Material

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SAMPLE 01

Coconut flour (1 TBsp)
Cornstarch (1 Tsp)
Water (4 TBsp)

Vinegar (1 Tsp)
Glycerol (1 Tsp)

COOKING TIME
Low Heat / 3 min

DRYING TIME
4 Days

Recipe

1. All ingredients mixed in cold
2. Heated in a stainless saucepan
3. Spread flat and cooled down for 5 min

Printing

Powder is fine enough for the nozzle size to be as small as 1mm. Liquidity can be reduced a little bit, for it is slightly fragile for the tall height.

PRINTER SETTING
NOZZLE SIZE : 1mm
LAYER HEIGHT : 0.6mm
PRINT SPEED : 40mm/s
TRAVEL SPEED : 60mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Quite brittle & very little flexibility	Takes about 3 hours in water. Moulding happens in about 7 days if it is not kept in dry condition.	Not edible because of Glycerol	Happens in drying process, about 5%

Sensorial Quality

LOOK	SMELL	FEEL
Light yellow, soft	Cookie-like smell from coconut flour	Very fine sandy texture

SAMPLE 02

Agar Agar (1 1/2 TBsp)
Tamarind Shell Powder (1/2 TBsp)
Xanthan Gum (1 Tsp)

Water (6 oz)
Vinegar (1 Tea Spoon)
Glycerol (1 Tea Spoon)

COOKING TIME
Med Heat / 3 min

DRYING TIME
3 Days

Recipe

1. All ingredients mixed in cold
2. Heated in a stainless saucepan
3. Cooled down for a few min

Printing

Mixture is quite thick and sticky so the biggest nozzle must be used.

PRINTER SETTING
NOZZLE SIZE : 2mm
LAYER HEIGHT : 0.7mm - 1mm
PRINT SPEED : 23mm/s
TRAVEL SPEED : 25mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Once completely dried, it becomes quite hard. One of the strongest among the first round samples.	Takes about 3 hours in water. Moulding happens in about 7 days if it is not kept in dry condition	It is not edible because of Glycerol even though it is non-toxic.	Happens in drying process, about 10%

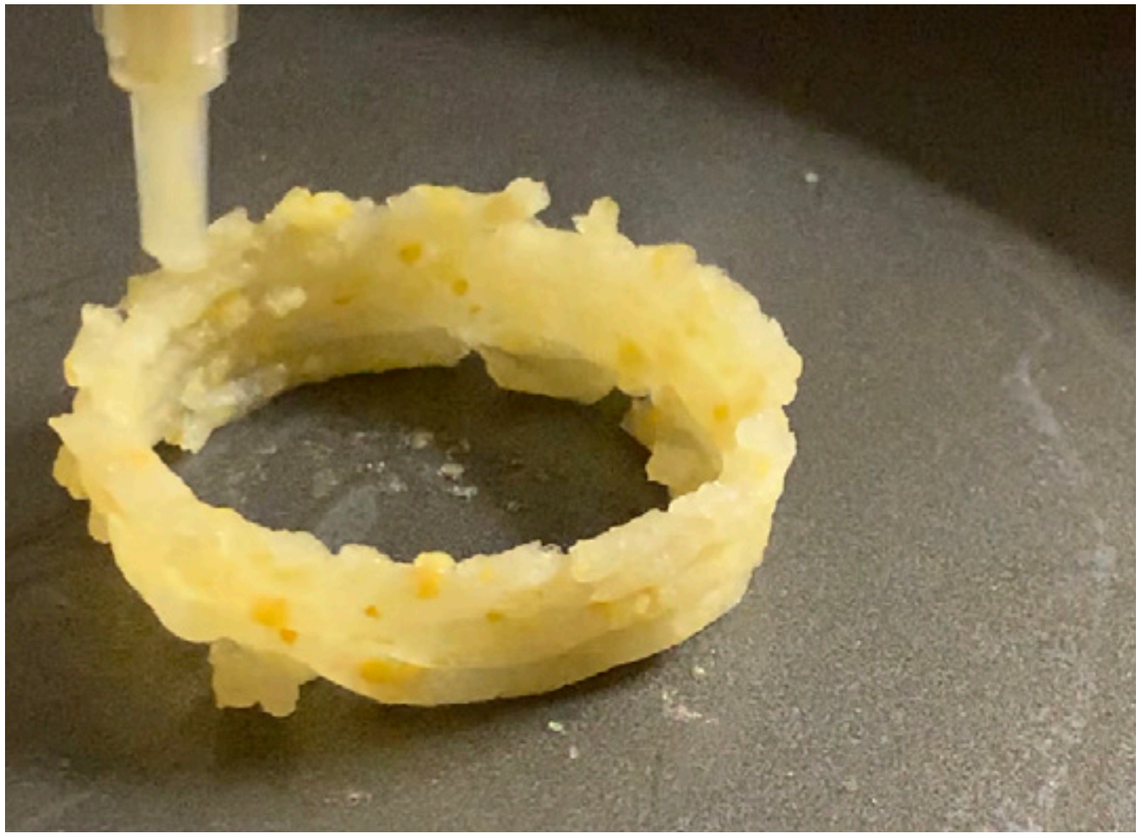
Sensorial Quality

LOOK	SMELL	FEEL
Wood print like look. Color depends on the ratio of Tamarind Powder.	Does not have particular smell once dried out.	Rough, Coarsed

SAMPLE 03-A

Agar Agar (4 Tsp)
Orange Peel Powder (12 TBsp)
Water (100 ml)

Vinegar (1/2 Tea Spoon)
Glycerol (1/2 Tea Spoon)



COOKING TIME
Med Heat / 2 min

DRYING TIME
Started mould in 2 Days

Recipe

1. Mix all powder ingredients
2. Add Glycerol, Vinegar, and water
3. Heat until the mixture bubbles

Printing

FAILED - It is pasty but hardens very quick. Material travels through the biggest nozzle with maximum pressure, but it does not stick together.

PRINTER SETTING
NOZZLE SIZE : 3mm
LAYER HEIGHT : 2.3mm
PRINT SPEED : 10mm/s
TRAVEL SPEED : 10mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Very fragile for the layers did not stick together.	Thin layer only takes 30 min to degrade, thicker chunk takes almost a day.	Not edible	Happens in drying process, about 10%

Sensorial Quality

LOOK	SMELL	FEEL
Very light natural yellow color with very plastic like finish	Still has a little bit of orange smell, but not too strong	Plasticky, Bouncy

SAMPLE 03-B

Corn Starch (1 1/2 TBsp)
Orange Peel Powder (1 TBsp)
Water (8 TBsp)

Vinegar (2 Tsp)
Glycerol (2 Tsp)

COOKING TIME
Med Heat / 5 Min

DRYING TIME
5 Days

Recipe

1. Mix Orange peel powder and corn starch
2. Add Glycerol and Vinegar, and Water
3. Heat until boils

Printing

Mixture started to harden quicker than a pure starch mix.

PRINTER SETTING
NOZZLE SIZE : 2mm
LAYER HEIGHT : 2mm
PRINT SPEED : 10mm/s
TRAVEL SPEED : 10mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Layers didn't sick together completely, so it is very fragile. Need to experiment with printing setup. Material itself is quite strong.	Takes about whole day in water. Moulding started in 5 days, only in thicker wall area.	Not edible because of Glycerol	Happens in drying process, about 10%

Sensorial Quality

LOOK	SMELL	FEEL
Bright Yellow with little bit of translucency in light.	It had a faint scent of orange when drying, but none once fully dried.	Dry and rough

SAMPLE 04

Banana Peel (3 bananas)
Water (500 ml)
Agar Agar (1Tsp)
Xanthan Gum (1 Tsp)
Vinegar (1 Tsp)
Glycerol (1/2 Tsp)
Cinnamon (1Tsp)
Thyme (1 Tsp)

COOKING TIME
Med Heat / 10 min

DRYING TIME
4 Days

Recipe

1. Grind a chopped banana peel with 250ml water and cook in med temp until it boils.
2. Add 250ml of water and cool it down.
3. Extract water and measure 40g of pulp.
4. Add all other ingredients and heat until boils.

Printing

The pulp texture is very big so only the biggest nozzle works. Because it does not stick together, Xanthan gum is added to the mix.

PRINTER SETTING
NOZZLE SIZE : 4mm
LAYER HEIGHT : 4mm
PRINT SPEED : 70mm/s
TRAVEL SPEED : 100mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Holds the shape very well. It is quite durable.	It starts to degrade in about 1 hour in water, but takes full 5 days to completely degrade. Moulding did not happen.	Not edible	Happens in drying process, about 20%

Sensorial Quality

LOOK	SMELL	FEEL
Looks very dry and earthy. Its brown color surprises people when they find out that it's made out of a banana peel.	Cinnamon (added to kill vinegar smell) smells very strong.	Feels like touching a raw soil because of the thick pulp texture.

SAMPLE 05

Butter Cookie Mix (1Cup)
Egg (1/2, small size)

Cooking Oil (1 1/2 TBsp)
Water (1/2 TBsp)

COOKING TIME
370F / 5-7 min

DRYING TIME
NA

Recipe

1. Mix all the ingredients.
2. Printed cookies were baked in oven at the temperature of 370F for 5~7 min depending on its size and thickness.

Printing

Mixture prints very smoothly, but it expends in baking, loosing the details of print.

PRINTER SETTING
NOZZLE SIZE : 4mm
LAYER HEIGHT : 4mm
PRINT SPEED : 70mm/s
TRAVEL SPEED : 70mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Not very durable. Most likely held together with sugar.	Just like regular cookies, it degrades fairly quickly in water.	Yes, they are cookies.	Instead of shrinking, it expends about 30%.

Sensorial Quality

LOOK	SMELL	FEEL
Depending on the baking time, some looks dry and crispy, but some looks very soft.	Smells sweet from butter and sugar.	Puffy shape makes it feel soft and fluffy.

SAMPLE 06

Corn Grind (1 Tsp)
Masa Flour (1 Cup)

Warm Water (1 Cup)
Salt (1/2 Tsp)

COOKING TIME
Med Heat / 2-4min

DRYING TIME
NA

Recipe

1. Mix corn grind, masa flour, and salt.
2. Add warm water little by little while mixing.
3. After printed, heat it in a pan or cook with oven without any oil.

Printing

Mixture has very good viscosity for printing and it holds taller shapes very well.

PRINTER SETTING
NOZZLE SIZE : 2mm
LAYER HEIGHT : 2mm
PRINT SPEED : 300mm/s
TRAVEL SPEED : 500mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Just enough to bite.	Just like other tortilla based foods, it should be composted with food.	Edible once cooked.	When it is cooked, shrinkage happens just a little, but when it is dried in air it shrinks about 10%.

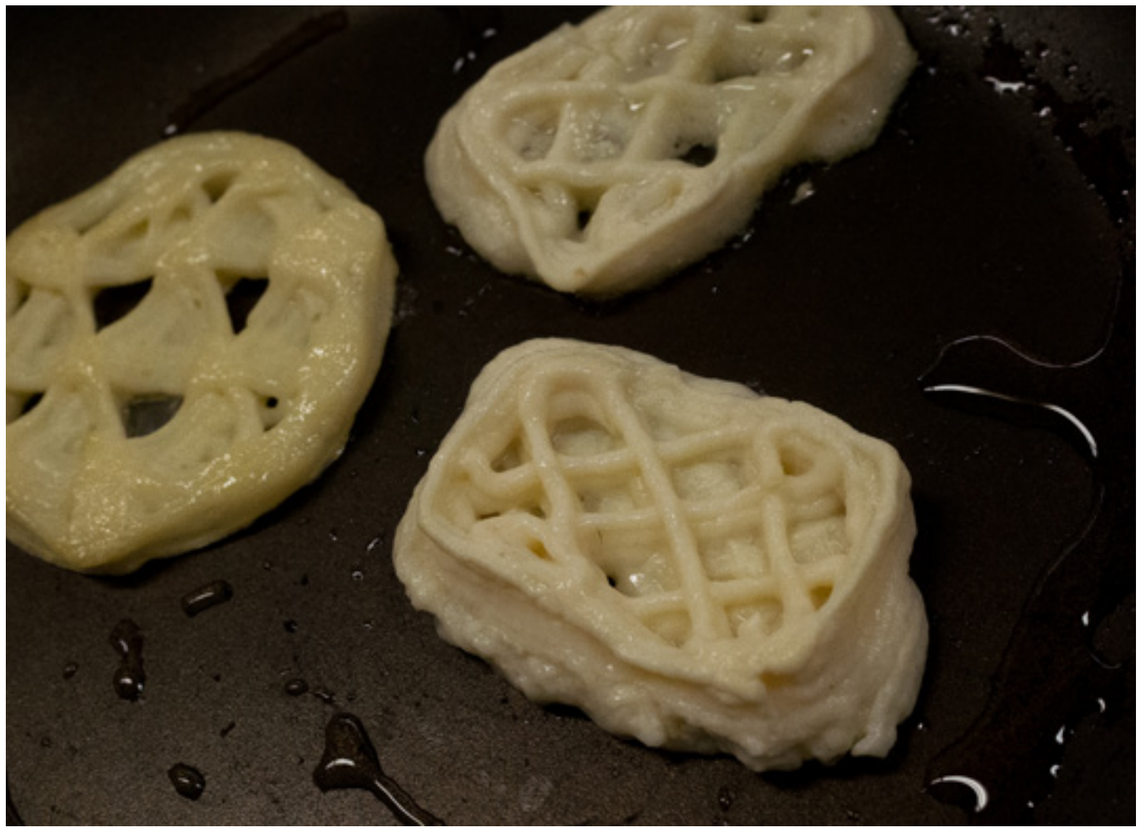
Sensorial Quality

LOOK	SMELL	FEEL
Looks crunch and brittle.	The smell of corn is much stronger than expected.	Even though it looks very crispy, it gets a bit flexible after cooking.

SAMPLE 07-A

Firm Tofu (Half)
Rice Starch (1 Tsp)

Potato Starch (1 Tsp)
Xanthan Gum (1/2 Tsp)



COOKING TIME
Med Heat / 3 min

DRYING TIME
NA

Recipe

1. Grind tofu with other powder ingredients.
2. Once the mixture is printed, cook it in a pan with cooking oil.

Printing

Since tofu is very soft and watery, printing itself is easy but it is hard to keep the shape as is. Infill is mandatory to hold the outside shell printing.

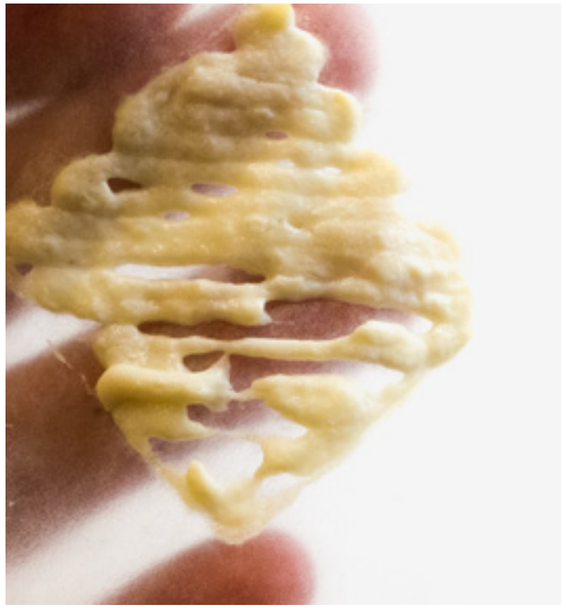
PRINTER SETTING
NOZZLE SIZE : 2.5mm
LAYER HEIGHT : 2mm
PRINT SPEED : 200mm/s
TRAVEL SPEED : 250mm/s

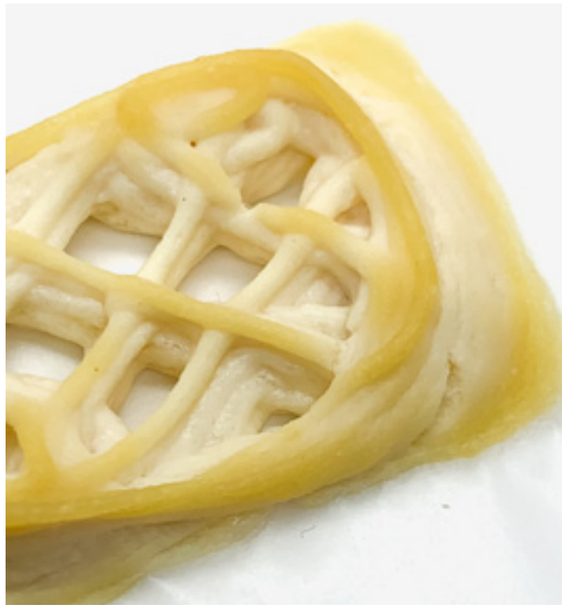
Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
It is very fragile when it is uncooked, even with little bit of movement it collapses. Once fried it holds the shape but is still very soft.	It should be composted as food waste. Fried tofu takes about 3 days to start degrading in compost.	It is edible (with soy sauce!).	Does not happen much, but just a bit while cooking in oil.

Sensorial Quality

LOOK	SMELL	FEEL
Very soft, pudding like.	Does not have much smell but little bit of bean.	Wet and soft. A bit slippery too.





SAMPLE 07-B

Firm Tofu (Half)
Rice Starch (1 Tsp)

Potato Starch (1 Tsp)
Xanthan Gum (1/2 Tsp)

COOKING TIME
NA

DRYING TIME
2 Days

Recipe

1. Grind tofu with other powder ingredients.
2. Once the mixture is printed, leave it to dry in a room temperature.

Printing

Since tofu is very soft and watery, printing itself is easy but it is hard to keep the shape as is. Infill is mandatory to hold the outside shell printing.

PRINTER SETTING
NOZZLE SIZE : 2.5mm
LAYER HEIGHT : 2mm
PRINT SPEED : 200mm/s
TRAVEL SPEED : 250mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Thinner area is weak, but the thicker part is quite durable. It requires a bit of force to break.	When in contact of water for few hours, it becomes white tofu again. Degrading starts to happen in 2 hours in water.	Edible after some kind of cooking.	It shrinks with distortion that is based on its printed structure.

Sensorial Quality

LOOK	SMELL	FEEL
Dry, yellow, and brittle. Does not have any feel of tofu.	None	Edge feels quite sharp after dry.

SAMPLE 07-C

Firm Tofu (1/4 cut of a Pack)
Rice Starch (1/2 Tsp)

Beet Juice (1 Tsp)
Xanthan Gum (1 Tsp)

COOKING TIME
Med Heat / 3 min

DRYING TIME
NA

Recipe

1. Grind tofu with other powder ingredients.
2. Add beet juice to add color.
3. Once the mixture is printed, cook it in a pan with cooking oil.

Printing

Mixture is fine enough so the nozzle size can be small. However, it is very watery and the thinner wall collapses very easily.

PRINTER SETTING
NOZZLE SIZE : 2mm
LAYER HEIGHT : 2mm
PRINT SPEED : 100mm/s
TRAVEL SPEED : 100mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Not very strong. It is jut like a fried tofu.	It should be composted as food waste. Fried tofu takes about 3 days to start degrading in compost.	Definitely edible with some cooking.	Does not shrink much, but happens little bit during cooking.

Sensorial Quality

LOOK	SMELL	FEEL
Fluffy, but hard to guess what it is because of its color.	None	Soft and squeezable.

SAMPLE 08

Rice Starch (150g)
Sugar (35g)
Salt (1g)

Water (210g)
+ Beet Juice (1Tsp)
+ Potato Starch

COOKING TIME
NA

DRYING TIME
NA (Frozen to store)

Recipe

1. Mix all the powder ingredients.
2. Add water to the mixture.
3. Add beet juice for coloring if desired.
4. Sprinkle potato starch on the surface after printing is done.

Printing

Mixture is very soft and watery, but also very sticky. Each layer grabs the previous layer, so the whole print moves quite a lot. Reducing the print speed helps to stabilize little better.

PRINTER SETTING
NOZZLE SIZE : 2mm
LAYER HEIGHT : 1.5mm
PRINT SPEED : 20mm/s
TRAVEL SPEED : 30mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Soft and flexible.	It should be composted as food waste. Fried tofu takes about 3 days to start degrading in compost.	Edible without cooking.	None

Sensorial Quality

LOOK	SMELL	FEEL
Printed texture with starch on top creates interesting effect, feels mysterious.	Does not smell much, but can smell little bit of sweetness.	Very fluffy when it is touched. It also can be a bit sticky without starch on the surface.

SAMPLE 09-A

Sausage (4)
Water (100g)
Potato Starch (1/2 Cup)

COOKING TIME
NA.

DRYING TIME
2 Days

Recipe

1. Grind sausages into small pieces that are smaller than the nozzle size.
2. Mix with other ingredients.

Printing

Using the biggest nozzle, the mixture traveled through. The added water made it harder to keep the wall shape.

PRINTER SETTING
NOZZLE SIZE : 4mm
LAYER HEIGHT : 4mm
PRINT SPEED : 100mm/s
TRAVEL SPEED : 200mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Brittle, not very strong.	It should be composted as food waste. Fried tofu takes about 3 days to start degrading in compost.	It is not edible once dried in the air.	Happens in drying process, less than 5%

Sensorial Quality

LOOK	SMELL	FEEL
Looks plasticky and almost artificial when it is dried.	Much less smell after dried, but still has the smell of meat.	Dry and textured. With the visual it is not very pleasing feel.

SAMPLE 09-B

Sausage (4)
Water (100g)
Potato Starch (1/2 Cup)

COOKING TIME
350F / 8 min

DRYING TIME
NA

Recipe

1. Grind sausages into small pieces.
2. Sieve it to be smaller than nozzle size.
3. Mix with other ingredients.
4. Once printed, cook in the oven.

Printing

Using the biggest nozzle, the mixture traveled through. The added water made it harder to keep the wall shape.

PRINTER SETTING
NOZZLE SIZE : 4mm
LAYER HEIGHT : 4mm
PRINT SPEED : 100mm/s
TRAVEL SPEED : 200mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Not very durable. It breaks easy when the printing disconnects.	It should be composted as food waste. Fried tofu takes about 3 days to start degrading in compost.	It is edible once cooked.	Very little bit of shirinkage happens during cooking.

Sensorial Quality

LOOK	SMELL	FEEL
Crispy and crunch, oily look.	Meat smells quite strong	Compared to the dried version, this feels sharper.

SAMPLE 10

Eggshell Powder (55g)
Thyme (5g)
Water (100ml)

Agar Agar (7g)
Vinegar (1Tsp)
Glycerol (1Tsp)

COOKING TIME
Med Heat / 3 min

DRYING TIME
4 Days

Recipe

1. Mix egg shell powder and thyme.
2. Add other ingredients.
3. Heat the mixture until it boils.

Printing

Printing is not too hard but the mixture is little too watery, it collapses when it gets taller in angle.

PRINTER SETTING
NOZZLE SIZE : 2mm
LAYER HEIGHT : .5mm
PRINT SPEED : 150mm/s
TRAVEL SPEED : 200mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
One of the most durable prints in the index.	Degrading happens in about 3 hours in contact of water.	Not edible.	Shirinkage is not too big, but has little bit of distortion depending on the printed shapes.

Sensorial Quality

LOOK	SMELL	FEEL
Looks like ceramic or cement print.	Thyme smells quite strong, adding natural value.	Feels very coarse, like rough rock texture.

SAMPLE II

Corn Starch (15g)
Peppermint Powder (2 TBsp)
Flour (1TBsp)

Agar Agar (15g)
Water (250ml)
Glycerol (1TBsp)

COOKING TIME
Med Heat / 5-8 min

DRYING TIME
2 Days

Recipe

1. Grind peppermint leaves into fine powder.
2. Mix all ingredients in cold.
3. Heat the mixture until in boils.

Printing

With the right layer height, it makes very clean print.

PRINTER SETTING
NOZZLE SIZE : 3mm
LAYER HEIGHT : .2.5mm
PRINT SPEED : 150mm/s
TRAVEL SPEED : 200mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Quite brittle, specially in between the layers.	Happens in about an hour in contact of water.	Not edible.	Shrinkage is very big, some of the prints are broken into pieces while drying procedure.

Sensorial Quality

LOOK	SMELL	FEEL
Dark green almost looks like black.	It smells strong while cooking and printing, but it disappears when the print is completely dried.	Light and dry.

SAMPLE 12

White Wood Ash (1Cup)
Agar Agar (2 TBsp)
Flour (1 TBsp)

Water (1 1/2 Cup)
Glycerol (1Tsp)
Vinegar (1 Tsp)

COOKING TIME
Med Heat / 5 min

DRYING TIME
2 Days

Recipe

1. Mix all powders together.
2. Add water little by little.
3. Add glycerin and vinegar into the mix.

Printing

The mixture is a bit watery, which made it easy to print, but harder to keep in the shape.

PRINTER SETTING
NOZZLE SIZE : 2mm
LAYER HEIGHT : 1.75mm
PRINT SPEED : 23mm/s
TRAVEL SPEED : 23mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
It is very fragile, easy to break with a bit of force.	Degrade starts in about 1 hour, and does not take too long to completely degrade in water.	Not edible.	Almost none, but just a bit while drying.

Sensorial Quality

LOOK	SMELL	FEEL
Looks very clean and soft. Has nice very light gray color.	Almost smells like nothing.	Very light it does not feel like holding nothing. Feels a bit powdery.

SAMPLE 13

Sage Powder (2 TBsp)
Makko Powder (2 TBsp)
Water (1 Cup)

Agar Agar (2 Tsp)
Xanthan Gum (2 Tsp)

COOKING TIME
250F / 5-10 min

DRYING TIME
3 Days

Recipe

1. Grind sage leaves into fine powder.
2. Mix with other ingredients in cold.
3. Heat until it boils.
4. Cook in the oven after printing.

Printing

Mixture is too watery most of the taller shapes fail to hold its layers. Infill created interesting pattern.

PRINTER SETTING
NOZZLE SIZE : 2mm
LAYER HEIGHT : 1mm
PRINT SPEED : 5mm/s
TRAVEL SPEED : 5mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Baked pieces with enough thickness of material are quite strong. Single layer breaks easy.	Degrades starts in about 2 hours in water.	Not edible.	Happens in cooking and drying process, about 10%

Sensorial Quality

LOOK	SMELL	FEEL
Earthy brown, looks like wood filament print.	Smell was strong during cooking and printing, but all gone in drying the process. Burning the piece made it smell again, while it did not hold for long.	Coarse and rough.

SAMPLE 15

Tapioca Starch (2 1/2 TBsp)
Flower Waste Powder (1 TBsp)
Flour (1 TBsp)

Water (1/2 Cup)
Glycerol (1 Tsp)
Vinegar (1 Tsp)

COOKING TIME
Med Heat / 5 min

DRYING TIME
2 Days

Recipe

1. Grind dried waste from flowers.
2. Mix with other ingredients.
3. Heat until it boils.

Printing

Tapioca starch makes the mixture to be even more stickier than other starches. Prints quite well.

PRINTER SETTING
NOZZLE SIZE : 2.5mm
LAYER HEIGHT : 1.5mm
PRINT SPEED : 150mm/s
TRAVEL SPEED : 200mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
It breaks with force in thinner area, but otherwise quite strong.	TBA	Not edible.	Shrinkage is big in heights. Size did not change much, but height reduces almost to the half of the original after drying.

Sensorial Quality

LOOK	SMELL	FEEL
Natural yellowish tone down green, close to brown. Shows the grains of organic wastes in color.	Dose not have distinctive smell.	Feels hard and plasticky, but still flexible in some area depending on print structure.

SAMPLE 14

Flour (1 Cup)
Sugar (1 Tsp)

Milk (1/2 Cup)
Egg (Small, 1)

COOKING TIME
350F / 3~8 min

DRYING TIME
NA

Recipe

1. Mix all the ingredients thoroughly.
2. Once printed, bake in oven or in a pan with cooking oil.

Printing

Mixture travels quite well, but it is a bit sticky that the new layer grabs the previous layer.

PRINTER SETTING
NOZZLE SIZE : 3mm
LAYER HEIGHT : 2.7mm
PRINT SPEED : 50mm/s
TRAVEL SPEED : 50mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Not very strong.	It should be composted as food waste. Fried tofu takes about 3 days to start degrade in compost.	Edible after cooking.	Instead of shrinking, the mixture expands in heat.

Sensorial Quality

LOOK	SMELL	FEEL
Color gradation happens with material amount and heat.	Smells sweet.	Feels soft and fluffy. Can squeeze with a finger.

SAMPLE 16

Coffee (15 g)
Agar Agar (1 Tsp)
Water (6 Oz)

Vinegar (1 Tsp)
Glycerol (1 Tsp)

COOKING TIME
Low Heat / 3 min

DRYING TIME
2 Days

Recipe

1. Sheive coffee grind waste to sort the fine powder to work with the nozzle size.
2. Mix all ingredients.
3. Heat until it boils.

Printing

FAILED - Set time is too short, the mixture hardens inside of the syringe while printing.

PRINTER SETTING
NOZZLE SIZE : 2mm
LAYER HEIGHT : 1.7mm
PRINT SPEED : 10mm/s
TRAVEL SPEED : 20mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Not very strong. Can tear it with little bit of force.	TBA	Not edible.	Happens little bit, just about < 5%.

Sensorial Quality

LOOK	SMELL	FEEL
Shows the grain of coffee making it in an interesting textured look.	Strong coffee smell.	Very dry and coarse,

SAMPLE 17-A

Coffee Waste (2 TBsp)
Flour (2 TBsp)
Agar Agar (1 Tsp)

Water (5 Oz)
Vinegar (1 Tsp)
Glycerol (1 Tsp)

COOKING TIME
Med Heat / 3 min

DRYING TIME
3 Days

Recipe

1. Sieve coffee grind waste to sort the fine powder to work with the nozzle size.
2. Mix all ingredients.
3. Heat until it boils.

Printing

Mixture is soft enough to travel through the nozzle, but is a bit too liquidy.

PRINTER SETTING
NOZZLE SIZE : 3mm
LAYER HEIGHT : 1.5mm
PRINT SPEED : 20mm/s
TRAVEL SPEED : 20mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Durable and quite strong.	TBA	Not edible.	Shrinkage happens in height with gravity while drying.

Sensorial Quality

LOOK	SMELL	FEEL
Very dark brown close to black. Has a bit of grain showing.	Strong coffee smell.	Dry and matte.

SAMPLE 17-B

Coffee Waste (2 TBsp)
Flour (2 TBsp)
Agar Agar (1 Tsp)

Water (5 Oz)
Vinegar (1 Tsp)
Glycerol (1 Tsp)

COOKING TIME
350F / 5min

DRYING TIME
NA

Recipe

1. Use same mixture of 17-A.
2. Bake in oven after printing.

Printing

Same as 17-A:
Mixture is soft enough to travel through the nozzle, but is a bit too liquidy.

PRINTER SETTING
NOZZLE SIZE : 3mm
LAYER HEIGHT : 1.5mm
PRINT SPEED : 20mm/s
TRAVEL SPEED : 20mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Not as strong as 17-A, but is also quite durable.	TBA	Not edible.	Shrinkage happens while baking.

Sensorial Quality

LOOK	SMELL	FEEL
Very dark brown close to black. Has a bit pores on the bottom.	Strong coffee smell.	Flexible and rubbery.

SAMPLE 18

Artisan Cement mix (1/2 Cup)
Flower Powder (1TBsp)
Thyme (1 Tsp)

Water (100 ml)
Vinegar (1 Tsp)
Glycerol (1 Tsp)

COOKING TIME
NA

DRYING TIME
3 Hours

Recipe

1. Grind dried flower into fine powder.
2. Mix with all ingredients.

Printing

FAILED - Mixture is too thick it does not travel through even the biggest nozzle. Need more pressure (stronger torque motor).

PRINTER SETTING
NOZZLE SIZE : 4mm
LAYER HEIGHT : 4mm
PRINT SPEED : 5mm/s
TRAVEL SPEED : 5mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Breaks easy.	TBA	Not edible.	Does not shrink.

Sensorial Quality

LOOK	SMELL	FEEL
Has shiny finish on the surface, with some grains showing.	Thyme and plant has strong nature smell.	Very rough and coarse.

SAMPLE 19

Paper Box Pulp (60g)
Water (1/4 Cup)
Agar (1 Tsp)

Vinegar (1 Tsp)
Glycerol (1 Tsp)
Cinnamon (1 Tsp)

COOKING TIME
Med Heat / 3 min

DRYING TIME
TBA

Recipe

1. Grind cardboard with warm water.
2. Sieve the pulp only.
3. Mix with all ingredients.
4. Heat until it boils.

Printing

Printing is easy with the mixture. Smaller nozzle size works as well, but it is easier to collapse.

PRINTER SETTING
NOZZLE SIZE : 2-4mm
LAYER HEIGHT : 1.5 ~ 3.5mm
PRINT SPEED : 20mm/s
TRAVEL SPEED : 20mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
After fully dried, it gets quite strong.	TBA	Not edible.	Shrinkage happens with distortion.

Sensorial Quality

LOOK	SMELL	FEEL
Fiber shows through in light. Looks like some kind of skin of sort.	Little bit of vinegar smell is still there.	Rough and dry feel in hands.

SAMPLE 20

Clam Shell Powder (80g)
Agar (1Tsp)
Corn Starch (1TBsp)

Water (1/2 Cup)
Glycerol (1/2 Tsp)

COOKING TIME
Low Heat / 5 min

DRYING TIME
TBA

Recipe

1. Bake clean shells in oven (200F / 1hour)
2. Grind into fine shell and sieve.
3. Mix with all ingredients.
4. Heat until it boils.

Printing

Print was successful with the biggest nozzle.

PRINTER SETTING
NOZZLE SIZE : 4mm
LAYER HEIGHT : 3.5mm
PRINT SPEED : 10mm/s
TRAVEL SPEED : 10mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Easy to break with just a bit of force.	TBA	Not edible.	Almost none.

Sensorial Quality

LOOK	SMELL	FEEL
Powder shows up like sand.	Does not have any smell once fully dried.	Very coarse and rough with the sandy powder. Feels like natural rock.

SAMPLE 21

Sand (60g)
Agar (1Tsp)
Resin Powder (1Tsp)

Flour (1 TBsp)
Water (1/2 Cup)
Glycerol (1/2 Tsp)

COOKING TIME
Low Heat / 5 min

DRYING TIME
2-3 days

Recipe

1. Mix sand and agar with water and glycerol.
2. Heat until it starts to boil.
3. Cool it down and mix flour and resin well.

Printing

The paste has coarse grain of sand so it requires bigger nozzle.

PRINTER SETTING
NOZZLE SIZE : 4.5mm
LAYER HEIGHT : 3.7mm
PRINT SPEED : 10mm/s
TRAVEL SPEED : 10mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Medium. It feels durable but it is possible to take off little off prints just by finger tips.	TBA	Not edible.	Almost none.

Sensorial Quality

LOOK	SMELL	FEEL
Very coarse and rough. It looks interesting because it contains crystallized particles.	Does not have any smell once fully dried.	Nostalgic from the memories of playing with sand. Its coarse grain gives enough to feel with.

SAMPLE 22

Sesame Powder (60g)
Olive Oil (1Tsp)
Corn Starch (1Tsp)

Water (1 1/2 Cup)
Corn Flour (1Cup)

COOKING TIME
Low Heat / 5 min

DRYING TIME
TBA

Recipe

1. Grind sesame into very fine grain.
2. Mix sesame with oil and corn starch.
3. In another bowl, mix corn flour and water.
4. Combine both mixes together.

Printing

Prints very smoothly, but if oil is added too much then the print breaks.

PRINTER SETTING
NOZZLE SIZE : 4mm
LAYER HEIGHT : 3.5mm
PRINT SPEED : 10mm/s
TRAVEL SPEED : 10mm/s

Material Quality

DURABILITY	DEGRADABILITY	EDIBILITY	SHIRINKAGE
Not durable	TBA	Edible.	About 10% but less from the oil.

Sensorial Quality

LOOK	SMELL	FEEL
Dark black but fine paste makes the print look like special ceramic piece.	Strong smell of sesame lasts quite long with oil mix.	It is very soft but can feel the oil in it.

P(T)ASTY PRINT

Project by
Haeun Kim

Project Mentor
Babette Strousse
Jonathan Abarbanel