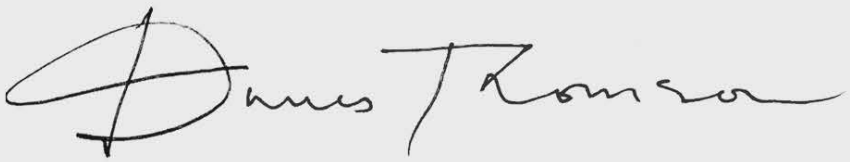
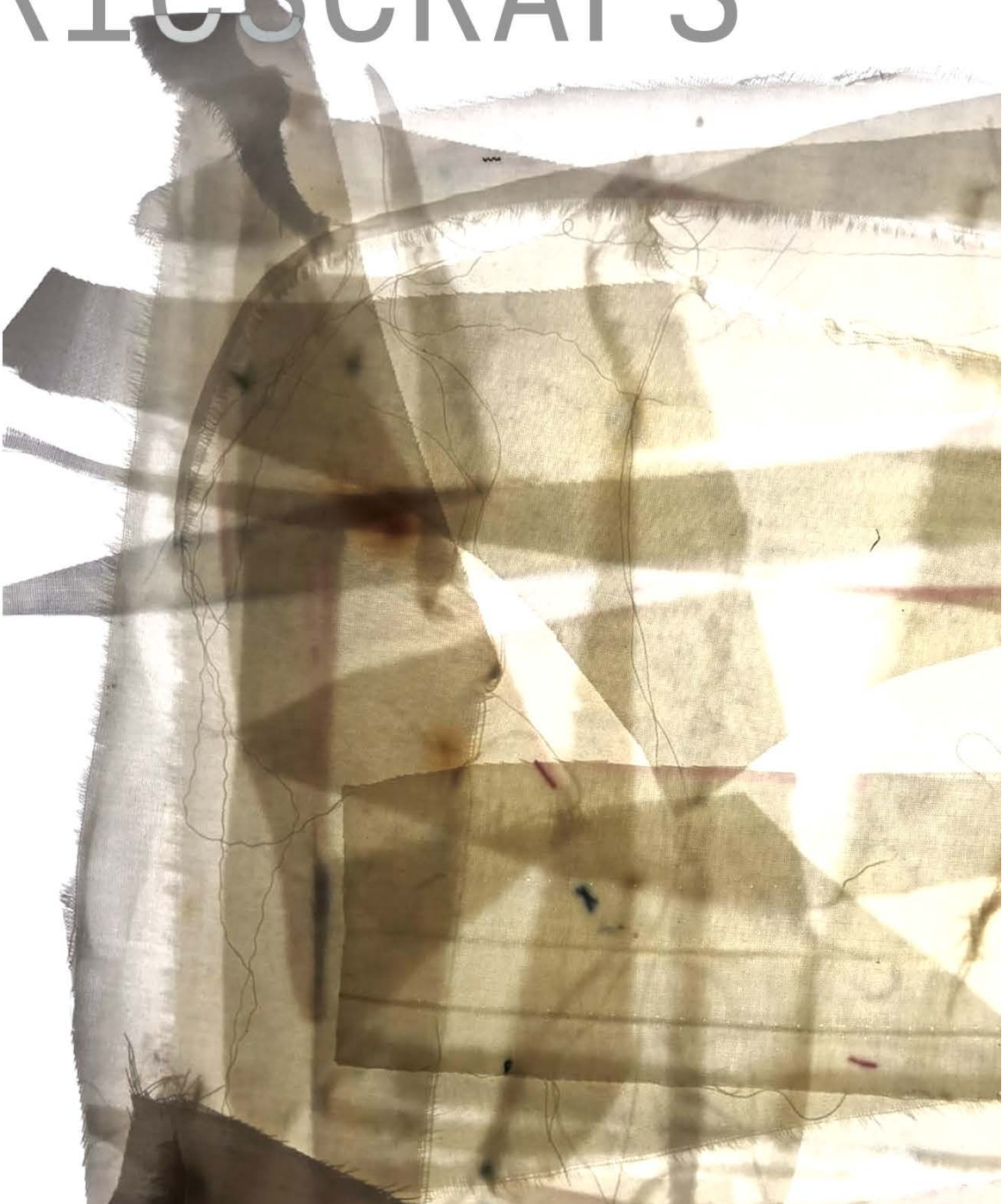
SUSTAINABLE TEXTILE EXPERIMENTS

MY DIGITAL JOURNAL DOCUMENTING A RANGE OF EXPERIMENTS TO PRODUCE SUSTAINABLE ALTERNATIVES TO PLASTIC TEXTILES IN AN ACCESSIBLE WAY.

STARTED SEPTEMBER 2020, THIS IS AN ONGOING PROJECT.



WATER
GELATIN
GLYCERIN
FABRICSCRAPS



DESCRIPTION

Using an eco plastic base of gelatin and glycerin I then added some cotton fabric scraps. Overall I feel this was an interesting way to use them. The fabric is durable but ultimately will disolve in hot water.

INGREDIENTS

150ml WATER / 10ml GLYCERIN / 7g GELATIN / FABRIC SCRAPS

NOTES

- Next time I would weave the fabric to buid up the strength.
- I would like to try methods of waterproofing this as I love the general look and idea of this textile.

STRENGTH ● ● ● ●

FLEXIBILITY ● ● ● ● ● ● ●

ELASTICITY ● ● ● ●

WATER RESISTANCE ● ● ●

DIFFICULTY ●

ADAPTIVITY ● ● ● ●

LOOSE TEA

GELATIN

GLYCERIN

WATER

DESCRIPTION

One of the most successful of my experiments (as of 01/12/2020). This textile had great elastic memory and is also durable. The feel is most similar to leather although still lacking in sound water resistance.

INGREDIENTS

250m WATER / 15ml GLYCERIN / 15g GELATIN / 150g LOOSE LEAF TEA

NOTES

- Interchange tea leaves for other dried ground components ie. walnut shell,tree bark, egg shell.
- Adjust levels of glycerin to play with flex and strength.

STRENGTH

FLEXIBILITY

ELASTICITY

WATER RESISTANCE

DIFFICULTY

ADAPTIVITY

GLYCERIN

GELATIN

TURMERIC

DESCRIPTION

Although poor water + oil resistance I do think this textile has potential. It has a lovely turmeric aroma but fear it would stain skin. It is however very flexible and relatively strong.

INGREDIENTS

100ml WATER / 10ml GLYCERIN / 10g GELATIN / 150g TURMERIC

NOTES

- Less glycerin would give it a more leathery feel.
- Less water might make it tougher.
- Different additives to give it different colours and textures.

STRENGTH

FLEXIBILITY

ELASTICITY

WATER RESISTANCE

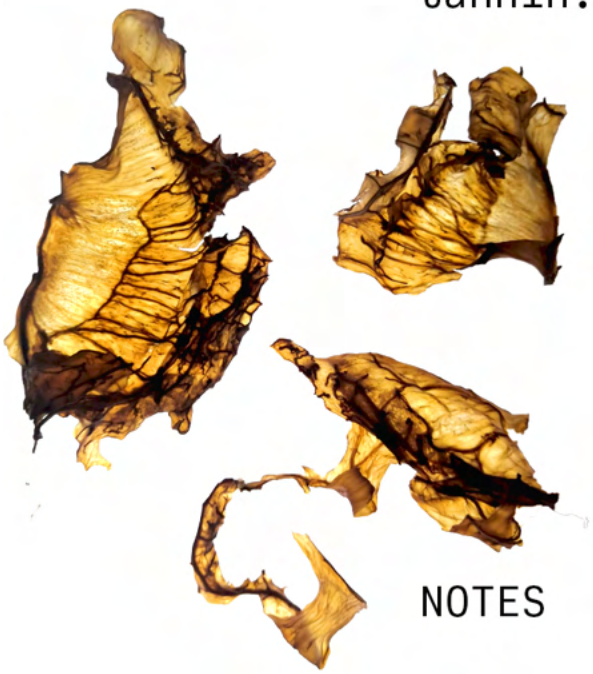
DIFFICULTY

ADAPTIVITY

POMELO PITH TANNINS

DESCRIPTION

Using the tough pith of a pomelo these semi-transparent sequins can be made. I used a similar process to leather making to create these. Firstly I soaked them in a salt bath for 24hours, then rinsed thouroughly, and then placed in a tannin for 2 weeks. 1 used red wine, 2 used tree bark from my home town, 3 didnt use a tannin.



INGREDIENTS

PITH OF 1 POMELO / 100g SALT / 200ml WATER / TANNIN OF CHOICE

NOTES

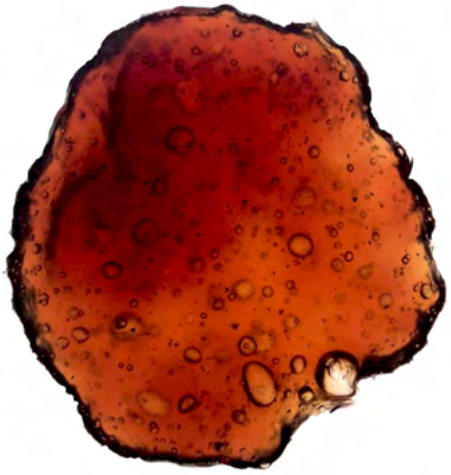
- Would like to experiment with different colours.
- Although not many other fruits have piths as tough as pomelo this could perhaps work with seawed.

STRENGTH	● ● ● ● ● ●
FLEXIBILITY	● ●
ELASTICITY	● ●
WATER RESISTANCE	● ● ●
DIFFICULTY	● ● ● ●
ADAPTIVITY	●

WATER
VINEGAR
CORNSTARTCH

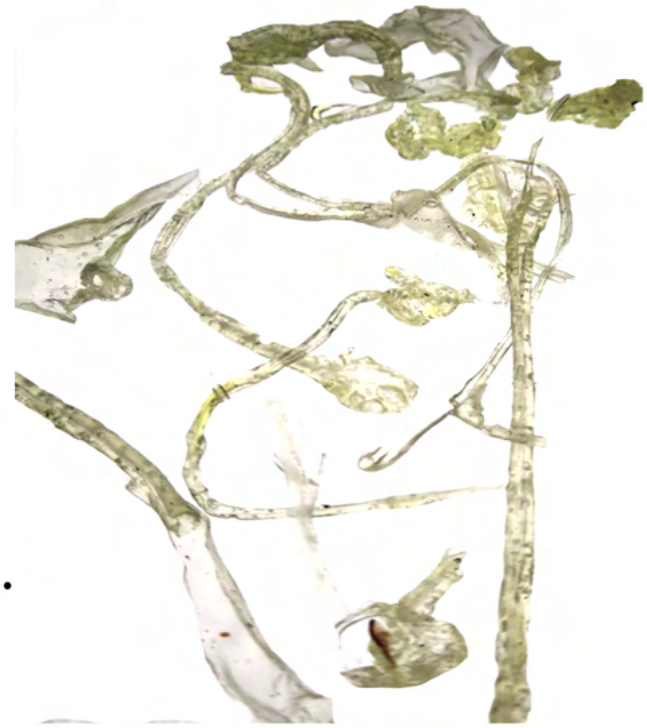
DESCRIPTION

The variations of this method of making eco-plastic are drastically different. The turmeric addition made it very tough, I used left over red cabbage dye in the second and it was very maluable, and lastly no additives was an ideal mix of both.



INGREDIENTS

60ml WATER / 5ml VINEGAR / 20g CORNSTARTCH / 5ml GLYCERIN



NOTES

- Very strong vinegar aroma.
- Difficult to shape smoothly.
- Perhaps pipe mixture into filament yarn and crochet or knit.

STRENGTH

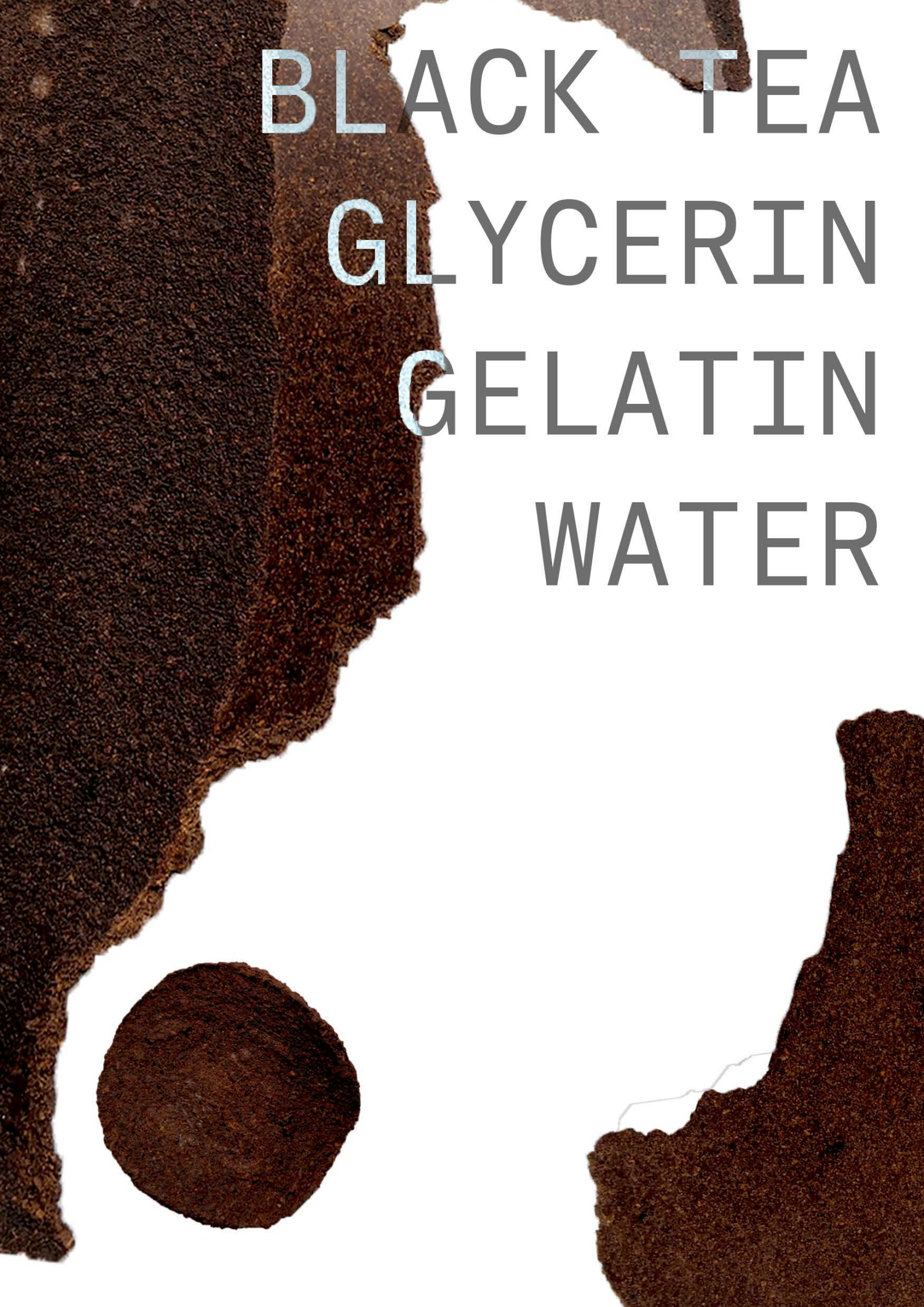
FLEXIBILITY

ELASTICITY

WATER RESISTANCE

DIFFICULTY

ADAPTIVITY


BLACK TEA
GLYCERIN
GELATIN
WATER

DESCRIPTION

I was amazed how well this textile worked. It feels so similar to plastic: I would say it has the same weight feel + flex as a credit car. There's a nice lustre from the side that wasn't cut away from the mould. I would use this as buttons, beads or zip pulls.

INGREDIENTS

100ml WATER / 10g Gelatin / 5ml GLYCERIN / TEA FROM 15 USED TEABAGS

NOTES

- Adjusting glycerin levels for a more flexible textile.
- Tea could be replaced with any fine grain dried plant waste.
- Pre-shaped moulds for minimal waste.

STRENGTH	● ● ● ● ● ● ●
FLEXIBILITY	● ●
ELASTICITY	● ●
WATER RESISTANCE	● ● ● ● ● ●
DIFFICULTY	● ●
ADAPTIVITY	●

SEQUOIA BARK

GELATIN

GLYCERIN

DESCRIPTION

I’ve always loved sequoia bark; it’s fire resistant, naturally it’s fibers are woven, and has so much textile potential. Originally I sourced the bark for making tannin but was unsuccessful. However these samples have worked out better than anticipated.

INGREDIENTS

100ml WATER / 10g Gelatin / 5ml GLYCERIN / 50g SEQUOIA BARK DUST

NOTES

- Adjusting glycerin levels for a more flexible textile.
- Adding more gelatin for a leathery finish.

STRENGTH

FLEXIBILITY

ELASTICITY

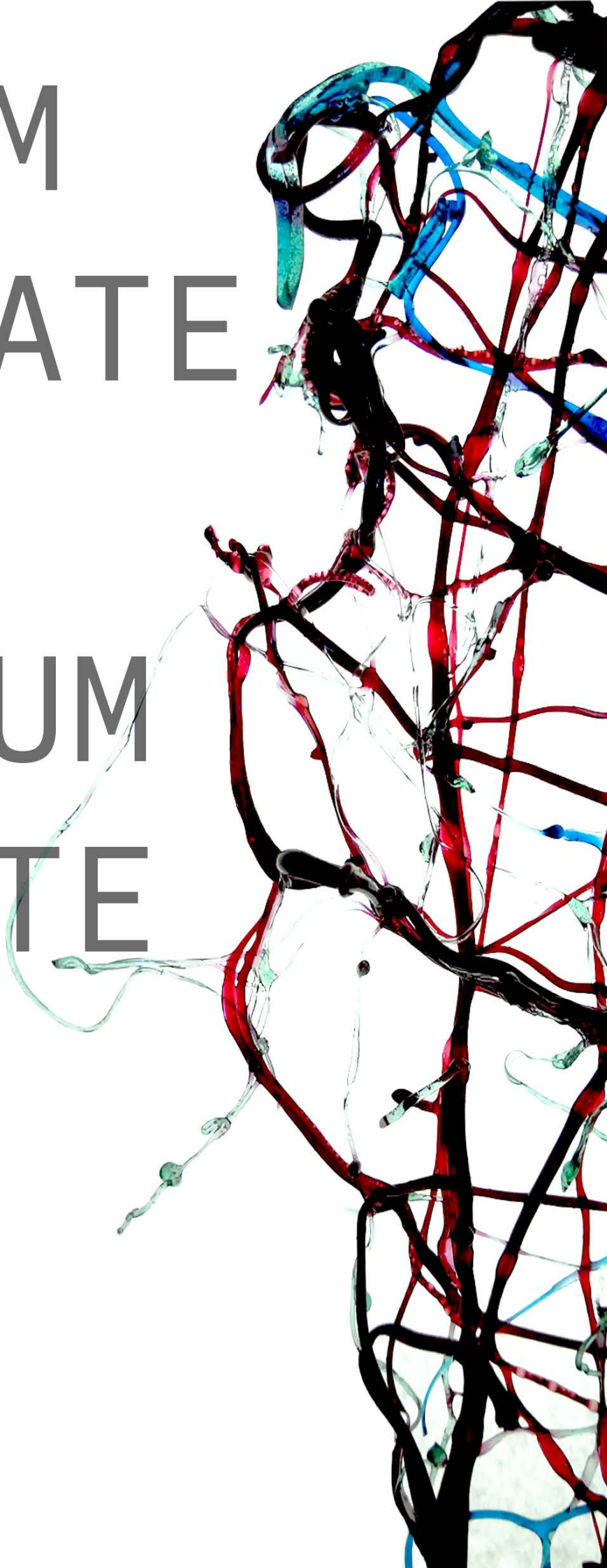
WATER RESISTANCE

DIFFICULTY

ADAPTIVITY

SODIUM ALGINATE

CALCIUM LACTATE



DESCRIPTION

I’ve had great success using sodium alginate + calcium lactate to produce really beautiful filaments that are strong and flexible. The filaments are versitle and can be used to crochet / knit , or can be postitioned to fuse together as they dry - creating glass like bio-textile lace.

INGREDIENTS

WATER / SODIUM ALGINATE / CALCIUM LACTATE / HONEY / COLOURING AGENT

NOTES

- Switching out honey for somethig else for less sticky results.
- Experiment with different fusable pattern arrangements.
- A lot of room to experiment for different uses.

STRENGTH

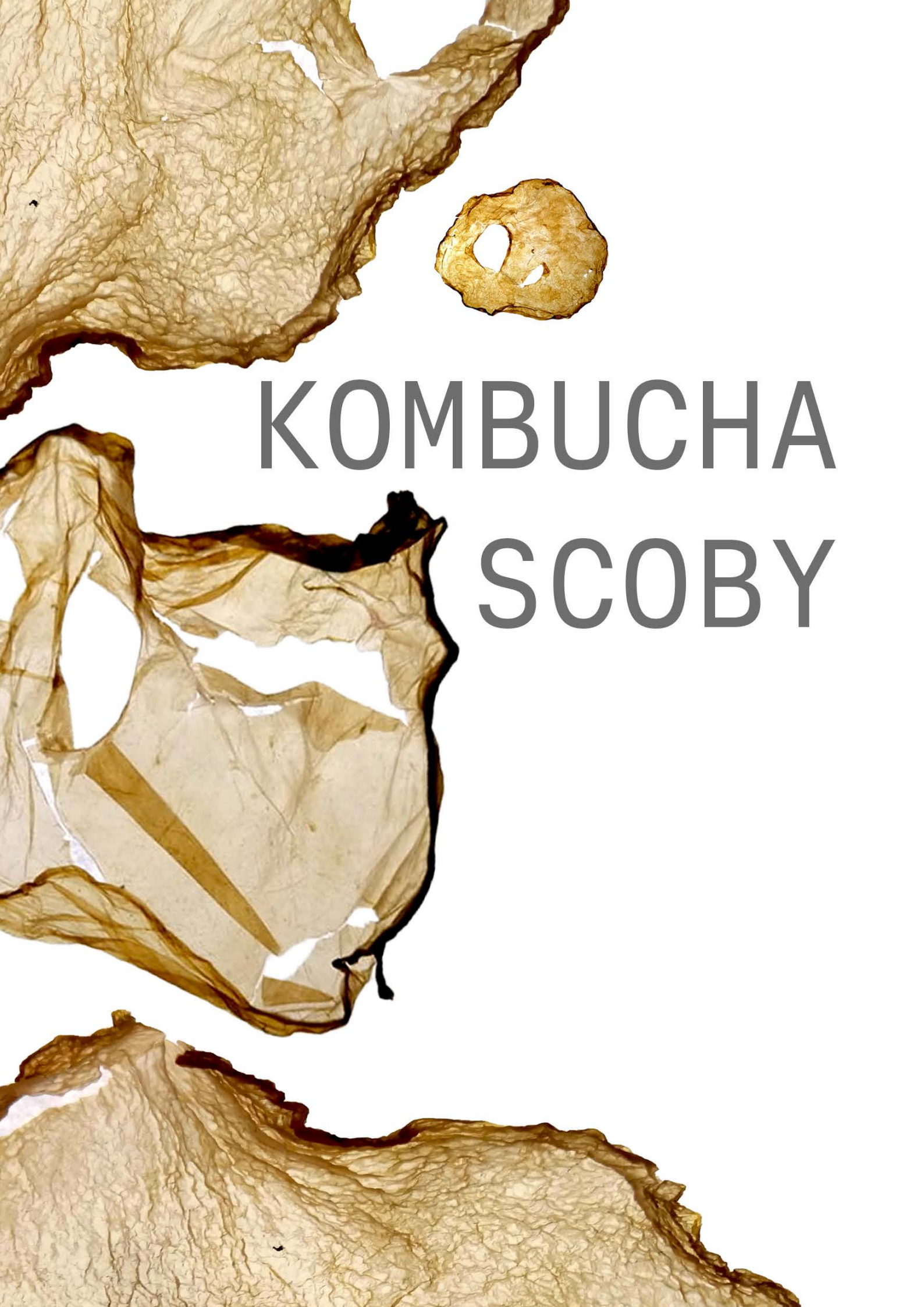
FLEXIBILITY

ELASTICITY

WATER RESISTANCE

DIFFICULTY

ADAPTIVITY



KOMBUCHA SCOBY

DESCRIPTION

I had high hopes for ‘kombucha leather’ as it’s very prominent in most discussions surrounding bio-tex. Being both a biproduct and a durable vegan leather sounded too good to be true, and unfortunately it remains that way for me. My attempts ended up brittle, with a strong smell. I am keen to keep experimenting with scoby.

INGREDIENTS

WATER / GREEN TEA / SUGAR / STARTER SCOBY

NOTES

- Tea types can be switched out (currently trying black tea).
- More research into treatments and drying needed.
- A lot of time + space needed for the process.

STRENGTH

FLEXIBILITY

ELASTICITY

WATER RESISTANCE

DIFFICULTY

ADAPTIVITY

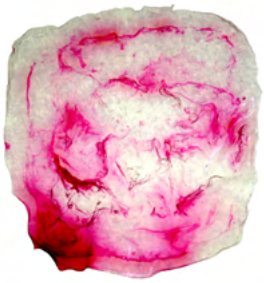
AGAR AGAR

GLYCERIN

WATER

DESCRIPTION

Due to the success of my gelatin textiles I was curious as to whether the results could be replicated with the vegan alternative agar agar. I was very happy with how the samples turned out. They are considerabley more flexible than the gelatin but I feel I can alter that with water measurements. I would like to continue using agar.



INGREDIENTS

AGAR AGAR (5g) / WATER (200ml) / GLYCERIN (5ml) / COLOURING AGENT

NOTES

- Shrinkage with this textile could pose an issue.
- Better to dry samples on warm days as the excess liquid they expell could lead to moulding.
- More sustainable than gelatin + vegan friendly.

STRENGTH

FLEXIBILITY

ELASTICITY

WATER RESISTANCE

DIFFICULTY

ADAPTIVITY

REFERENCES

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PHEOBE ENGLISH Fashion Designer (Talk at Sheffield Hallam University 2019)

‘UNDERSTANDING BIO MATERIAL INNOVATIONS a primer for the fashion industry’
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