Biochromes

class notes

Dyes and history of dyes

value driven

- locally positive- waste
  - locally growing
  - locally empoweing
  - heritage knowledge
  - feeds biodiversity
- 0-waste
  - recycled dye
  - recycle mordants - assists each other
- biobased and compostible
  - grown
  - bacterial fungal mineral botanical
  - not harmful

Botanical sources- flowers, seeds, bark

bacteria, oxides, coriopsis, marigold, weld, onion

animal fibers, plant fibres, manmade fibres

scouring agent main- sodium carbonate

document your dyes!! to reproduce , and be consistent

https:biochromescolourarchive

“If indigo was invented today, we would never approve it.” - Andrew Olah about the unsustaibility of earlier and some current indigo farming and cultivation practices

Biochromes: Exploring Natural Dyeing Processes

Inspiration

My passion for natural dyeing is deeply rooted in the rich traditions of indigo cultivation and application across various cultures. The practices have historically been highly unsustainable. There are constant efforts to lessen environmental deterioration and exploitative methods. Indigo, derived from *Indigofera tinctoria*, has been a cornerstone in textile arts, notably in India, where intricate methods transform green leaves into mesmerizing blue hues.

Beyond traditional practices, contemporary artists and designers are pushing the boundaries of indigo dyeing. Some artisans are integrating digital fabrication techniques with traditional dyeing to create unique patterns and textures.

Materials and Ingredients

- **Blue/Purple Cabbage** (natural dye source)
- **Alum** (mordant/modifier)
- **Water** (solvent)
- **Swatches** - cotton, silk, muslin, etc(prepared for dyeing)
- **Cutting tools** (for fabric preparation)
- **Heat Source** (stove or hot plate)
- **Strainers and Bowls** (for extraction and filtering)

Process Documentation

Step 1: Extracting Pigment from Blue Cabbage

1. **Preparation**:

- Chopped the blue cabbage into small pieces to maximize pigment extraction.

2. **Extraction**:

- Simmered the chopped cabbage in water for 30-45 minutes.

- Heat facilitated the release of anthocyanins, resulting in a vibrant bluish-purple dye bath.

3. **Straining**:

- Strained out the cabbage solids, collecting the dyed liquid for the dyeing process.

Step 2: Preparing the Fabric Swatches

1. **Cutting and Prepping**:

- Cut fabric into uniform swatches for consistent dyeing results.

2. **Mordanting**:

- Treated the fabric with alum to enhance dye uptake.
- **Note**: Suspect that an excess amount of alum was used, which may have influenced the final color outcomes.

Step 3: Dyeing Process

1. **Immersion**:

- Submerged the fabric swatches in the cabbage dye bath.
- Allowed them to soak for 30-60 minutes, stirring occasionally for even dyeing.

2. **Observations**:

- The interaction between the cabbage dye and alum produced subtle color variations.
- Noted shifts towards purples and grays, possibly due to the alum concentration.

3. **Unexpected Discovery**:

- Excess alum introduced a metallic sheen on the fabric in certain areas.

we used too much alum <3

Step 4: Exploring Color Modifiers

To further investigate color variations, experimented with pH modifiers:

- **Acidic Modifier** (e.g., vinegar or lemon juice):
- Shifted the dye bath towards reddish-pink hues.

- **Alkaline Modifier** (e.g., baking soda):
- Produced bluish-green tones.

Outcome: Producing Natural Dye and Modifiers

Fabric Swatches:

- Created a range of swatches displaying hues from the cabbage dye, influenced by alum and pH modifiers.

Future Directions and Reflections

This exploration underscores the intricate chemistry of natural dyeing and the impact of variables like mordant concentration and pH modifiers. Inspired by both traditional indigo practices and contemporary innovations, I plan to:

Refine Mordanting Techniques:

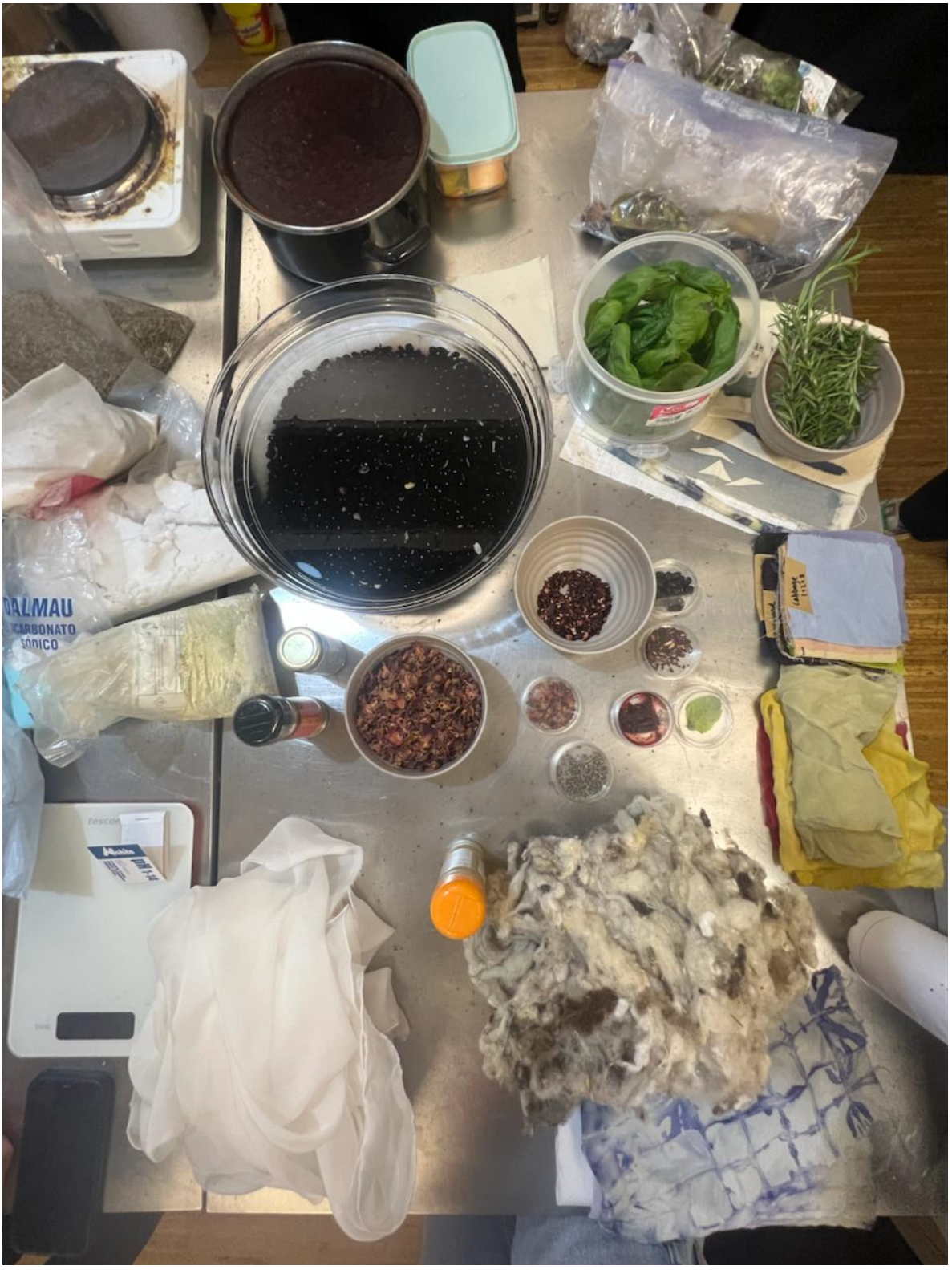
- Experiment with precise alum measurements to achieve desired color outcomes without unintended effects.

Explore Indigo Dyeing:

- Investigate sustainable indigo dyeing methods, drawing inspiration from both traditional practices and modern explorations, such as those at Fabricademy.


1.000
pH 1-14


CABBAGE
+IRON
CABBAGE
(Alum26)
CABBAGE+lemon


DALMAU
CARBONATO
SÓDICO


Cabbage
1+2+3


+2g Sodium Carbonate
CABBAGE
CABBAGE+lemon
>24h
+2g Alum +4TBSP Vinegar
NATURAL


1€

https://prod-files-secure.s3.us-west-2.amazonaws.com/7dca5545-fdd3-4883-8f65-92bdc1969430/cad8016b-9f32-4527-adf5-b1170eef86a5/IMG_6210.mov