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Fall 2021 Image 1
ATLS 4151: Flow Visualization
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I. Introduction

The purpose of this assignment was to get the class comfortable with recognizing the many different kinds of flow and being able to capture them in an artistic way. I chose to take a picture of a sphere of agave syrup coated in cinnamon, which was inspired by my breakfast. I was both frustrated and intrigued when the syrup would get covered in cinnamon and roll right off my toast, not sticking to anything. I found this to be very interesting and also look really cool when it formed a perfect sphere that could be rolled around and not easily broken, unlike what one would expect from a liquid.

II. Flow Apparatus

This photo exemplifies the concept of hydrophobic liquid, which is the segregation of liquid and non polar substances. The cinnamon acts as the non polar substance that minimizes the area of contact between itself and the agave and maximizes the molecular bonding of the syrup. surface tension powder creates a thin layer around the liquid preventing it from combining with other things. This hydrophobic effect allows for the drop of agave to hold its shape and roll around without the agave spreading, and also why the drop of agave is able to stay on top of the pile of cinnamon on the right side of the spoon.

III. Visualization Technique

For this photo I used just regular ground cinnamon and blue agave syrup. I also used two spoons, one used to coat the agave in the cinnamon in order to form the sphere, and a second to actually hold both the cinnamon and 2 globs of agave syrup seen in the final picture. First I coated one droplet of agave on the first spoon and transferred it to the final spoon. Then I created a small mound of cinnamon on the other end of the second spoon and made a crater in the top of the mound in order to have a secure place for the second droplet of agave so that it wouldn't run off the cinnamon, coating itself in the powder. My goal was to have one droplet completely covered but the other one just sitting on top of the cinnamon, pure and uncoated so that the sun could light it up. Once I fully set up the spoon with its contents, I held the spoon in front of my kitchen window around 2:00pm in order to capture the natural sunlight.

IV. Photographic Technique

I used a Canon EOS Rebel T6 camera with an aperture of f/6.3, shutter speed of 1/30, a focal length of 51 mm, and ISO of 100. The original picture has a dimension of 5184×3456 pixels. I used a macro lens with manual focus positioned a couple centimeters away from the subject. I edited the final picture just slightly to highlight the colors of the cinnamon and agave.

V. Final Results

I am really happy with the results of this photo. I struggled with focusing the camera since the subject matter is very small and detailed, but am very pleased with how this photo turned out. I love the way the sun lights up the sphere of agave on the right and how you can see the particles of cinnamon attached to the bottom of it. I was inspired by the idea of Yin Yang after I took the picture. It gave me a strong sense of balance which I thought was really interesting. I think in the future I would like to adjust the background lighting more and implement the masking feature in Photoshop.

Original



Final Image

