absorbency: Do Dyes Matter?

Abstract

Objectives/Goals
The goal is to determine if dyed table napkins are less absorbent than undyed ones.

Methods/Materials
All napkins are the same brand and size with the only difference being the color of the dye. Eight colors compared to white. One # 100 ml graduated cylinder;One # 9x13 glass pan;One # plastic funnel;One # timer;One # tong or tweezers. Napkins are placed in glass pan, 100ml of water poured over it, one minute to soak, one minute held above pan to drip,then napkin discarded. Water remaining in pan poured back into graduated cylinder and measured. Repeated 5 times for each color. The amount of remaining water was averaged.

Results
The results show that there is very little difference with the absorbency of dyed versus undyed napkins. The white paper napkin was the positive control and according to the hypothesis, it should have absorbed the most water. The black paper napkin was the negative control and it should have absorbed the least water. Both controls absorbed about the same. All colors absorbed about the same with a small difference with the orange napkin.

Conclusions/Discussion
The hypothesis for this experiment, dyed napkins will absorb less water, is not true. The process to dye a paper napkin does not interfere with the water retention. The key to absorbency is the cellulose fiber and the amount of embossing, or air pockets, created in the design. This experiment could have been improved by using a sample that is unbleached to see if it absorbs more water. As a concern,dyed napkins can not be used in compost piles at home.

Summary Statement
The absorbency of various colors of table napkins was tested and compared to see if the color made a difference.

Help Received
My sister, Michelle, helped with the photography. I borrowed the graduated cylinder from Morgan Winery.