

Grimoire

An Unexpected Material Engagement project

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Grimeoire is a transformative care product for more than human care strongly based in materiality.

Grimeoire as a project started off with the desire to, rather than focus on direct functionality from a human centred design perspective, seek to understand the relationality of the more than just human and material agencies of the materials and systems we engage with.

This marks a deliberate shift in the way a design process is traditionally undertaken since instead of taking an isolated problem that selected materials are used to solve, as an object, we employ a design strategy in which materials through their agency **[1]** as subject are observed and analysed for the emergence of new relations and transformative capacity.



As such we start of with a broader set of goals going in to this project. We seek to create a care product based on material flows that are often disregarded in their subjectivity, in particular non-virgin materials and reclaimed materials. The understanding of a care product from a more than human perspective asks us to consider the elements of care not just for different situated humans but the networks that support the material subjects and humans as well [5].

We started off by mapping out present material flows in our lives off materials that we would otherwise disregard as waste products or byproducts of our everyday living. These materials from the base of the first explorations of the agency of these materials (**page 3/6**). We continue this exploration by transforming these materials by mechanical means to uncover the emergence of other agencies of these materials (**page 7/13**). Here we follow the lens of black ecology that frames the capacity of materials to act on and transform their environment when interacting with other materials as fundamentally not completely understood until observed and further analyzed [4].



Auto-Ethnography of mapping material flows of waste and care

A DAY OF INTERACTING W/ MATERIALS

BY: PALEN D'COSTA



COFFEE PADS

I DISPOSE OF COFFEE PADS BECAUSE I HAVE NO FURTHER USE FOR THEM. I RECENTLY BEGAN USING PADS INSTEAD OF COFFEE GROUNDS BECAUSE OF THE EASE & CONVENIENCE IT BRINGS TO MY DAILY MORNING RITUAL OF COFFEE DRINKING. COMING STRAIGHT OUT OF THE COFFEE MACHINE, THESE PADS SEEM LIKE A RATHER STERILE MATERIAL. HAVING JUST BEEN DOSED IN CLOSE TO BOILING HOT WATER, I HAVE SEEN COFFEE DEVELOP MOLD IN COFFEE DISPOSAL CONTAINERS, AT WHICH STAGE I WOULD NO LONGER CONSIDER USING IT FOR ANYTHING BESIDES AS COMPOST. ALTHOUGH, I HAVE NEVER COMPOSTED BEFORE:

BANANA PEELS

I HAVE NEVER MADE USE OF BANANA PEELS. I HAVE COME ACROSS SNACK RECIPES WHICH USE BANANA PEELS. I WOULD ABSOLUTELY CONSIDER USING A BANANA PEEL AS A RAW INGREDIENT IMMEDIATELY AFTER PEELING. I CAN ONLY THINK OF FREEZING AS A MEANS TO PRESERVE THE PEELS FOR FUTURE USE. I WOULD NOT BE OPPOSED TO EATING SOME PREPARATION WITH BANANA PEELS, SO APPLYING A COSMETIC SUBSTANCE DERIVED FROM THEM WOULD BE NO PROBLEM. I AM UNDER THE IMPRESSION THAT THE INSIDE LINING OF THE PEEL IS LESS RESILIENT THAN THE OUTSIDE, SO I WOULD SCRAPE IT OFF IF ANYTHING.

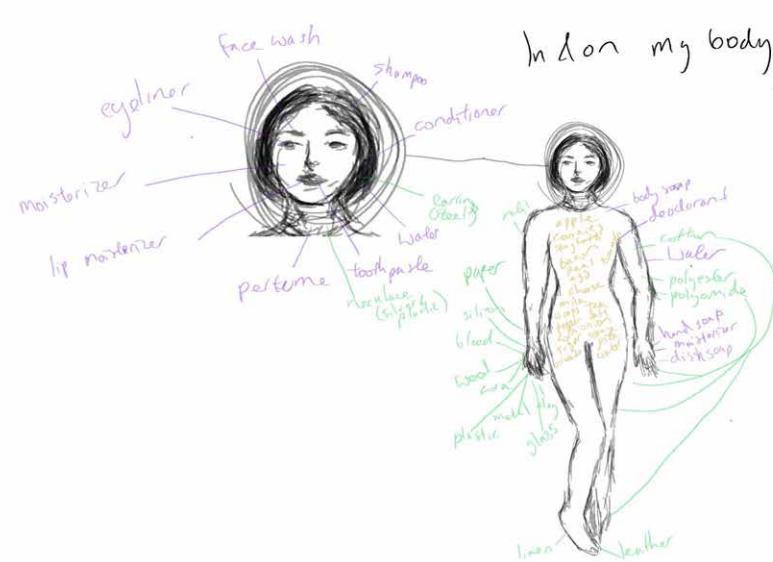
MUSHROOMS & ONION PEELS

I DID NOT PHOTOGRAPH THE MUSHROOMS I THREW AWAY. IT WOULD HAVE BEEN INSIGHTFUL TO SEE HOW MUCH MOLDING PUSHED ME TO IMMEDIATELY TOSS THE LOT OF THEM IN THE BIN. I BELIEVE MY THRESHOLD OF THE DEGREE OF MOLDING BEFORE I TOSS FOODS AWAY VARIES GREATLY. AS AN EXAMPLE, JUST THE OTHER DAY, I PICKED TWO MOLDY CHILLIES OUT OF A BAG OF CHILLIES, RINSED THE REST WITH WATER AND VINEGAR, AND FROZE THEM. THE IDEA THAT MUSHROOMS ARE POROUS MAKES ME THINK THAT A LITTLE VISIBLE MOLD MEANS MORE THAT I CAN'T SEE IN THE BULK OF THE MUSHROOM BODIES. AS FOR THE ONION PEELS, I FIND THESE, TAKEN OF PERFECTLY RIPE ONIONS, TO BE PERFECTLY USABLE FOR SOMETHING I WOULD GLADLY INGEST OR APPLY TO MY BODY. HOWEVER, I CANNOT SAY THE SAME FOR PEELS OF ONIONS THE OUTER LAYERS OF WHICH HAVE BEGUN TO WILT OR ROT.

Zooming in into food waste, things touching my body, and the importance of biological products for that:



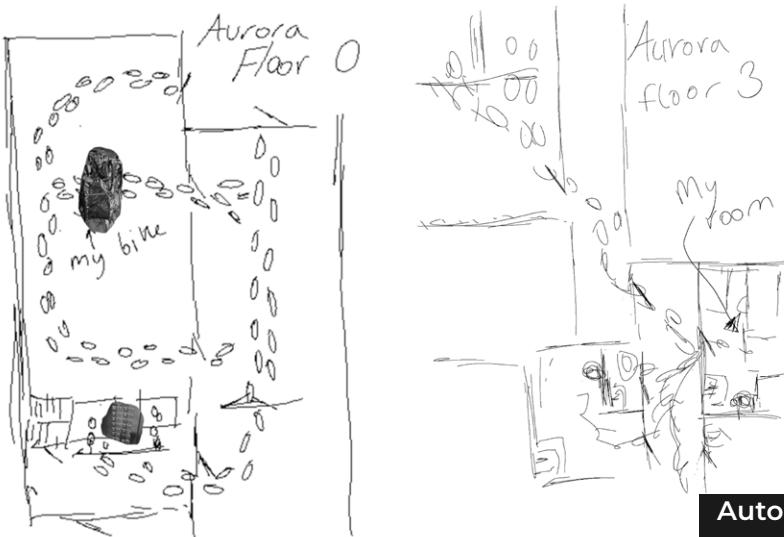
A day in the life of Luna:



A day in the life of Luna:

In many products I use, I don't know the exact things touching my body.

Pathways



Auto-Ethnography of mapping material flows of waste and care

My room, my traces, my care products (purple), my food (ochre), my tools (blue)



A day in the life of Luna:

A day in the life, self-care, food waste and decay
Ronald Tiemens



I like to start my day fresh with lots of ritual including foaming things and (warm) water.

what i noticed tho is that in all these things throughout the day I, myself, only really feel clean after i dried off with a clean towel, while my partner likes to use these on more occasions making our relation to fresh towels a bit different.



Auto-Ethnography of mapping material flows of waste and care

A day in the life, self-care, food waste and decay
Ronald Tiemens



I care for a lot of plants, but they care for me just as much, recently i made the mistake of leaving a few to long in the cold and had to remove sludge death plantmatter and dirt out after a long session of plantcare.

they are "happy indoor plants now but i remember here also that cleaning up the pots and working with the fresh dirt really lifted me up. disgusting but still deeply satisfying.

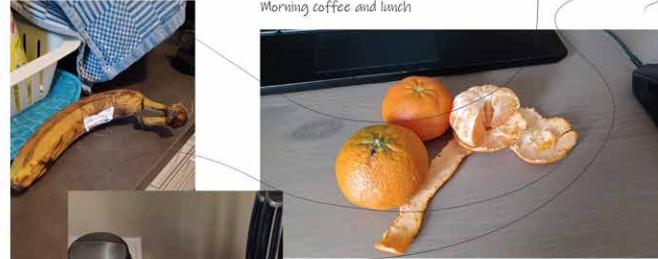
the sludge though was horrible...

having these living material things inside now is a challenge as my partner doesn't like the chillies or the insects, stating that... "next time get only things we can use as food"



A day in the life, self-care, food waste and decay
Ronald Tiemens

Morning coffee and lunch



Bananas and orange peels are byproducts of a lunch and kinda cool, no way cooler than the chillies and potato's we had yesterday, the fruit and even the coffee become pleasant smells in the house, (for me at least), and often make candles not used till the late evening.

a lot ends in the trash though especially if it is a chilly that set someones insides on fire...

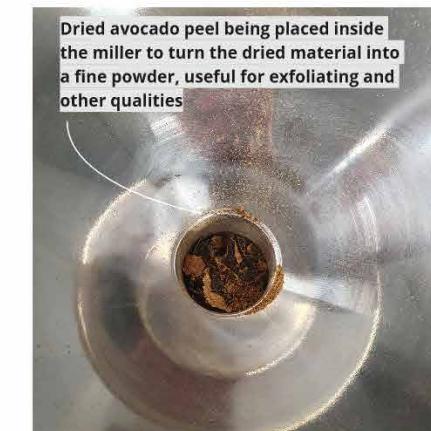
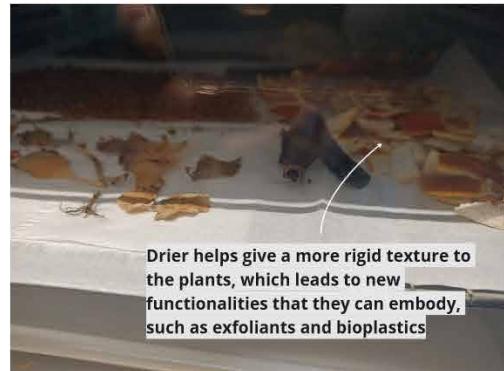
some waste or overripe fruits find their way back at lunch in banana or smoothy form. where they become better treats then they may have been even before.





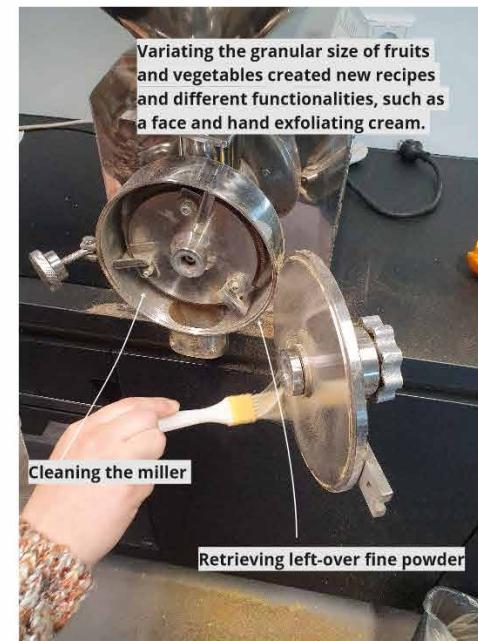
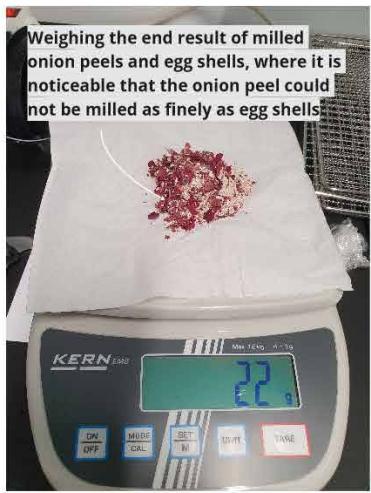
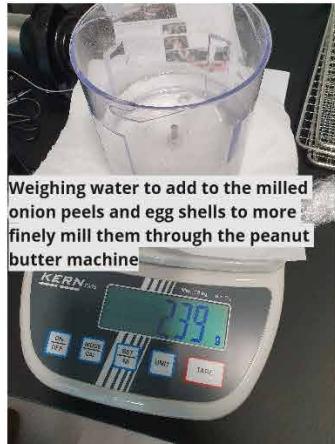
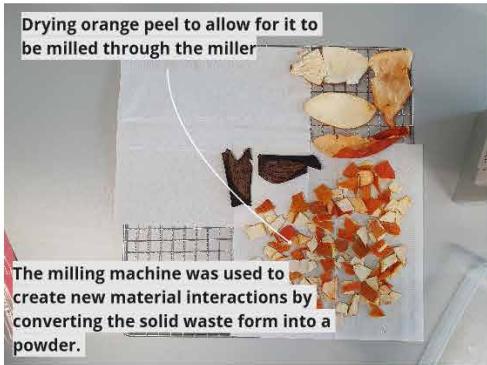
Skin exfoliant

The fine granular eggshell powder was mixed with coffee grounds and coconut oil, and used as a body exfoliant, leaving the skin soft and moisturized.



Using the drier

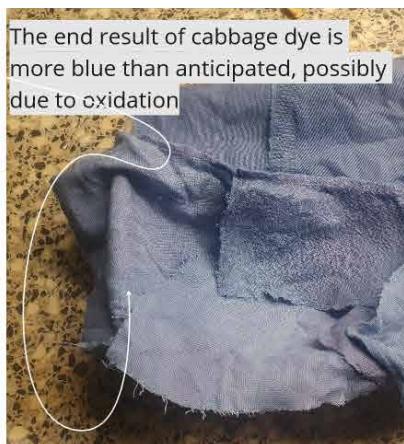
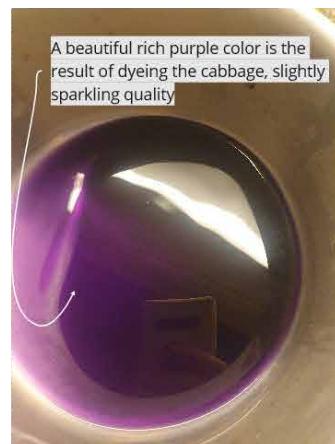
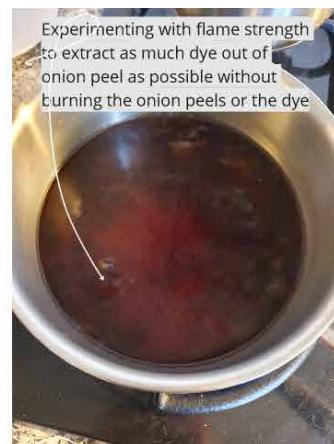
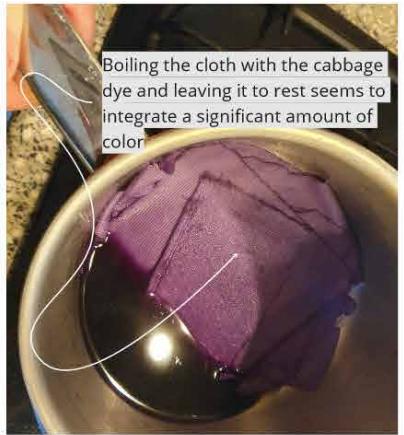
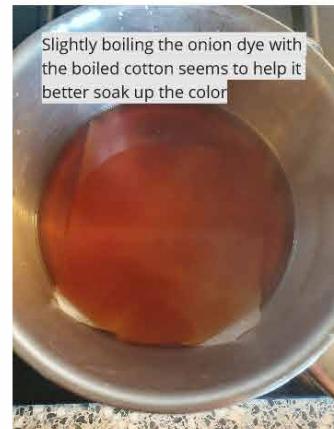
The drier removes moisture from materials, enhancing the rigidity of orange rinds while making avocado peels more brittle.



Using the milling machine

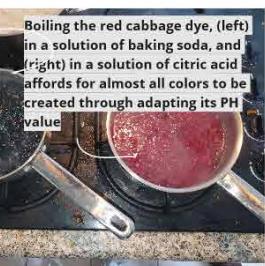
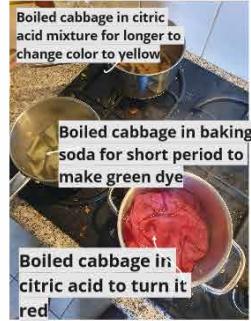
The milling machine was used to create new material interactions by converting the solid dry waste form into a powder.

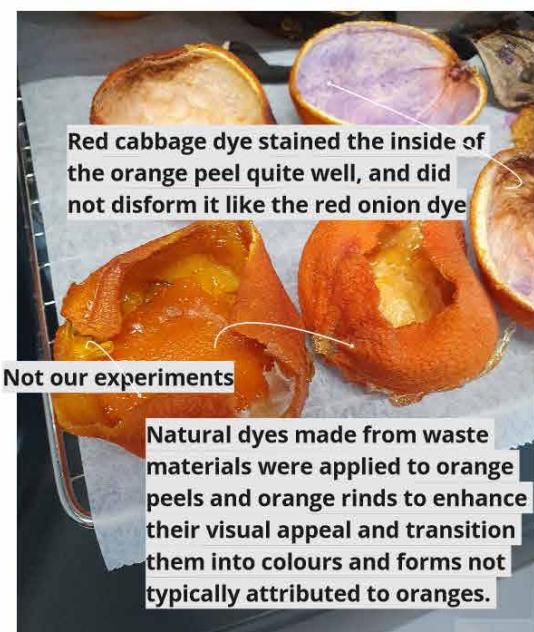
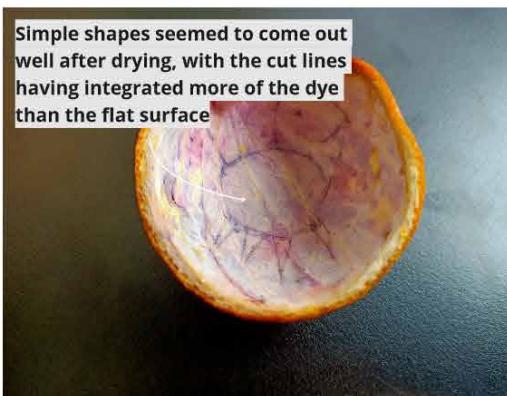
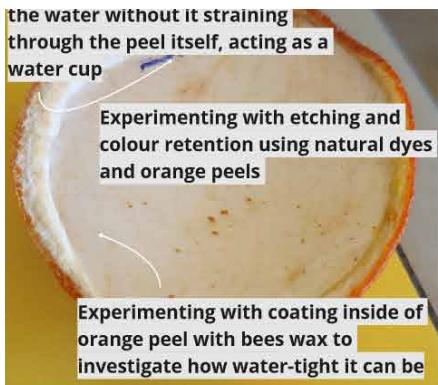
Variating the granular size of the powder created new recipes, such as a face and hand exfoliating cream.



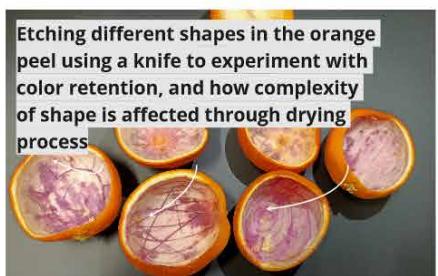
Dyeing

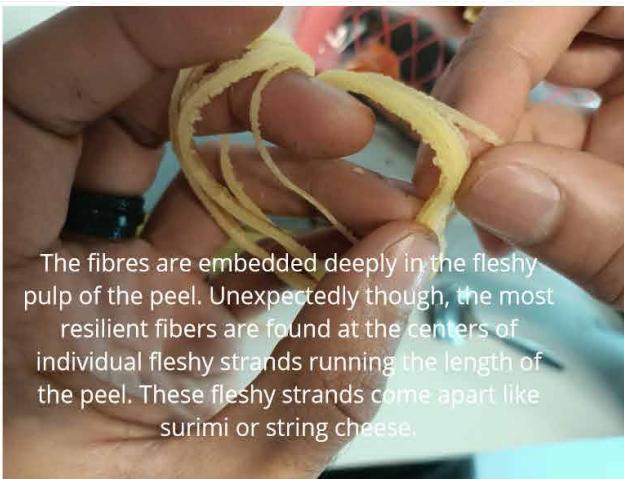
Dyeing with natural colours affords the beautiful pigmentation trapped inside fruits and vegetables to be released and reused. A range of colours was conceived by experimenting with the pH balance of red cabbage, developing intriguing and unique patterns.





Dyeing inside orange
Natural dyes made from waste materials were applied to orange peels and orange rinds to enhance their visual appeal.





The fibres are embedded deeply in the fleshy pulp of the peel. Unexpectedly though, the most resilient fibers are found at the centers of individual fleshy strands running the length of the peel. These fleshy strands come apart like surimi or string cheese.



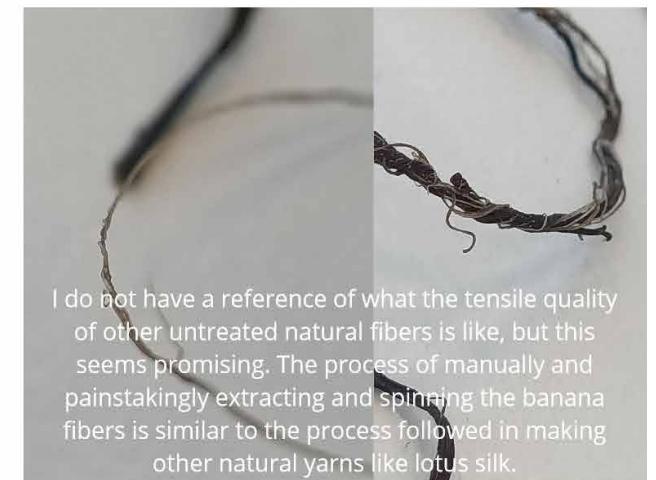
There are not many of these fibers in the peel of one banana. They are surprisingly resilient.



A clean fiber can be gently pried away from the fleshy casing.



This is the leftover flesh after removal of the fibers.



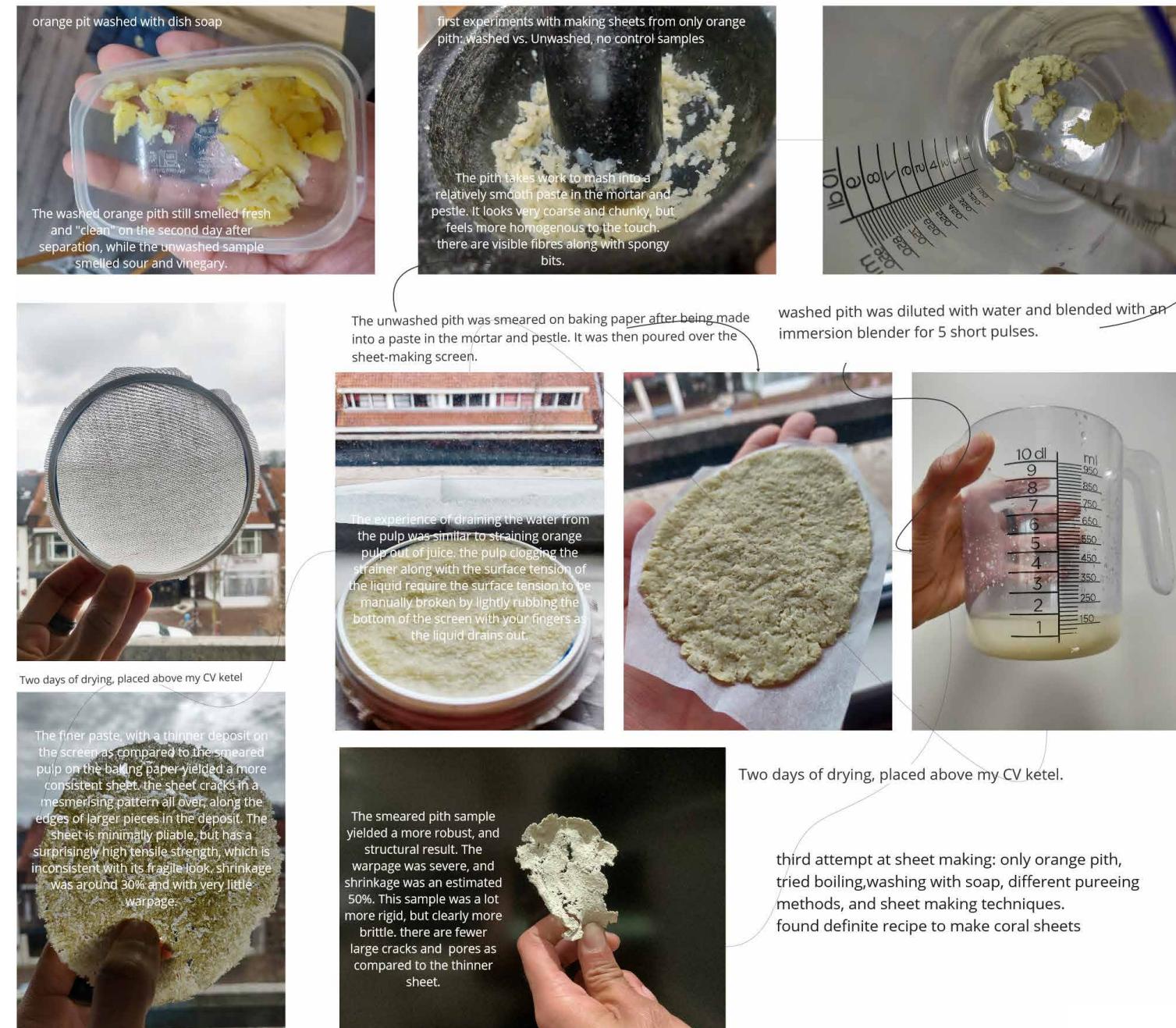
I do not have a reference of what the tensile quality of other untreated natural fibers is like, but this seems promising. The process of manually and painstakingly extracting and spinning the banana fibers is similar to the process followed in making other natural yarns like lotus silk.

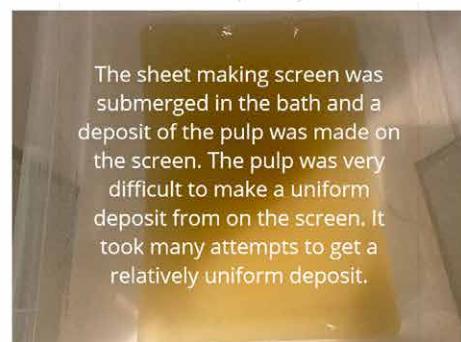
Banana peel yarn

Dissecting banana peels revealed fibers which were manually spun into a yarn. The untreated yarn was brittle and did not have any qualities which were desirable in the final care product.

In these first preliminary engagements we observed the transformation of orange fibers into a structure that resembled the complexity and anesthetic qualities of coral skeletons (page 14/16). However, it was not just the transformation of the orange that we observed. By looking at this coral we got a first-hand experience how this material displayed beauty and showed us that it had other capacities mainly in convincing us that could take shapes and facilitate aesthetic experiences convincing us of its hidden agency. We have at this point acceptance that we did not understand the material and that it had hidden qualities and benefits that other materials could most definitely also display.

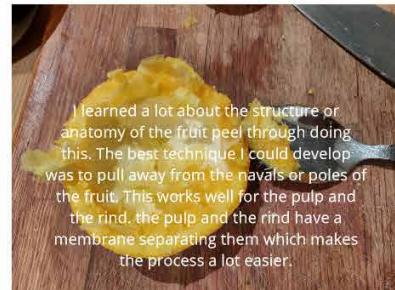
Using the lens of black ecology [4], we saw in this experience the parallels with witchcraft and the experience of magic [6]. In our cultural understanding of witchcraft, we see the inherent acceptance of hidden and mysterious qualities of the material world, nature and the world we live in. This framing convinced us that a care routine based around the performative action of witchcraft may facilitate a mindset in human agents where the agency of materials is both accepted and experienced. Through this agency and the relation that the materials have with wider networks, such as the soil from which they originate [2], a care ritual could be devised not just for the benefit of its human subjects but to material and the environmental systems that support them both. For this to work however all subjects needed to facilitate in a performative activity based around magic.







This step was all about developing better technique with separating the pulp, pith and rind. I used multiple types of tablespoons I had at home with varying roundness and edges. The more square edged spoon worked better.



I learned a lot about the structure or anatomy of the fruit peel through doing this. The best technique I could develop was to pull away from the navels or poles of the fruit. This works well for the pulp and the rind, the pulp and the rind have a membrane separating them which makes the process a lot easier.



To test the effects of starch on the quality of the orange pith sheets, a wheat starch slurry was used, which is a by-product of the seitan making process.



This was done with the hopes that the starch may add elasticity and tensile strength to them.



The same process was followed as in the first experiment for a part of the pith



A larger portion of the pith was blended directly with an immersion blender.



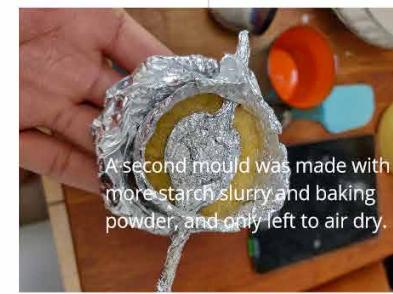
A mixture was made with the starch slurry and the blended pith puree. This mixture was very similar in look and feel to a south Indian fermented rice pancake batter



Multiple dyes were tested for small samples taken from the main mixture, and after making those samples, the concentrated beet juice was poured into the main mixture to make larger sheets with.



A portion of the blended pith puree was mixed with a small amount of starch, dye and baking powder and put into an aluminum foil mould in an attempt to make small bowls.



A second mould was made with more starch slurry and baking powder, and only left to air dry.



This mould was put in the oven at 60 degrees c for an hour until the mixture boiled over, spilled, and then collapsed entirely into a dense paste in the bottom of the mould.



In this series of tests, none of the samples formed sheets, which was highly unexpected.



The smaller pieces which did form had very similar qualities to the smeared sample made in the first experiment.



This was the most visually captivating sample, with its close resemblance to a cracked dried lake bed in time of drought.



The dyeing was successful as is seen in these samples here. The colors are vibrant and pleasing to the eye. It is a shame they did not consolidate.



Second iteration: sheets and casting bowl shapes in moulds adding dye+ baking powder+wheat starch.

dyeing successful but all tests failed to consolidate

In our following engagements with material transformations afforded by our mapped-out material flows we looked for aesthetic qualities that support the experiences of magic and mystery. We mapped out the results of our experimentations on the basis of how provocative and innately magical they felt ([page17](#)).

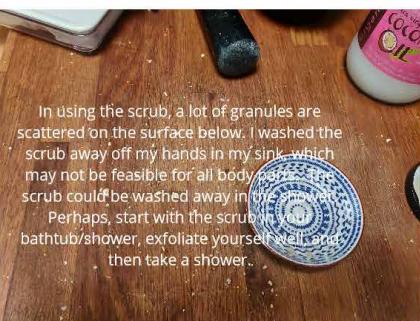
From this point we synthesized a place where ritual could take place from and with the material creative agents and created the grimoire box. The grimoire box functions with its different aesthetic qualities as a portal to the fantastical where the care ritual takes place. Other material experiments resulted in the emergence of material states that when interacted with following a recipe would create skin care products and other products related to the well-being of humans ([page18/32](#)).

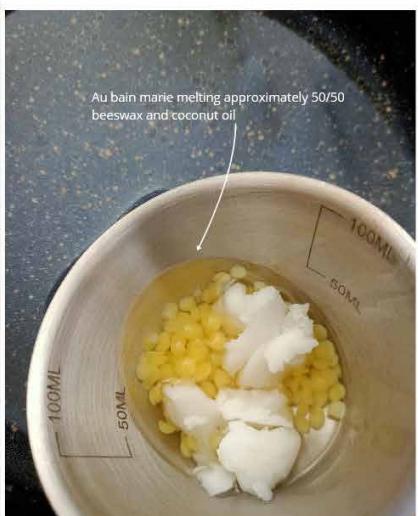
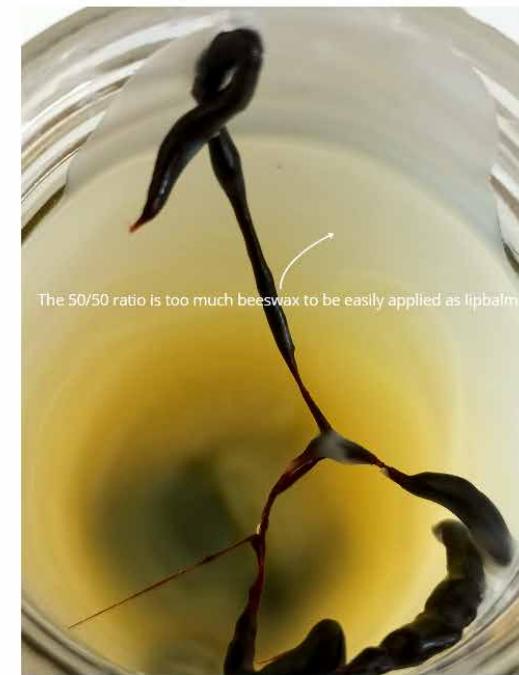
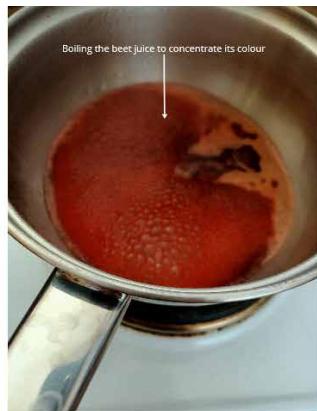




ABC peel scrub

The dehydrated and pulverized Avocado, Banana, and Clementine peels made for powders which were perceived as having great potency due to their scent, depth of color, and tactile feel. They were used as ingredients in exfoliating and nourishing topical care products.

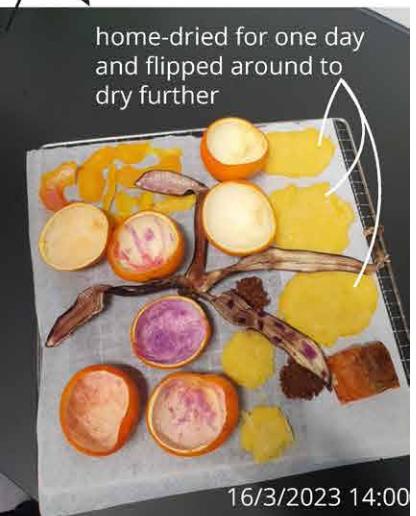
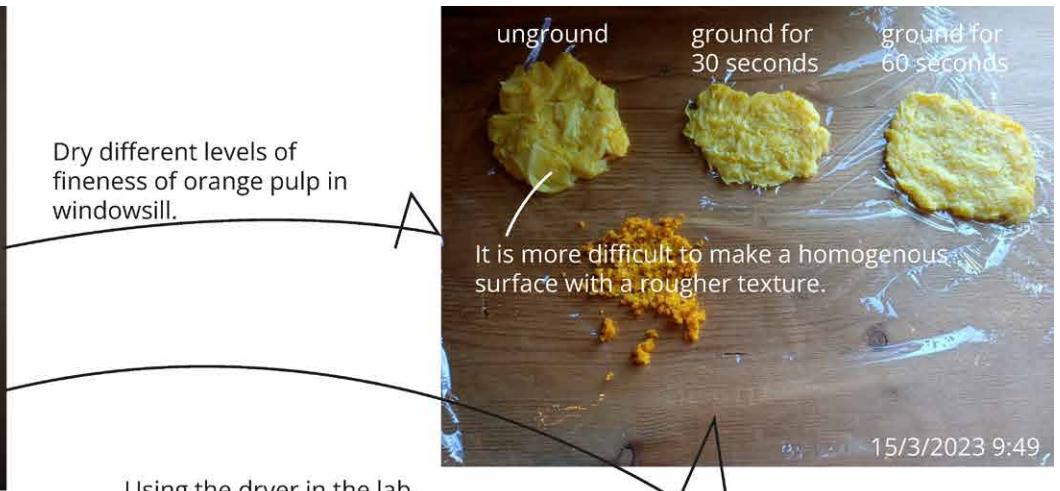




Beet lipbalm

An attempt to create lip balm from beet juice, coconut oil and beeswax, since beets have a vibrant colour and can be beneficial.

Since this experiment was not successful and used no large waste stream, we discontinued it. Nevertheless, the "creature" inspired a magical vibe.



4 days later...



Orange pulp

The pulp allows for making thin skin including other materials, which are used for exfoliating or packaging. It will mould easily, which emphasizes the ecosystem and motivates recreation.



Can we save the benefits of the wet orange pulp by drying it in tablets and crushing it later and adding water?



Filling up the small shape is difficult as air gets trapped.



4 days later...



Due to shrinking the pieces don't have a very nice shape and they look rather nasty.

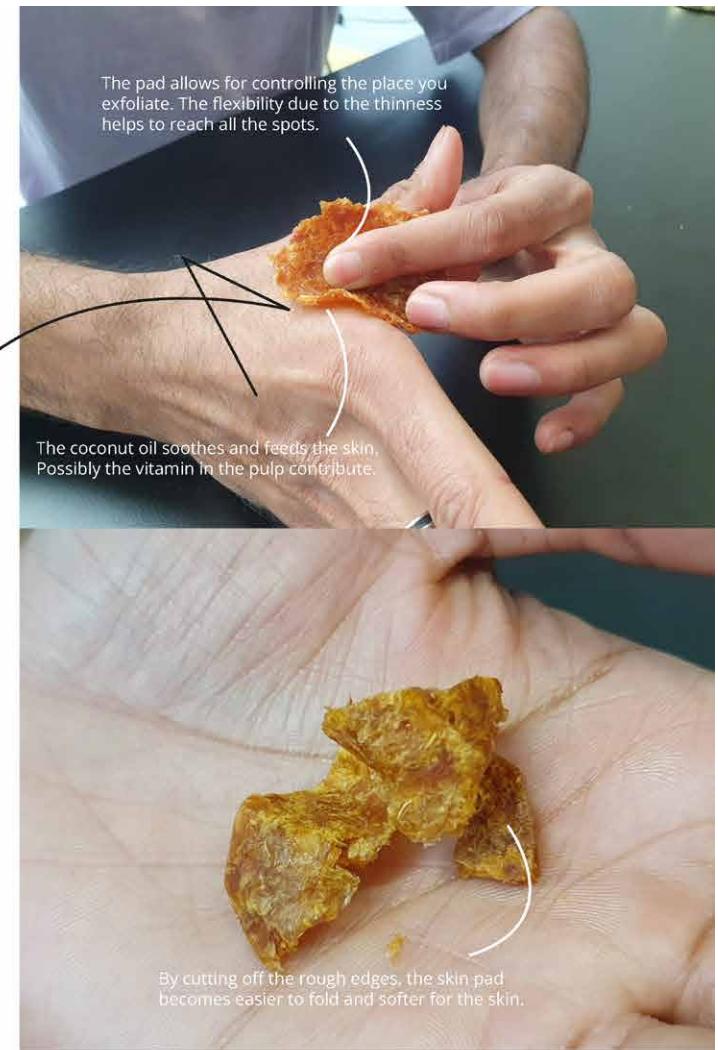


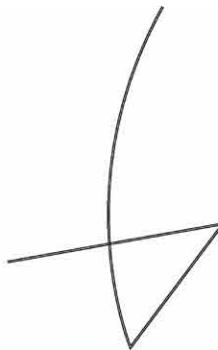
Because the top dried, but the bottom did not, these samples became mouldy.





ANALYSIS





Making a larger surface to use as leather-like packaging material. The desired aesthetic is that of a very old magical book.



Using the same pulp, saved in the fridge for all experiments over a timeframe of 11 days (including the drying of 5 days of the last experiment).

Blending for 1 minute to create a fine texture.

20/3/2023 19:00



The fine pulp is spread on baking paper with a rubber spatula as evenly as possible with a thickness between 1-3 mm.



21/3/2023 8:00

The first signs of evaporation show in the shrinking & showing crinkles

22/3/2023 13:00

First signs of darkening in colour. The side closer to the window darkened more.

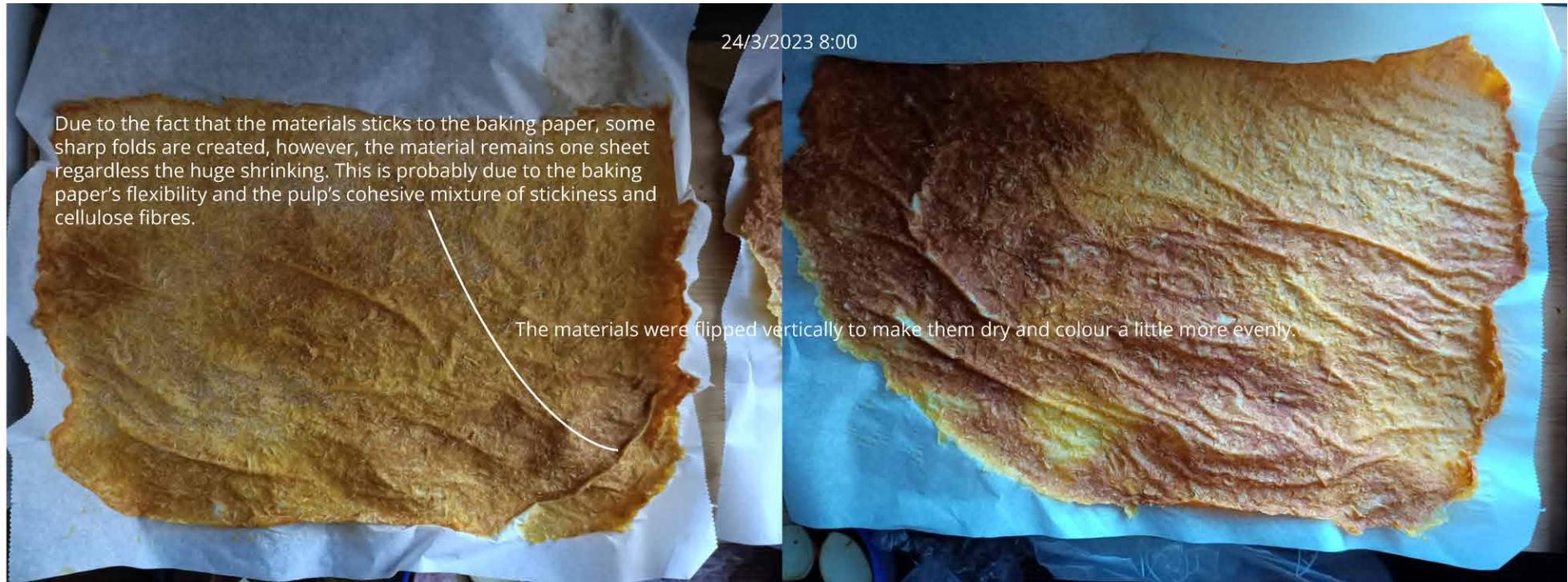
Clearer and more crinkles, showing the progress in the drying process.

23/3/2023 10:00

The material starts to look thinner

The material still feels slightly moist in certain areas, which will make the sheet fall apart when trying to remove it from the paper.

Very clear crinkles, thinning and darkening.



Drying orange rind granulate and extracting orange essential oil.

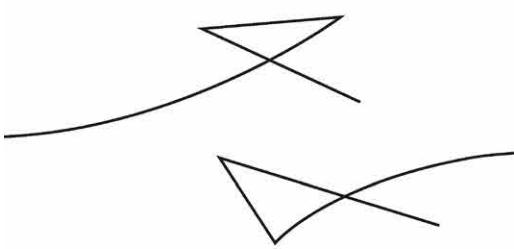




20/3/2023 19:45



21/3/2023 8:31



Rind

As the pulp and pith started having purpose, we looked into the rind, which had many strong properties. Its liquid even caused a rash on our hands while separating the rind from the pith.

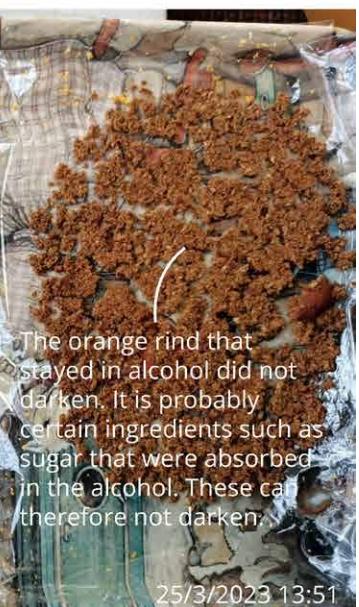
This power could be extracted as essential oil, which could be used to flavour our products. The granulate of the rind could be used in a scrub.



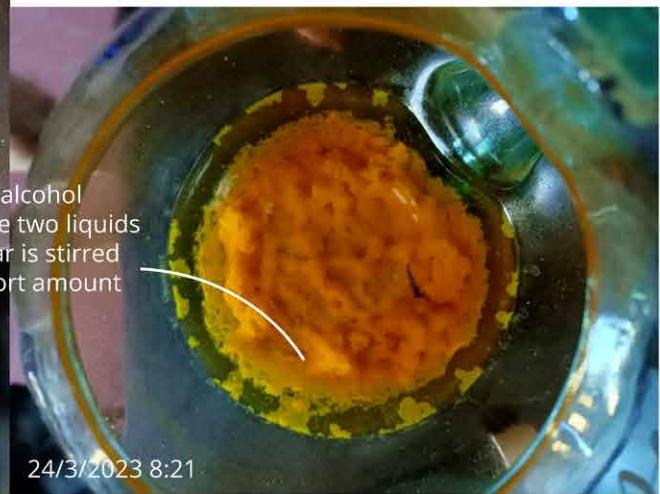
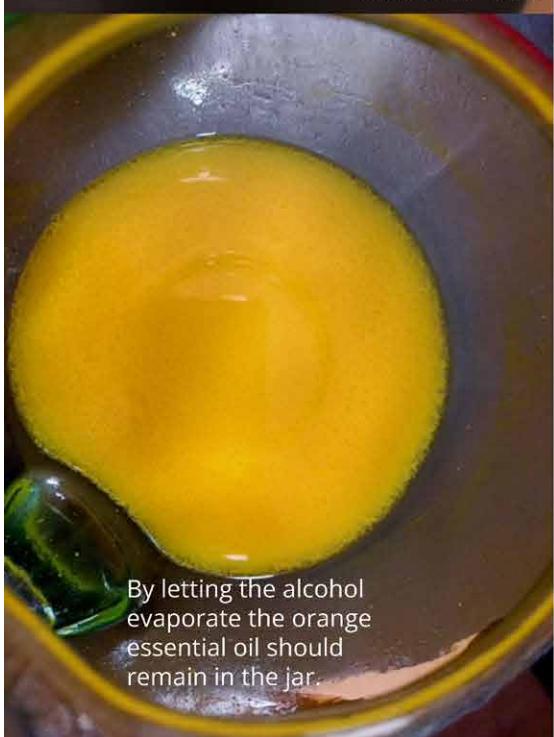
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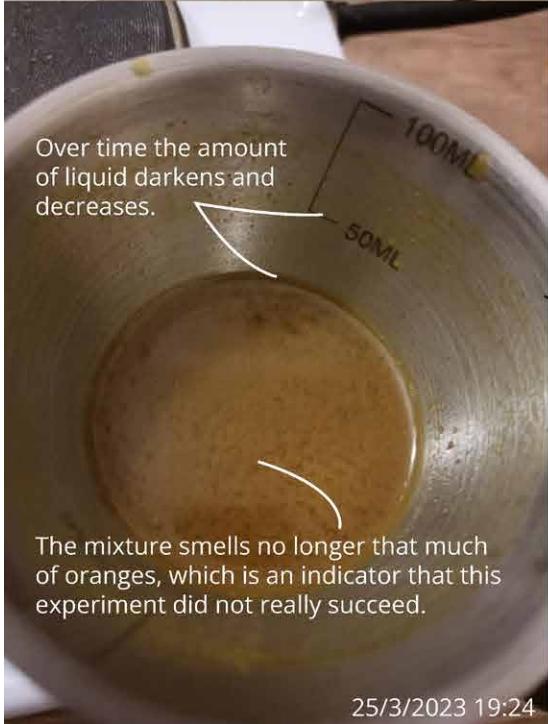


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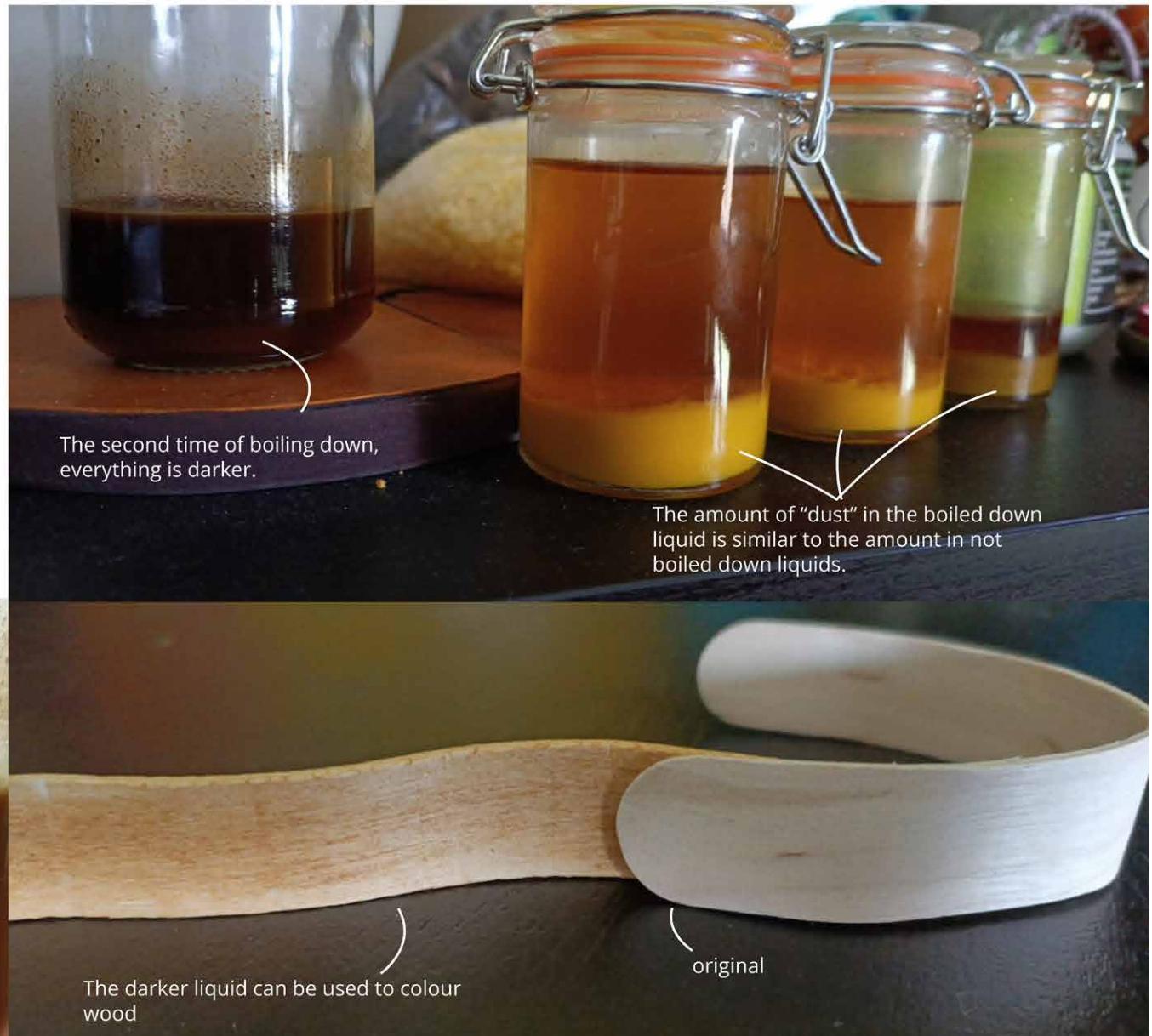


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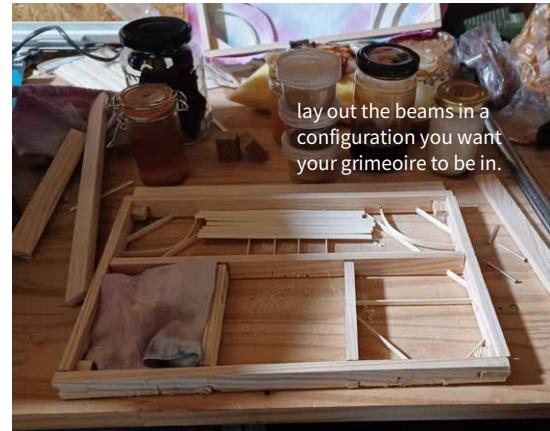


Results



With the synthesis of the box, the ingredients and the recipes our care product is still not finished. For the creation of the experience the material agents and their supporting network in the form of soil have given labor but are still politically underrepresented in this stage of the care ritual [2]. However, by caring for these agents from the start of our design process and recognizing the relationality of the materials and soil we were careful as to not transform the capacity of these materials to be reabsorbed or introducing transformations that force different types of relations with the soil. As such grimoire was conceived with the intends to eventually decay and be easily reabsorbed into the soil. For this to happen grimoire was constructed in such a way that hard to process materials for the soil such as glue and larger pieces of metal were not needed in this construction (**page 32/33**).

The results of this final synthesis makes for products and product lifespan interaction that is quite different from what people may usually expect. Since the product is explicitly designed to decay the “user” needs to -

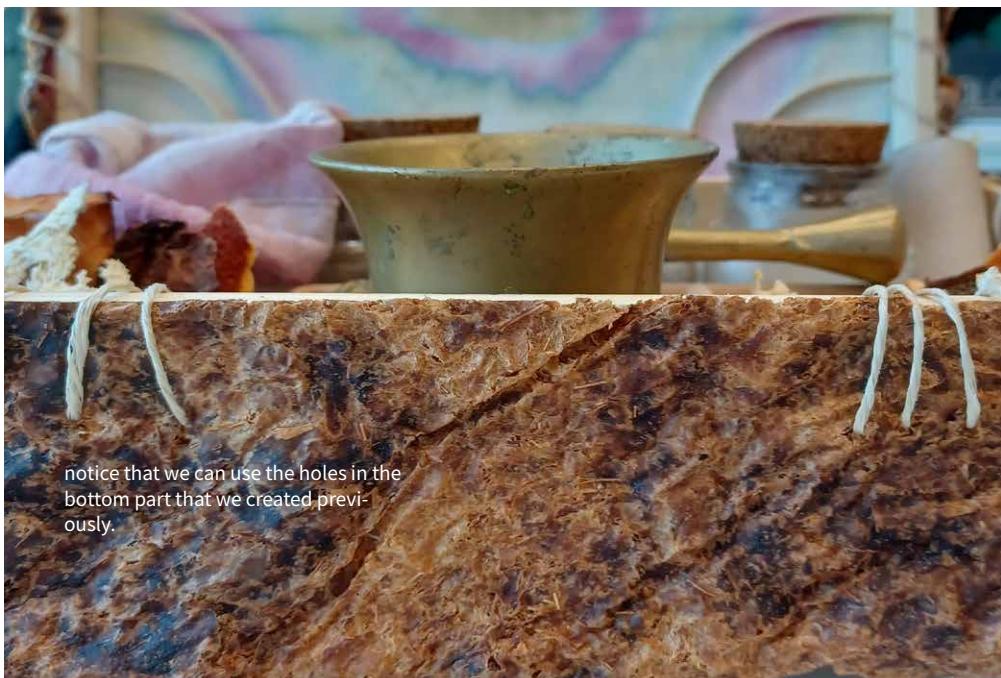




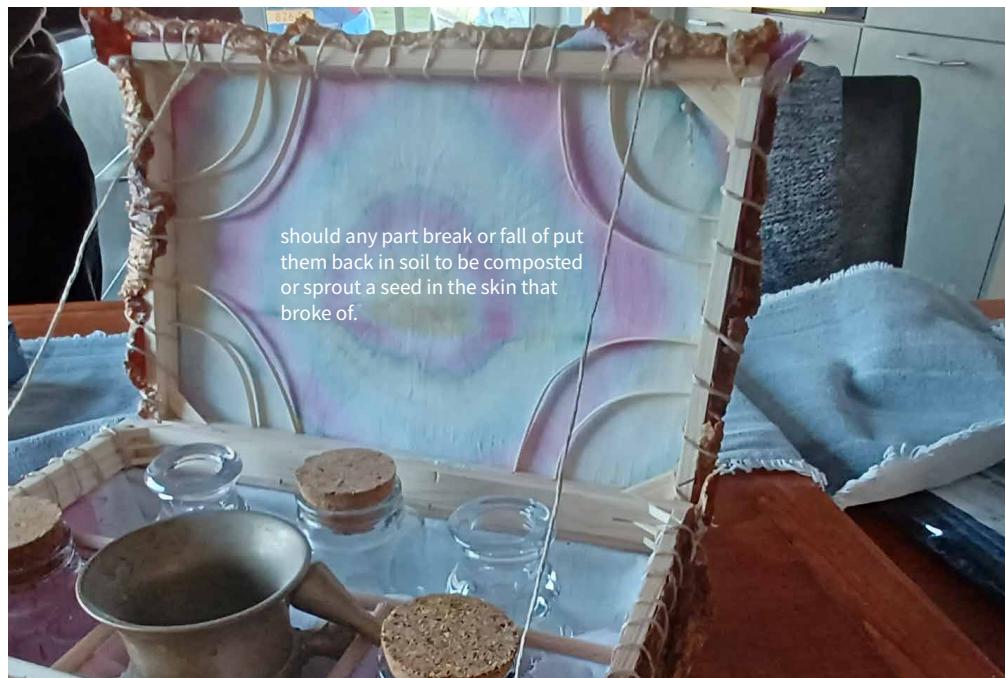
use hemp or another thick yarn or rope to sew the large orange skin on the top frame, than as 4 separate parts sew the sides of the bottom part.



determine the length of thread you need to hold the grimoire open in a desirable position and make a connection between the corners of lid and main body. then use a piece of fabric to create a hinge by connecting it to lid and body.



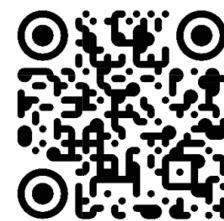
notice that we can use the holes in the bottom part that we created previously.



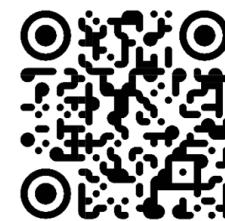
should any part break or fall or put them back in soil to be composted or sprout a seed in the skin that broke off.

-engage in the transformation of materials to either replace or create new - -iterations of the elements of the product or the product as a whole. We aid in this practice by providing recipes for the creation of all different parts of the grimoire. These recipes are presented in the same aesthetics of witchcraft and invite participation in more than just human care (**page 34**).

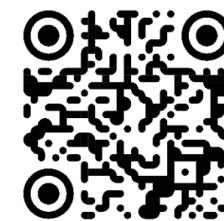
Following a feminist care ethic [5], the politically underrepresented reality of these materials and the networks that support them is transformed creating a shared empowerment [3] of all subjects involved. We go back to the lens of black ecology one last time to acknowledge the capacity of this product to display a positive feedback loop [4] since the collaborative action of the subjects involved has the capacity to create and share a multitude of instances of the product and its resulting experiences. As such grimoire has the capacity to aid and the transformation of our attitudes and understanding of the relational reality in which we and materiality operate.



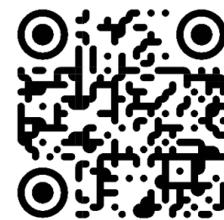
to introduction



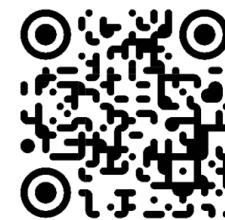
to orange pulp skin making



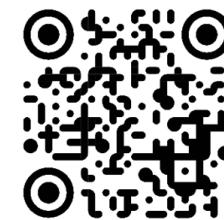
to dy(e)ing



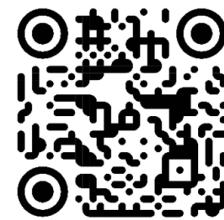
to orange peel dissecting



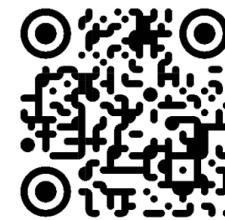
to orange pith coral making



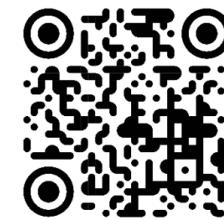
to ABC scrubbing & nourishing



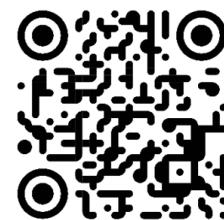
to ABC pulverizing



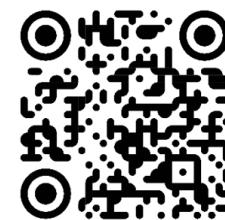
to granulate drying



to coral scrubbing



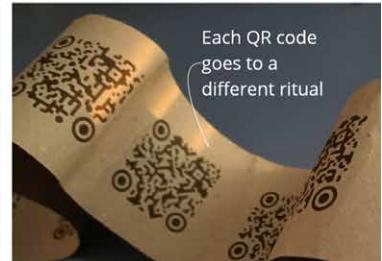
to red cabbage & onion colour extracting



to skin exfoliating



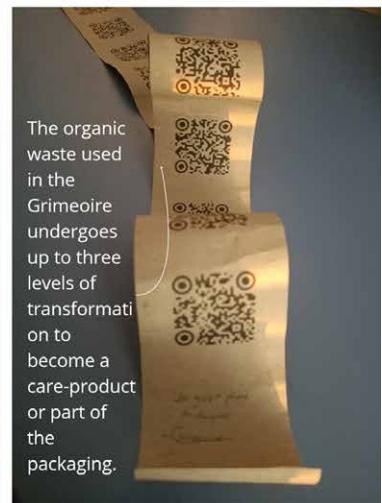
A scroll fits the aesthetic of witchcraft & ancient practices.



Each QR code goes to a different ritual



In Grimoire's introduction the phone is described as a Teleporter, a device that can take you from one world to another.

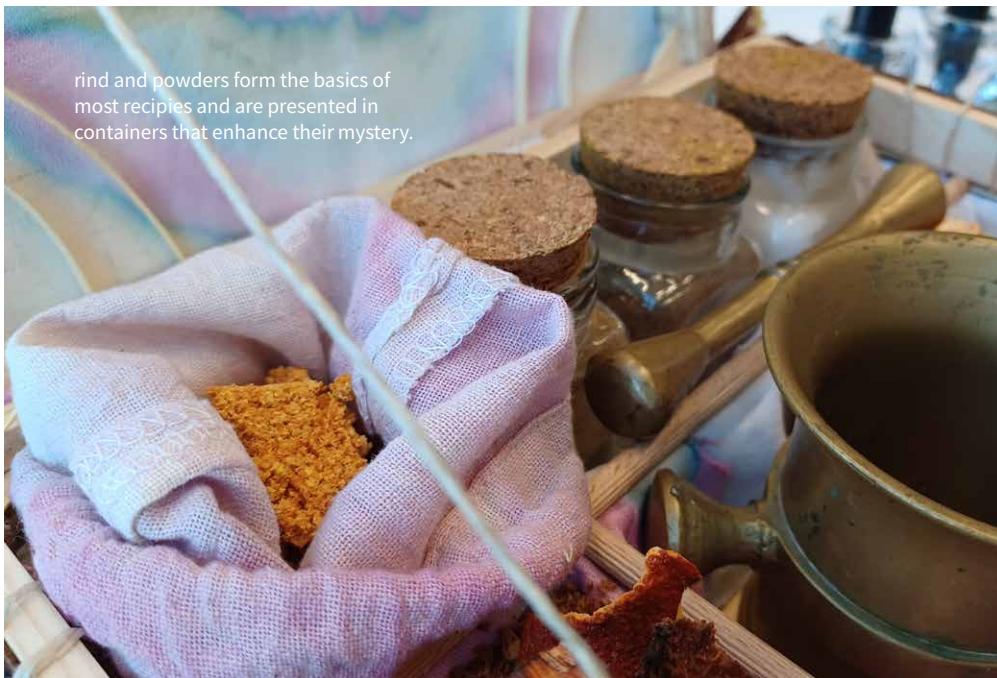


The organic waste used in the Grimoire undergoes up to three levels of transformation to become a care-product or part of the packaging.

Grimoire online environment

A scroll with modern runes teleports human users to an online environment explaining Grimoire's use and rituals in a magical way, using sentences like: "Observing the dye too frequently will cause it to reduce in colour." This opens the human mind to the possibility that their organic "waste" has powers. The main themes in the used magical language are: Affect what you make with your behaviour, Affect what you make with physical interactions, Beauty of nature, Do something for nature, Empower what you make, Empower you, Feelings, Keep/lose power, Macabre, Powers of ingredients, Spell/ritual. To fully understand, we recommend you teleport to the online environment:

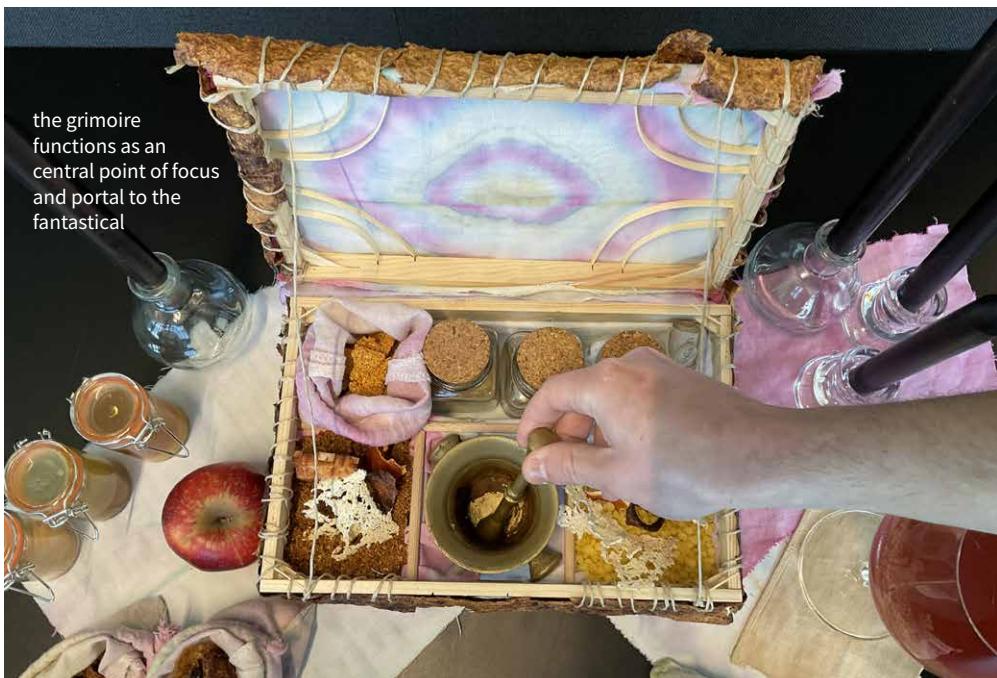
<https://grimoire.wordpress.com/>



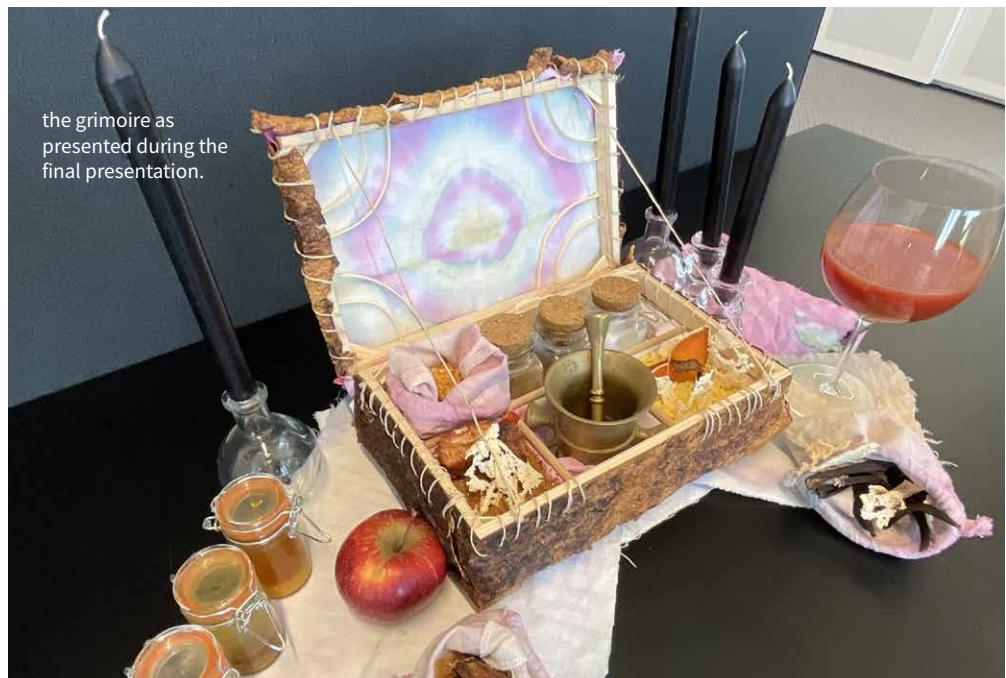
rind and powders form the basics of most recipies and are presented in containers that enhance their mystery.



preferably home sourced and made the coral and other reclaimed and transformed structures are prominently displayed



the grimoire functions as an central point of focus and portal to the fantastical



the grimoire as presented during the final presentation.

References

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4. Bryant, Levi. 2013. "Black" in *Prismatic Ecology: Ecotheory Beyond Green*. Ed. By Jeffrey Jerome Cohen. Minneapolis, MI: The University of Minnesota Press. pp. 290-310.
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