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Research Assignment

“The Berry Natural Way”

Introduction

In this research assignment, I will be discussing the significant factors of the natural dyeing process using blueberries as my natural dyeing substance. I chose this natural substance because blueberries are very high in pigmentation. They produce my favorite color which is purple. I also chose a natural cotton fabric as my t-shirt of choice in this experiment. Natural dyeing is more sustainable to our environment, as opposed to the toxic substances that are normally used in the dyeing process. Nevertheless, according to the article "Eating with your eyes: The Chemistry of Food Coloring" by Brian Rohrig, the best natural source for deep purple and blue colors are in anthocyanin, which is commonly found in blueberries, cranberries, raspberries, etc. (Rohrig, 2015). You will see me go through different procedures in order to successfully retain high pigmented tie dye shirts. The techniques I used for my natural dyeing process were the accordion fold and the crumbling method. Both methods were needed in order to produce the desired outcome I was looking for. The creative process was fun yet thought provoking in my attempts to figure out the results of each folding technique. One of my favorite steps of the process was the rubber band wrapping. Understanding the white lines they produced, I enjoyed attempting to create the stroke patterns I came up with. In more detail, I will explain why each step was significant to achieving my desired dye pattern.

History of Blueberry Dye

Dye has been with us since recorded history. It became part of humanity after the agricultural revolution but some records suggest it was with us even before the agricultural revolution.

People used to dye fabrics and clothes naturally using fruits until Perkin discovered synthetic dye in 1851. Before the discovery, all dyes were done using natural substances, mainly fruits, and even some beans. This text, however, specifically talks about Blueberry dye. Blueberry is native to North America, it has been used as a dye for thousands of years. The range of colors it can create are blue, purple, colors seen in faded blue jeans, its hue ranges from periwinkle to pastel blue. It was never subject to sumptuary law like purple dye made up of snails in Victorian England. It was not expensive like snail dye, but compared to other dyes, it was a bit expensive.

Colors in fashion today

My favorite colors are purple, blue, and black. Depending on the situation, I wear these garments and each of them symbolizes unique things for me. Blue and Purple are when I have to dress casually or in a sporty way and black is when I have to be in classy outerwear. Blue creates a sense of peace and calm, while Purple innovates a mood of luxury, maybe due to its history, while black creates an image of power and status, which too might stem from my social conditioning. My inspiration for my sense of style has always been driven by Teyana Taylor'. Growing up, she has always been a young fashion Icon, with her edgy sophisticated style. She is the queen of versatility as said on the essences magazine blog. She incorporates different styles and colors in daily monochromatic outfits. She always dresses up for any occasion. Her template is unique and vintage. As they say, standing out is a winning style. Teyana dresses in a way that captures an audience's attention from her tomboyish looks to her casual luxury wardrobe; she perfects every outfit. I have attached her photos where she has dressed up in purple garments in the reference section.

Dying Process Phases



Phase 1: Here is the list of the ingredients that I used to successfully create this natural dye. 1.

Blueberries, Himalayan Pink Salt, Rubber bands, Water, Measuring Cup, Jockeys Natural Cotton

Fabric Shirt, a pot, & cheese cloth.



Phase 2: I added 10 cups of water, and $\frac{1}{2}$ cup of Himalayan Pink Salt and put my water to a boil for 15-20 mins.



Phase 3: I then started to fold my t-shirt in the accordion fold method, to get that desired look I was looking for. I then added rubber bands to secure the shirt from obtaining the dye. After that, I placed the shirt in the pot for 30 minutes.



Phase 4:As the shirt was boiling in the pot, I then began to make my blueberry dye. I placed the full pack of blueberries in a bowl and squashed it until it became a jam texture.



Phase 5-6: After 30 minutes of having the shirt boiled, I took it out and poured my blueberry mixture into the boiling hot pot. I let it simmer and cook for 40 minutes. After 40 minutes, I then used another pot and covered it with my cheesecloth so that I could obtain the blueberry dye. The Cheesecloth captured all of the blueberries' leftover skin that was unneeded. I then inserted the shirt into the blueberry dye and let it soak for 5 hours.



Phase 7-8: After letting it soak for 5 hours, I then removed the shirt from the pot and began to take out the rubber bands to see my results. After seeing my results I was a bit unhappy with it, so I decided to dye it again, and this time used the crumbling method just like the girl in the tutorial used. I then let the shirt soak again for another 5 hours and replaced it with a smaller pot.

Phase 8-9: After 5 hours had passed, I took out my shirt and finally saw my final results and was very impressed with it. I then used cold water and dish soap to rinse off my shirt and let it air dry and these were my final results!

WET RESULTS, AFTER WASHING



NEXT DAY, AIR DRY RESULTS



Findings

As a result, I found that the blueberries created a violet dye that stained the cotton fabric. I thought it would retain a richer color if I allowed it to soak in the dye for more hours after redyeing it. I also found that using the accordion fold technique didn't absorb as much dye as I thought it would. However, using the crumpling method to redye my shirt was very effective although it did not obtain a richer color, it did manage to sustain the dye in areas that did not have any dye before. I also found that using more rubber bands for this research is very essential. The more rubber bands that I used, the more patterns created on the t-shirt. Lastly, after having the t-shirt air-dry overnight, I noticed the difference in the dye color. The color began to fade away after it was air-dried overnight. It created more of a violet/light pinkish color instead. I'm still very pleased with my results. I am going to try this again with a different natural substance.

Conclusion

Overall I found this research interesting and informative about understanding the effectiveness of natural dyeing substances. I learned that blueberries naturally produce anthocyanins, which makes them very rich in color. I would have never imagined that I would be able to naturally tie-dye a t-shirt successfully by using blueberries which is pretty incredible. I now understand the importance of natural dyeing because it is very sustainable to our environment, rather than using toxic substances. This experiment has also made me realize my capabilities of time management and innovative thinking when it comes to doing things that I am not used to. In all, I would recommend others to try this environmentally friendly experiment as well.

References

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Below are some of my favorite Teyana Taylor outfits in purple for your reference

