CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

Name(s)
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Project Number
S0530

Project Title
Discovery of a New Natural Dye in My Own Backyard: Ipomoea indica

Abstract

Objectives/Goals
Since I knit and spin wool for a hobby, my goal was to find a natural dye, that has not yet been discovered, to dye wool. After testing several flowers in my backyard,I chose Ipomoea indica, or morning glories because they have not been, according to my search, extensively studied. Since the flowers are blue, I predicted that the wool would end up blue or purple. I chose to compare morning glories to a well-documented natural dye, marigolds.

Methods/Materials
I dyed the wool using two concentrations of six mordants (chemicals that bind color molecules to wool) in both morning glories and marigolds. I used standard dying methods for natural dying.

Results
I produced a wide range of pleasing colors using morning glories, depending on the mordant used, from pink to yellow and green. This was very surprising since the original dye bath was blue. The pH's of the mordanted wool varied greatly and changed the color of the dye bath and the color of the wool. The wool dyed with marigolds, however, stayed in the range of yellows, golds, and browns.

Conclusions/Discussion
I found that the dye of the morning glory flower produces a variety of beautiful pastel colors which can be useful to knitters or weavers. These colors are the result of the pH dependent cyanidin (the color molecule of the flowers) as well as the mordants used.

Summary Statement
I discovered Ipomoea indica, or morning glories, to be a new natural wool dye that produces a wide variety of colors useful for knitters and weavers.

Help Received
I did the work myself with the support and advice of my teachers and parents.