CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
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Project Number
J1524

Project Title
True Colors: A Chromatographic Comparison of Both Natural and Artificial Products on the Color Spectrum

Abstract

Objectives/Goals
The purpose of this experiment was to determine if the colors found in natural products are the same colors, or same blend of colors, as those found in artificial products. My hypothesis was that the artificial products would have a more complex set of colors on the color spectrum than the natural products.

Methods/Materials
In the experiment several types of natural products were used for comparison. These included fruit, vegetables and plants. The artificial products chosen for this experiment were marker pens and Kool-aid packets.

Using coffee filters, quart-sized jars and alcohol, chromatography testers were made to separate the colors found in these various products. Repeated tests were completed over a period of several weeks and the results were recorded.

Results
The artificial red products produced a 100% pure red color with no blended hues. The natural red products revealed a broad range color blends including pink, purple, yellow and red hues. In contrast, the artificial green products showed a significant blending of various colors to produce the green tint including blues, greens and yellows. The natural green products reflected a 90-100% pure green color with only minor blending of yellow or tan hues. Finally, the purple products showed a significant blending of hues in both the natural and artificial forms.

Conclusions/Discussion
My hypothesis stated that the variance of colors was centered on the artificial or natural aspects of the products tested. However, based on the data recorded, my conclusion is that the diversity in a specific color spectrum is not determined by the artificial nature of the product but on the specific color replicated.

Summary Statement
This experiment was conducted to determine if the colors found in natural products are the same colors, or same blend of colors, as those found in artificial products.

Help Received