CASTING JOURNAL

CASTING - RECIPE MATRIX

Plant Material	Adhesive	Combined mnemonic
Scottish Broom Grounds (SG)	Agar Agar	SGA
Scottish Broom Grounds (SG)	Tapioca Starch	SGT
Scottish Broom Grounds (SG)	Gelatin	SGG
Himalayan Blackberry Grounds (HG)	Agar Agar	HGA
Himalayan Blackberry Grounds (HG)	Tapioca Starch	HGT
Himalayan Blackberry Grounds (HG)	Gelatin	HGG
Himalayan Blackberry Shavings (HS)	Agar Agar	HSA
Himalayan Blackberry Shavings (HS)	Tapioca Starch	HST
Himalayan Blackberry Shavings (HS)	Gelatin	HSG
Pussy Willow Shavings (WS)	Agar Agar	WSA
Pussy Willow Shavings (WS)	Tapioca Starch	WST
Pussy Willow Shavings (WS)	Gelatin	WSG
Pussy Willow Grounds (WG)	Agar Agar	WGA
Pussy Willow Grounds (WG)	Tapioca Starch	WGT
Pussy Willow Grounds (WG)	Gelatin	WGG
Austrian Pine Bark Grounds(AG)	Agar Agar	AGA
Austrian Pine Bark Grounds(AG)	Tapioca Starch	AGT
Austrian Pine Bark Grounds(AG)	Gelatin	AGG
Austrian Pine Needle Grounds (AN)	Agar Agar	ANA
Austrian Pine Needle Grounds (AN)	Tapioca Starch	ANT
Austrian Pine Needle Grounds (AN)	Gelatin	ANG
Cottonwood Grounds (CG)	Agar Agar	CGA
Cottonwood Grounds (CG)	Tapioca Starch	CGT
Cottonwood Grounds (CG)	Gelatin	CGG
Orange Pulp (OP)	Agar Agar	OPA
Orange Pulp (OP)	Tapioca Starch	OPT

CASTING - MARCH 30

On this day, I gathered my materials and did my first test cast after laying out the plans for the rest of the days regarding material and binder combinations as mentioned in the matrix.

For this first cast, I used Audrey's dye pot, which I soon realized was too big for the small sized samples I was doing and that it was burning and crusting up very easily. I made sure to wash it so as to not contaminate her dyeing process.

I let this first sample of Broom and Gelatin air dry.

JOURNAL NOTES

Recipes as follows:

AGAR AGAR RECIPE

Solvent:
2g (15ml/1tsp) Glycerine
60ml (¼ cup) Water

Solute:
2g Agar Agar
10g 15ml (1 tsp) Plant Material

GELATINE RECIPE

Solvent:
2g (15ml/1tsp) Glycerine
60ml (¼ cup) Water

Solute:
7g Gelatine
10g 15ml (1 tsp) Plant Material

TAPIOCA STARCH RECIPE

Solvent:
2g (15ml/1tsp) Glycerine
60ml (¼ cup) Water
15ml Vinegar

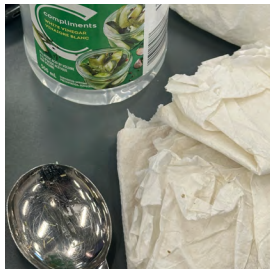
Solute:
2g Tapioca Starch
10g 15ml (1 tsp) Plant Material

CASTING - MARCH 31

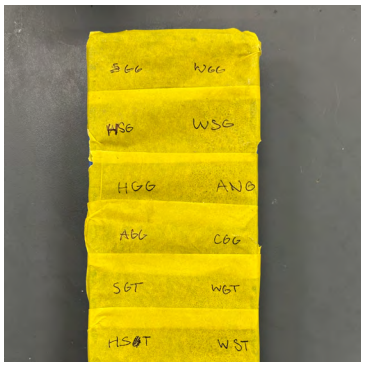
Cured.

Tapioca.

New pot.



Organizing measuring spoons.



Labeling.

Storing.

JOURNAL NOTES

I finished up all my gelatin samples and began to get into a flow regarding ingredient amounts with my measuring spoons. I made significant headway with my tapioca casts as well.

I used my own pot with the coil stove from this day on.

My first test with gelatine cured quite quickly which was a surprise.

After I labeled all my casts, I placed the whole tray in the drying cabinet to see if it would dry faster.

Idea: lay out bird sounds from around + construction

SMALL CONSTRUCTION SPEAKER INSIDE BIO-PLASTIC BRICKS

SURROUND SPEAKERS AROUND PLAYING BIRD SOUNDS

Tapioca starch solution way easier to clean than Gelatine mix

CASTING - APRIL 1



Everything melted.


Audrey's Orange Pulp.

Tapioca Film.

Agar and Tapioca Casts.

JOURNAL NOTES

I opened up my first tray to see that the labeling caused there to be no airflow as the pieces were drying, which just made them liquify, including my first cured piece.

I then decided not to label on top and instead use a marker on the side, although I think the temperature alone would have been enough to melt it down eventually.

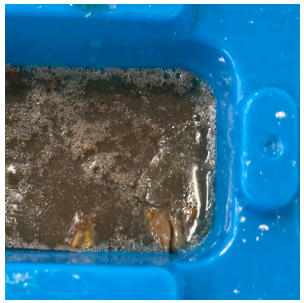
I used Audrey's orange pulp from her dyeing project, which I casted in Agar and tapioca.

Agar agar shrinks like crazy, almost proportionately inverse to the expansion of tapioca starch. it also behaves really weirdly, SUPER viscous under heat and the moment the heats off it gums up into clumps. sample size is SIGNIFICANTLY smaller than the starch and gelatine samples although that may also be a result of too much heat. will see in the rest of the agar agar samples

(LATER) getting a lot better at agar agar samples - key seems to be to pour just when it starts to gum up to preserve volume while keeping the texture.

CASTING - APRIL 2


Transparency.



Cracking.

Still goopy.




Prying casts out with fingers and tools.




Cooking and casting new composite.

JOURNAL NOTES

Gelatine cures quickly and holds volume well but is difficult to remove from molds, emits an unpleasant smell, and tears easily. Agar agar, on the other hand, cures cleanly with minimal residue, is easier to demold, has a neutral to pleasant scent depending on the plant material, and produces tougher, more rigid casts. Tapioca starch smells good but remains uncured and goopy after 24 hours, suggesting a longer curing time is needed.

Testing showed that increasing plant material density improves structural strength, while lower density enhances sound absorption – though all cast materials are naturally low in porosity and not ideal for soundproofing.

To build a rigid structure that visually and audibly contains construction noise, a mix of invasive plant species (blackberry, pine bark, pine needles, and broom) will be blended coarsely and used at a higher volume ratio (20ml), with the final casting recipe scaled to: 60ml glycerin, 240ml water, 8g agar agar, and 80ml plant material.

CASTING - APRIL 3






Casts too fibrous.

Regrinding.


Attempting a re-cook.

JOURNAL NOTES

Post-cast on April 3, the plant material was ground too coarsely and should have been smaller. The mix ended up too dry, with only one out of four molds retaining enough liquid, so expectations for this cast are low. Audrey and Emilia noted the scent was tropical, peachy, and pineapple-like. The recipe was adjusted to 60ml glycerin, 240ml water, 8g agar agar, and 60ml plant material to improve liquidity in small spaces. It's also likely the agar agar was added too early in the previous attempt, so this time it will be mixed in only once the right temperature is reached.

CASTING - APRIL 4

Extremely wet (too much glycerin).

JOURNAL NOTES

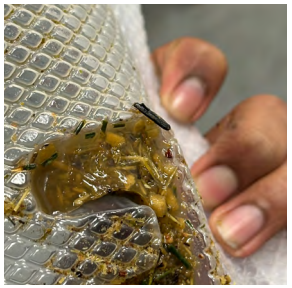
The cast is a bit too soft, and I'll have to adjust glycerin down, hard to get everything out without breaking but realized the bricks work if I use the two pronged side without the outside bits and joined them. Doing another cast with adjusted proportions to keep it a bit harder.

New recipe:
40ml glycerin
240ml water
8g agar agar
60ml plant material

Attempting repair by joining.

CASTING - APRIL 5

Hair dry > air dry.



Getting there.

Mold warp.

Plugging the holes and holding bubbles.

Repurposing overly wet bricks.

Air Drying — lesson learned.

Crunchy tapioca.

JOURNAL NOTES

The casts from yesterday remained pliable but were far from cured, so a blow dryer was used to speed up the process. Placing casts in the drying cabinet melted and deformed the mold, rendering it unusable. However, casting bioplastic as thin sheets instead of blocks led to rapid touch drying within 15 minutes, revealing a promising new method for wrapping the speaker in a flexible, leather-like material that effectively blocks high frequencies when covering the tweeters. This inspired the conceptual direction of wrapping the speaker while leaving the bass module exposed, creating a kind of “avian low pass” effect that could shape the project’s name. Additionally, it was discovered that failed bioplastic casts can be re-melted and reused by simply adding water, offering sustainable flexibility in the process, and the dried top layer of the tapioca cast was salvaged and added to the display board as a partial success.

CASTING - APRIL 6



Drier but not dry.


Dryer setup.




Shrinkage.

Dry and scoopable.


Repurposing bad sheet casts.

JOURNAL NOTES

Came in to find that my sheet casts were still nowhere near dry, probably because of the drying cabinet. I decided to redo it but in a bowl and in the pot itself, setting up a drying station. This happened to work really well, and much faster than any other method as the thinness of the sheet facilitates quicker cure times.

Also found that the bottom of the tapioca casts were all one piece although they were extremely squishy and goopy. I decided not to present them as they were impossible to handle.


Goopy masses.