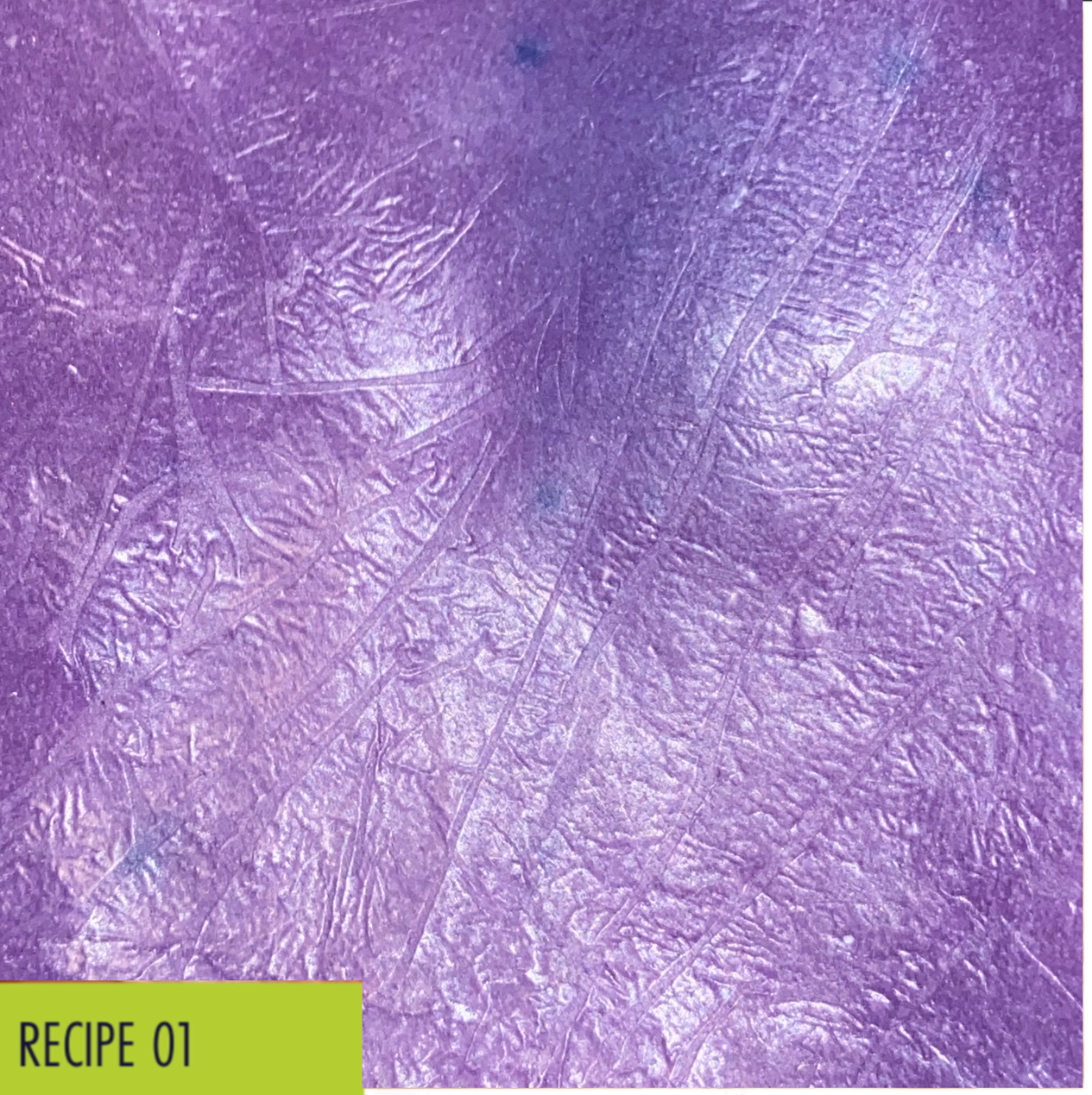

RECIPE 01

Ingredient List

Ingredient 01

Ingredient 02

Ingredient 03

Ingredient 04

Ingredient 05

Preperation Steps

Material Assessments

hard	■■■■□	soft	opaque	■■□□□	transparent
smooth	■■□□□	rough	tough	■□□□□	ductile
matte	■■□□□	glossy	light	■□□□□	heavy
elastic	■■■■■	not elastic	fibred	■■□□□	not-fibred
strong	■□□□□	weak			

Forming Technique

References

ResearchGate

Zehra Nur Tokgöz I Zeynep Şenyurt I Tuna Büyükaşık

RECIPE 02

Ingredient List

Ingredient 01

Ingredient 02

Ingredient 03

Ingredient 04

Ingredient 05

Preperation Steps

Material Assessments

hard	■■□□□	soft
smooth	■■□□□	rough
matte	■■■□□	glossy
elastic	■■■□□	not elastic
strong	■■■□□	weak

opaque	■■■□□	transparent
tough	■■■□□	ductile
light	■■■□□	heavy
fibred	■■■□□	not-fibred

Forming Technique

References

ScienceDirect

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RECIPE 03

Ingredient List

Ingredient 01

Ingredient 02

Ingredient 03

Ingredient 04

Ingredient 05

Preperation Steps

Material Assessments

hard	■□□□□	soft
smooth	■■□□□	rough
matte	■■■■□	glossy
elastic	■■■■■	not elastic
strong	■■■■□	weak

opaque	■■■□□	transparent
tough	■□□□□	ductile
light	■■■□□	heavy
fibred	■■□□□	not-fibred

Forming Technique

References

Biomacromolecules

Zehra Nur Tokgöz I Zeynep Şenyurt I Tuna Büyükaşık

RECIPE 04

Ingredient List

Ingredient 01

Ingredient 02

Ingredient 03

Ingredient 04

Ingredient 05

Preperation Steps

Material Assessments

hard	■■■□□	soft
smooth	■■■■□	rough
matte	■■■■□	glossy
elastic	■□□□□	not elastic
strong	■□□□□	weak

opaque	■■■□□	transparent
tough	■■■■■	ductile
light	■□□□□	heavy
fibred	■□□□□	not-fibred

Forming Technique

References

Journal of Biomaterials

Zehra Nur Tokgöz | Zeynep Şenyurt | Tuna Büyükaşık

RECIPE 01

Ingredient

Ingredient 01

Ingredient 02

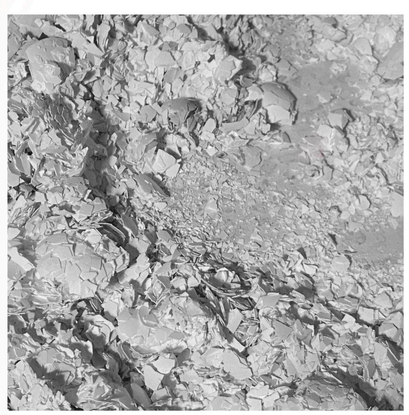
Ingredient 03

Preperation Steps

Material Assessments

hard	■□□□□	soft	opaque	■□□□□	transparent
smooth	■□□□□	rough	tough	■□□□□	ductile
matte	■□□□□	glossy	light	■■■■■	heavy
elastic	■■■■■	not elastic	fibred	■■■■■	not-fibred
strong	■□□□□	weak			

Forming Technique



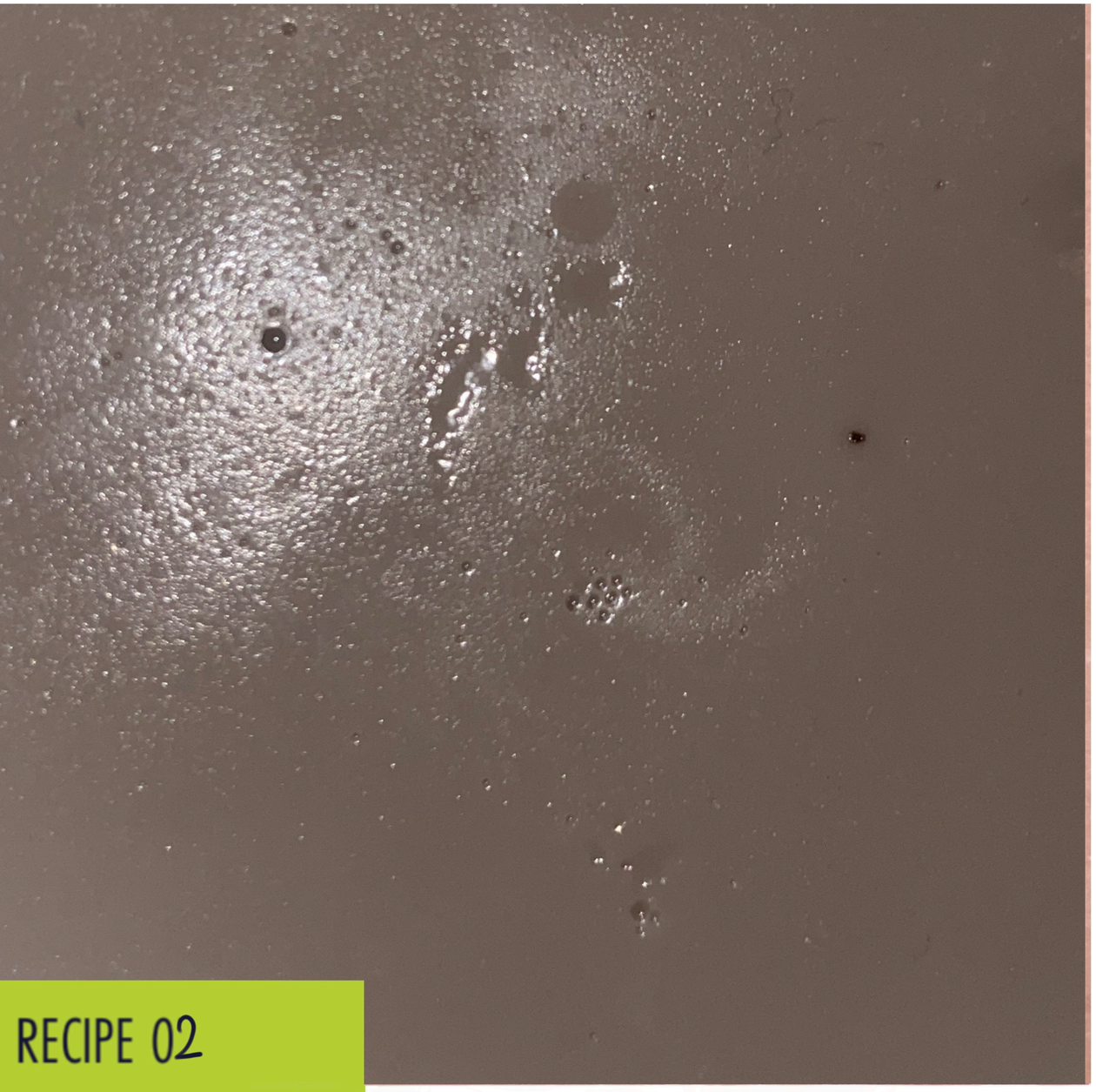
References

Materials Science and Engineering
PubMed

Zehra Nur Tokgöz | Zeynep Şenyurt | Tuna Büyükaşık

BIOPLASTIC LIBRARY

Computation Based Basic Design @ BILGI
SPRING 2022_23



RECIPE 02

Ingredient

Ingredient 01

Ingredient 02

Ingredient 03

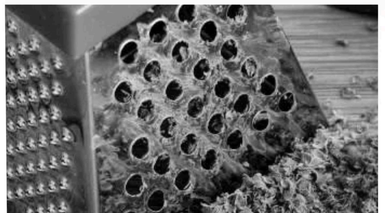
Preperation Steps

Material Assessments

hard	■■■■■	soft
smooth	■□□□□	rough
matte	■■■■■	glossy
elastic	■□□□□	not elastic
strong	■■□□□	weak

opaque	■□□□□	transparent
tough	■■■■■	ductile
light	■□□□□	heavy
fibred	■■■■■	not-fibred

Forming Technique



References

Biomaterials Science

Zehra Nur Tokgöz I Zeynep Şenyurt I Tuna Büyükaşık

RECIPE 03

Ingredient

Ingredient 01

Ingredient 02

Ingredient 03

Preperation Steps

Material Assessments

hard	■■■■■	soft	opaque	■□□□□	transparent
smooth	■□□□□	rough	tough	■■■■■	ductile
matte	■□□□□	glossy	light	■□□□□	heavy
elastic	■□□□□	not elastic	fibred	■■■■■	not-fibred
strong	■■□□□	weak			

Forming Technique

References

Frontiers in Bioengineering and Biotechnology

Zehra Nur Tokgöz I Zeynep Şenyurt I Tuna Büyükaşık

RECIPE 04

Ingredient

Ingredient 01

Ingredient 02

Ingredient 03

Preperation Steps

Material Assessments

hard	■■■□□	soft	opaque	■□□□□	transparent
smooth	■■■□□	rough	tough	■■■□□	ductile
matte	■■□□□	glossy	light	■■□□□	heavy
elastic	■■□□□	not elastic	fibred	■■□□□	not-fibred
strong	■□□□□	weak			

Forming Technique

References

Frontiers in Bioengineering and Biotechnology

Zehra Nur Tokgöz I Zeynep Şenyurt I Tuna Büyükaşık

RECIPE 05

Ingredient

Ingredient 01

Ingredient 02

Ingredient 03

Ingredient 04

Preperation Steps

Material Assessments

hard	■■■■■	soft	opaque	■□□□□	transparent
smooth	■□□□□	rough	tough	■■■■■	ductile
matte	■■■■■	glossy	light	■□□□□	heavy
elastic	■□□□□	not elastic	fibred	■□□□□	not-fibred
strong	■■■■□	weak			

Forming Technique

References

Materials Science and Engineering
PubMed

Zehra Nur Tokgöz | Zeynep Şenyurt | Tuna Büyükaşık

S-1

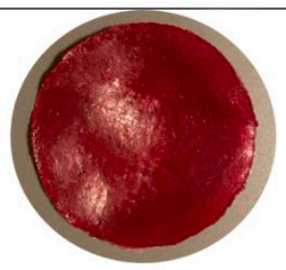
S-2

S-3

Starch based samples

S1,2,3

	S-1	S- 2	S- 3
	- 100 gr corn starch - 200 gr cabbage water - 10 gr apple vinegar - 10 gr glycerine	- 100 gr wheat starch - 200 gr onion shell's water - 10 gr apple vinegar - 10 gr glycerine	- 100 gr corn starch - 200 gr radish water - 10 gr apple vinegar - 10 gr glycerine
Drying Method	oven: ☐ air fryer: ☐ air dry: ☑	oven: ☐ air fryer: ☐ air dry: ☑	oven: ☐ air fryer: ☐ air dry: ☑
Temperature	25°C	25°C	25°C
Time period	1 hours/ days	1 hours/ days	1 hours/ days



S-4

S-5

Starch based samples

S4,5

	S-4	S-5
	- 100 gr wheat starch - 200 gr red beet - 10 gr apple vinegar - 10 gr glycerine	- 10 gr tea - 50 gr corn starch - 50 gr water - 20 gr glycerine
Drying Method	oven: ☐ air fryer: ☐ air dry: ☑	oven: ☐ air fryer: ☐ air dry: ☑
Temperature	25°C	25°C
Time period	1 hours/ days	1 hours/ days

G-1

G-2

Gelatin based samples

G1,2

	G-1	G- 2
	- 24 gr egg shell - 12 gr water - 5 gr gelatine - gr	- 10 gr white clay powder - 30 gr water - 10 gr gelatine - gr
Drying Method	oven: ☑ air fryer: ☐ air dry: ☑	oven: ☐ air fryer: ☐ air dry: ☑
Temperature	200°C/25°C	25°C
Time period	6 hours/ days	12 hours/ days

G-3

G-4

Gelatin based samples

G3,4

	G-3	G-4
	- 20gr flour - 30gr water - 10gr gelatine - gr	- 10gr gelatine - 30gr water - 60gr blended egg carton - gr
Drying Method	oven: ☐ air fryer: ☐ air dry: ☑	oven: ☐ air fryer: ☐ air dry: ☑
Temperature	25°C	25°C
Time period	12 hours/ days	12 hours/ days

Observations about the materials and their effects (starch based)

1) Recipe 1, which was very flexible when made, lost its elasticity as it cooled and turned into a harder material.
2) We observed that recipe 2 thickens more quickly when heated compared to other ingredients.
3) We observed that the dry state of the substance in recipe 3 was more matte and opaque compared to the state before it was left to cool.
4) Compared to other recipes, we observed that even when dried, it does not lose its flexibility and is transparent.
5) Compared to other starchy recipes, it has been the ingredient that shows the texture inside the most.

Observations about the materials and their effects: (gelatin based)

1) This is the most durable and least fragile ingredient compared to other recipes.
2) Compared to all other recipes, it is the most shiny, smooth and flexible ingredient. It was also the material that most easily adapted to the shape of the container during its construction.
3) The flour ingredient in recipe 3 did not lose its softness despite cooling compared to starch, which is similar in texture.
4) This was the softest and most durable recipe at the same time.

Zehra Nur Tokgöz | Zeynep Şenyurt | Tuna Büyükaşık