

Academic Report

**“Cheese and Wine Twist – La vie en rose edition”**



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Advanced Molecular Gastronomy TFCS9025: 2021-22

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May 6th, 2022

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## Introduction

During this semester, we registered into a molecular gastronomy course where we were asked to create a note by note dish whose principal component is a fiber-rich savory dice. Now let us dissect the key words of this sentence.

Molecular gastronomy is a scientific discipline that focuses on the physical and chemical transformations that occur during cooking. It was first introduced by Hervé This and Nicholas Kurti who were intrigued by the science behind culinary processes, being themselves a physical chemist and a physics professor respectively. One of their main goal when focusing on Molecular Gastronomy was to understand the physical and chemical reactions of cooking in order to develop new ways based on science (Myhrvold, 2018).

Indeed, it has shown from the late 19<sup>th</sup> until now that the kitchen is an ideal place for both chefs and scientists (van der Linden et al., 2008); indeed all agree that in order for a food to be enjoyed, it should taste good. But scientists intervened asking some specific questions to highlight a number of conditions before labelling a food as good or not: “Is the concentration of the flavor molecules important? How does the texture affect the flavor? How important is the order of the ingredients released?”. Therefore, the science of molecular gastronomy has emerged to provide chefs with such understanding in order to predict realistically if the meal would eventually be called delicious or not (Barham, 2010).

As for the note by note cooking, it is considered a landmark of the gastronomy’s annals since it completely shifts the culinary process from using traditional ingredients to the use of pure molecular compounds, some naturally occurring in nature and other synthesized in the laboratory. It is believed by Herve This that the long term survival of the growing population depends on such type of dishes (This, 2014) since it can contribute to saving water and energy, avoiding wastes and spoilage, all while being eco-friendly.

As for the goal of this 10<sup>th</sup> contest, it is to create a dish that include savory dices rich in fibers, by avoiding sweet products and actual raw ingredients as much as possible. The concept is more likely named “practical note by note cooking” as participants would be able to use pure fractions such as oil, and corn starch. The fascinating side of such cooking techniques is that the cook can actually manipulate everything from the shapes, consistencies, tastes, to the trigeminal sensations all while taking into accounts toxicity and maximum concentrations.

## Aim of the assignment

The goal of this assignment is to create a practical note by note dish rich in fibers, and whose main element is a savory dice, all by getting inspired by the practical applications done in the sequence of this module from spherification, to foaming, dehydration, and precision.

This dish should be personal, and the focus should be on using different pure compounds for the different elements of the dish, all by using the knowledge acquired in class about the different composites and their specific characteristics.

As for the aim of the report, it would be to dissect the elements of the plate by giving the exact ingredient list, material, and method, all while being supported by academic researches for instance about the maximum amounts that could be used to avoid toxicity. It also shows the results of a sensory analysis done in the kitchen that assesses the dish based on appearance, colors, aroma, flavors and creativity.

### Platter Description

What does French people find more appealing than bonding with friends or family over a cheese and charcuterie platter, all while drinking some wine?






*Figure 1: Front Side of Platter*


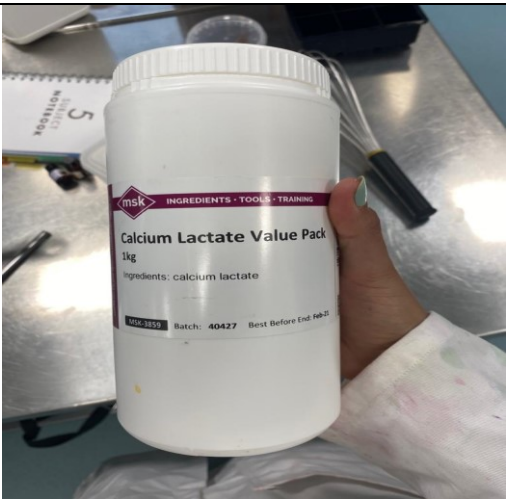
The cheese and wine twist –la vie en rose edition is inspired by French culture, being myself a Lebanese-French student. The white dice symbolizes the cheese with a Gouda flavor and a hint of butter, whereas the wrapping sheet is a replicate of “jambon de parme”. As for the crumbles on top, they have almonds and biscuits flavor so that when a person tastes the dish, it will be imagining taking a baguette bite with cheese, charcuterie and some of the nuts used to design the plate. And finally, the bubbles represents the wine that always come with the platter.

Final Materials and Methods



Cheese dice

Ingredient

Ingredient	Concentration	Supplier & Information
Whey protein powder (MYPROTEIN)	10.43%	 <p data-bbox="959 833 1370 888"><i>Figure 2: Impact Whey Protein Unflavored MYPROTEIN</i></p>
Tap water	79.06%	 <p data-bbox="1021 1251 1308 1278"><i>Figure 3: Tap Water KITCHEN</i></p>
Dietary Fiber Cellulose (NUTRICOLOGY)	3.16%	 <p data-bbox="938 1707 1395 1734"><i>Figure 4: Dietary Fiber Cellulose NUTRICOLOGY</i></p>

<p>Ioata carrageenan (MSK)</p>	<p>1.89%</p>	 <p><i>Figure 5: Iota Carrageenan MSK</i></p>
<p>Calcium lactate (MSK)</p>	<p>1.58%</p>	 <p><i>Figure 6: Calcium Lactate MSK</i></p>



<p>Gouda flavor (SOSA)</p>	<p>3.16%</p>	 <p>Figure 7: Extract Fromatge Tipus Gouda SOSA</p>
<p>Salt</p>	<p>0.63%</p>	 <p>Figure 8: Table Salt KITCHEN</p>
<p>Butter flavor (SOSA)</p>	<p>0.06%</p>	 <p>Figure 9: Butter Flavor N147 SOSA</p>

Equipment

<b>Equipment</b>	<b>Supplier &amp; Information</b>
Dice mould (AMAZON)	 <p data-bbox="943 625 1308 646"><i>Figure 10: Dice Silicon Mold AMAZON</i></p>
Fridge (Electrolux)	 <p data-bbox="980 1213 1276 1234"><i>Figure 11: Fridge ELECTROLUX</i></p>
Stainless steel bowls	 <p data-bbox="935 1581 1320 1602"><i>Figure 12: Stainless Steel Bowl KITCHEN</i></p>

Balance (CELY)



Figure 13: Balance CELY

Stove (Electrolux)





Figure 14: Stove ELECTROLUX

Whipping utensil



Figure 15: Whipping Utensil KITCHEN

Pan	 <p data-bbox="1008 569 1243 596">Figure 16: Pan KITCHEN</p>
Thermometer	 <p data-bbox="963 1100 1292 1127">Figure 17: Thermometer KITCHEN</p>



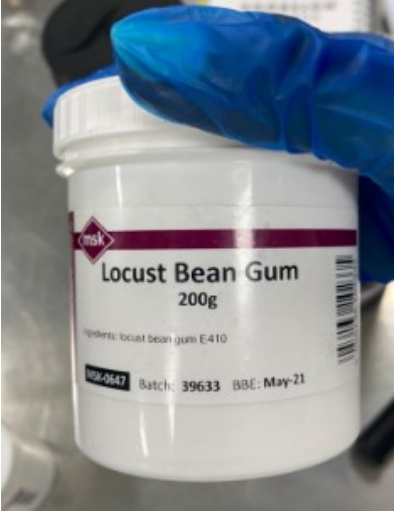
Method



- Mix dry ingredient together and blend well for 2mins
- Add the dry ingredients to the water in the pan
- Add the butter flavouring drops
- Mix until a smooth texture is reached
- Bring to a boil at 80°C for 3mins
- Remove from heat
- Pour into the mould
- Cool at room temperature for 5mins
- Place in the refrigerator at 4°C to finish setting for 30mins

Ham sheet

Ingredients



Ingredient	Concentration	Supplier & Information
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<p>Water</p>	<p>90%</p>	 <p>Figure 18: Tap Water KITCHEN</p>
<p>agar agar (SOSA)</p>	<p>3.6%</p>	 <p>Figure 19: Agar Agar SOSA</p>
<p>locust beam gum (MSK)</p>	<p>0.8%</p>	 <p>Figure 20: Locust Bean Gum MSK</p>

<p>beetroot powder (MSK)</p>	<p>0.5%</p>	 <p>Figure 21: Beetroot Spray Dried Powder MSK</p>
<p>cacao powder (LIDL)</p>	<p>0.5%</p>	 <p>Figure 22: Cocoa Powder LIDL</p>
<p>Salt</p>	<p>0.2%</p>	 <p>Figure 23: Table Salt KITCHEN</p>

<p>JAMON IBERICO flavouring (SOSA)</p>	<p>0.3%</p>	 <p>Figure 24: Jambon Iberico Flavor SOSA</p>
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Equipment

<p><b>Equipment</b></p>	<p><b>Supplier &amp; Information</b></p>
<p>Fridge (Electrolux)</p>	 <p>Figure 25: Fridge ELECTROLUX</p>
<p>Stainless steel bowls</p>	 <p>Figure 26: Stainless Steel Bowl KITCHEN</p>

Balance (CELY)



Figure 27: Balance CELY

Stove (Electrolux)







Figure 28: Stove ELECTROLUX

Whipping utensil



Figure 29: Whipping Utensil KITCHEN



Pan	 <p data-bbox="967 569 1203 596"><i>Figure 30: Pan KITCHEN</i></p>
Thermometer	 <p data-bbox="922 1100 1252 1127"><i>Figure 31: Thermometer KITCHEN</i></p>
Parchment paper (LIDL)	 <p data-bbox="927 1350 1247 1377"><i>Figure 32: Parchment Paper LIDL</i></p>
Tray	 <p data-bbox="967 1631 1203 1659"><i>Figure 33: Tray KITCHEN</i></p>



Method




- Line the tray with a parchment paper
- Mix all the ingredients together
- Place the mixture in a pot and bring to 90°C

- Simmer for 3mins
- Pour the hot gel onto the baking sheet
- Extend it to have a thin layer of 2mm
- Let is set at room temperature for 5mins
- Refrigerate for 30mins at a temperature of 2°C
- Cut into long thin stripes

### Nuts crumble

#### Ingredient

Ingredient	Concentration	Supplier & Information
Water	92.9%	 <p data-bbox="1036 993 1328 1020"><i>Figure 34: Tap Water KITCHEN</i></p>
potato starch (TERSOL)	6.3%	 <p data-bbox="1036 1606 1338 1633"><i>Figure 35: Potato Starch TERSOL</i></p>

Salt	0.18%	 <p data-bbox="1037 510 1325 537"><i>Figure 36: Table Salt KITCHEN</i></p>
bitter almond flavoring (SOSA)	0.18%	 <p data-bbox="940 1060 1349 1087"><i>Figure 37: Bitter Almond Flavor N09 SOSA</i></p>
biscuit flavouring (SOSA)	0.37%	 <p data-bbox="1037 1593 1325 1621"><i>Figure 38: Biscuit Flavor SOSA</i></p>

Equipment

<b>Equipment</b>	<b>Supplier &amp; Information</b>
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Fridge (Electrolux)



Figure 39: Fridge ELECTROLUX

Stainless steel bowls



Figure 40: Stainless Steel Bowl KITCHEN

Balance (CELY)



Figure 41: Balance CELY

Stove (Electrolux)



Figure 42: Stove ELECTORLUX

Whipping utensil







Figure 43: Whipping Utensil KITCHEN

Pan



Figure 44: Pan KITCHEN

<p>Thermometer</p>	 <p><i>Figure 45: Thermometer KITCHEN</i></p>
<p>Parchment paper (LIDL)</p>	 <p><i>Figure 46: Parchment Paper LIDL</i></p>
<p>Tray</p>	 <p><i>Figure 47: Tray KITCHEN</i></p>
<p>Oven (ELECTROLUX)</p>	 <p><i>Figure 48: Oven ELECTROLUX</i></p>

Method

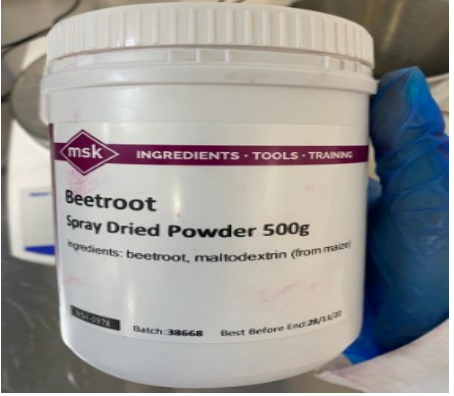

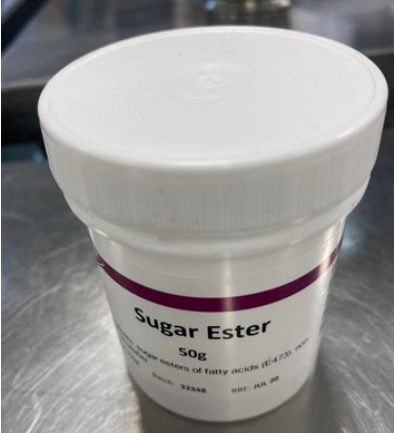
- Mix the potato starch and water and salt and cocoa powder
- Heat the mixture until it boils

- Add the flavouring drops
- Take a parchment paper
- Adjust it on the oven tray
- Pour in the mixture to create a thin layer
- Cook in the oven for 2 hours to dehydrate at 100°C
- Crumble it on top of the dice


### Wine bubbles

#### Ingredient


Ingredient	Concentration	Supplier & Information
water	84.3%	 <p data-bbox="997 995 1295 1024"><i>Figure 49: Tap Water KITCHEN</i></p>
cocoa powder (LIDL)	0.42%	 <p data-bbox="997 1509 1295 1539"><i>Figure 50: Cocoa Powder LIDL</i></p>



<p>beetroot powder (MSK)</p>	<p>1.6%</p>	 <p>Figure 51: Beetroot Spray Dried Powder MSK</p>
<p>xanthan gum (IEP en place)</p>	<p>4.2%</p>	 <p>Figure 52: Xhanthan Gum IEP</p>
<p>sugar ester (MSK)</p>	<p>8.4%</p>	 <p>Figure 53: Sugar Ester MSK</p>



<p>wine flavouring drops (SOSA)</p>	<p>0.92%</p>	 <p><i>Figure 54: Wine Flavor N168 SOSA</i></p>
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Equipment

<p><b>Equipment</b></p>	<p><b>Supplier &amp; Information</b></p>
<p>Whipping utensil</p>	 <p><i>Figure 55: Whipping Utensil KITCHEN</i></p>

Stainless steel bowl	 <p data-bbox="803 504 1193 535"><i>Figure 56: Stainless Steel Bowl KITCHEN</i></p>
Fish pump	 <p data-bbox="982 955 1193 987"><i>Figure 57: Fish Pump</i></p>

Method

- Combine all of the ingredients and let it set for 5mins
- Connect to the pump and let it create bubbles
- Use two spoons to put the bubbles on the plate without popping

## Results

### Final Dish

The pictures below are different angles taken from “Cheese and Wine Twist- La vie en rose edition”.



### Formulations

These are the final formulations of the different part of the final plate:

	weight (g)	Percentage (%)
whey	33	10.44
water	250	79.06
fibre	10	3.163
ioata		
carrageenan	6	1.898
calcium lactate	5	1.581
gouda	8	2.88
Butter flavour	0.2	0.063
salt	2	0.633
total	316.2	100

*Figure 58: Cube Formulation*

	Weight (g)	Percentage (%)
water	90	93.9
agar	3.6	3.75

locust	0.8	0.83
betroot	0.5	0.52
cacao	0.5	0.52
ham	0.19	0.198
salt	0.2	0.208
total	95.95	100

*Figure 59: Jambon de parme Formulation*

	Weight (g)	Percentage (%)
water	50	93.09
potato starch	3.4	6.33
biscuit	0.1	0.186
almond	0.11	0.2
salt	0.1	0.186
total	53.8	100

*Figure 60: Nuts crumble Formulation*

	Weight (g)	Percentage (%)
water	200	96.43
cocoa powder	0.2	0.096
betroot powder	0.8	0.38
xanthan gum	2	0.96
Wine flavoring	0.4	0.19
sugar ester	4	1.92
total	47.45	100

*Figure 61: Wine bubbles Formulation*

#### Platter Creation Steps

- Remove the dice from the mold
- Wrap it diagonally with the jambon de parme sheet
- Place it on the plate
- Crush the nut thin layer into crumbles and add It on top
- Use a spoon to take bubbles of wine and spread them on the plate

## Sensory Analysis

9 people from the kitchen where this platter has been created has participated in a sensory analysis evaluation, to assess key points which make a dish successful. The participation was totally confidential, and not rewarded monetary. Four criteria were assessed on a scale ranging from “dislike extremely” to “like extremely”. The results are reported as pie charts.

### Overall Appearance

Overall Appearance

8 responses

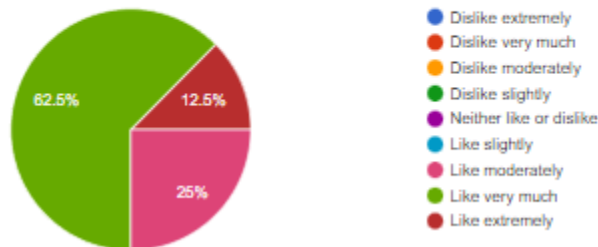


100% of the participants has liked the overall appearance of the dish.

### Overall Aroma

Overall Aroma

8 responses

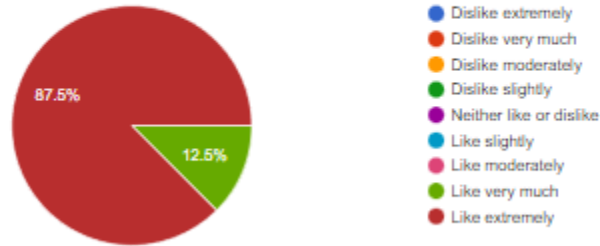


5 participants has liked the aroma that this plate gives, whereas one has liked it extremely and 2 liked it moderately.

## Color Coordination

### Colour Coordination

8 responses

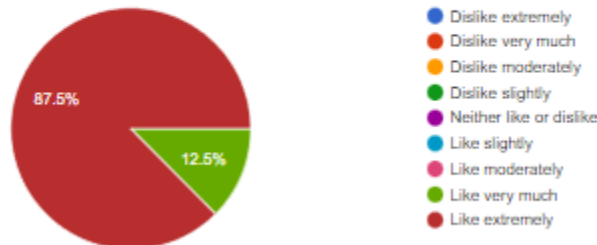


7 participants extremely liked the pink palette of the plate, whereas one has liked it very much.

## Creativity

### Creativity

8 responses



7 found the plate extremely creative, and one participant found it very much creative.

## Discussion

Building this plate is a result of four weeks, where the improvement has been reported in the Logbook section of this report. The four criteria of the sensory evaluation correlate with the different techniques used to form the plate, as well as percentages of compounds and flavors.

## Overall Appearance

The overall appearance is dependent on the right amounts of the various hydrocolloids used. Indeed, the four trial and errors weeks has contributed a lot to the success of the plate's appearance, as different formulations were tested to get the desired consistency of the compounds when used alone or in a synergy with other ones by also making sure that the right conditions are met (in terms of temperature, rest time, refrigeration temperature).

### *Hydrocolloids*

The following information are collected from the hydrocolloid recipe provided by this course's professor on bright space (Lersch, 2014).

#### Dice

Ioata Carrageenan has been used at a percentage of 1.8% to make it a bit harder than it is. It usually gives a soft, and elastic gel with calcium thus the explanation of adding calcium lactate to the mixture as well as whey protein. It was made sure to boil the mixture to reach 70°C for it to set. It has been used to mimic the cheese as it gives a melt in mouth mouthfeel experience.

#### Jambon de parme sheet

Agar Agar used at a concentration higher than 3% will give a brittle gel. 0.16% of agar has been replaced by locust bean gum since this synergy prevent the synerisis of agar agar and make it an elastic gel. The difference between the gelling and melting temperature of agar agar, hysteresis, is what makes it set at room temperature. It should be noted that the mixture should boil to around 50°C for the gel to set.

#### Wine Bubbles

Xanthan has been used with a percentage of 0.96% for the foam forming first that has been transformed to bubbles with the fish pump and the right amount of sugar ester and as well as water. Xanthan has helped the bubble to stay suspended.

#### Overall Aroma

The overall aroma is correlated to the amount of flavoring used in each compound. The doses should not be added with care as flavors can lead to toxicity if regulations are not followed.

#### *Maximum Permitted Levels*

Flavoring cannot be added in a spontaneous way, as some might contain compounds harmful if their maximum permitted amount is exceeded. The table below summarizes the different flavoring used that are all from SOSA, their respective concentrations, and the maximum permitted amount of the compounds that form them. The dosifications have been written on the official page of the supplier SOSA, which are reported here as the maximum permitted level MPA (Sosa, 2020)

Flavoring Agent	Concentration (%)	MPA (mg/kg)
Gouda Extract	2.855	30g/kg
Butter Essence	0.063	2g/kg
Jambon Iberico Aroma	0.19	2g/kg
Biscuit Essence	0.18	2g/kg
Bitter Almond Essence	0.2	2g/kg
Wine Essence	0.19	2g/kg

### Color Coordination

The color coordination of the dish is not only related to the natural colorant powders (beetroot powder, cocoa powder, whey protein) used in the different compounds, but it also changes when the gel sets. I have decided to use a pink-white palette since these are the dominant colors in a cheese, charcuterie and wine.

### Creativity

As for creativity, it is mainly a personal touch that the cook brings to his dish. I also believe that creating a dish that the cook is familiar to and that brings him nostalgia and good memories will always turn out more successful and intimate than trying to be inspired by a dish with no significant attachment to it.

### Conclusion

The cheese and wine twist –la vie en rose platter can be considered a success in terms of acceptance specifically since the note by note method is still subject to growth. This platter brings in different textures since different hydrocolloids has been used. It can however be concluded that further trials should be done to improve even more the overall flavor and aroma to achieve excellence. As for the bubbles, lecithin or any other emulsifier can be added in order to make them last more if the dish is not eaten directly.

Finally, I can say that molecular gastronomy, and in particular note by note cooking is a really interesting world that is still to be more discovered, and I am extremely thrilled to dig into this domain in my third semester of the FIPDES program in France.



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Logbook

**MODULE CODE: TFPD9022**

**MODULE TITLE: Molecular Gastronomy**

**STUDENT NAME: Karen Massoud**

**FOOD PRODUCT: Cheese and wine platter**

Week 1

**WEEK NO 1**

**DATE: March 28, 2022**

**Weekly Aims and Objectives**

- Create the cheese dice
- Create the ham wrapping sheet
- Create the nuts crumble
- Try plating

**Materials and Method (Ingredients, Equipment and Method)**



**Cheese dice**

**Ingredients**

	Weight (g)	Percentage (%)
whey	33	11.186441
water	250	84.745763
fibre	2	0.6779661

ioata		
carrageenan	4	1.3559322
calcium lactate	2	0.6779661
Gouda extract	4	1.3559322
Butter flavour	0.15	0.05
total	295.15	100

### Equipment

- Dice mold
- Stainless steel bowls
- Balance
- Stove
- Whipping utensil
- Thermometer

### Methods

- Mix dry ingredients together except the gel
- Add the iota carrageenan blend well
- Add to the pan
- Bring to a boil for 80C
- Remove from heat and pour into a mold
- Cool at room temperature for 5mins
- Place in refrigerator to finish setting for 30mins

### Results and discussions



*Texture:* the texture of the dice was really similar to a soft cheese, so the ratio of iota carrageenan to whey and water was adequate

*Colour:* colour too was just like the white cheeses due to the whey colour

*Flavour:* flavouring was odd. Cheese flavour was way too strong, and needed to be balanced with salt. Butter flavour in the aftertaste was pleasant, giving a soft mouthfeel.

### Conclusions

Great initial start for the dice. I will keep the weight of main ingredients as is ( whey, water, carrageenan), but try on adjusting the flavours.

### Recommendations for following week

Add in salts, and work on different cheese flavors or maybe a mix of some too.

### Ingredients required for the following 2 weeks

Himalayan salt, other cheese flavours.

## **Jambon de parma sheet**

### Ingredients

	Weight (g)	Percentage (%)
water	90	95.23
agar	3.6	3.8
Beetroot powder	0.5	0.52
locust beam gum	0.4	0.42
total	94	100

### Equipment

- Stainless steel bowls
- Balance
- Stove
- Whipping utensil
- Thermometer
- Parchment paper
- Tray

### Methods

- Line the tray with parchment paper
- Blend agar and locust bean gum with water and food colorant
- Place the mixture in a pot and bring to 90C

- Simmer for 3-5mins
- Pour the hot gel onto the baking sheet
- Let it set in the refrigerator for 30mins
- Cut the stripe to wrap the dice.

### Results and discussions



*Texture:* It was actually really brittle to wrap the dice with, since it was refrigerated and got way too hard and icy. I should also use a bigger tray in order to have longer strips.

*Colour:* Red colour wasn't pleasant as it was way too red and flashy.

*Flavour:* no flavour since I didn't add the ham flavour yet

### Conclusions

No conclusion can be done on this sheet, just visual ones. I would not change the percentages of ingredients for the texture because it was too icy to conclude anything. Colour is not pleasant and I will look into more natural looking alternatives.

### Recommendations for following week

I will let the solution set at room temperature, try to mix different colorant for a pleasant and more natural colour and would add on the flavouring.

### Ingredients required for the following 2 weeks

Cocoa powder, beetroot powder, rice starch, ham flavouring.

### Nuts Crumble

#### Ingredients

	Weight (g)	Percentage (g)
virgin oil	30	41.666667
maltodextrin	40	55.555556
cocoa powder	2	2.777778
Bitter almond flavor	0.15	0.2079
total	72	100

### Equipment

- Stainless steel bowls
- Balance
- Stove
- Pan

### Methods

- Mix the oil on the maltodextrin, mixing constantly with blender
- Set aside
- Heat in a frying pan until they begin to take a round shape and a light crunchy coating

### Results and discussions



*Texture:* I couldn't reach a crunchy texture, part of it was too soft and the other part burnt

*Colour:* Colour was great, truly similar to the almond flesh's colour

*Flavour:* A bit bitter due to the bitter almond flavour and burnt oil aftertaste.

### Conclusion

I will change the texture methods and ingredient completely as I did not get the crumbliness of nuts that I was looking for.

### Recommendation for the following weeks

Search for a different method with different compounds, and check for different flavours of nuts than almond or maybe go for a more biscuit flavour.

### Ingredients required for the following 2 weeks

Nuts flavour, biscuits flavour, potato starch.

## Week 2

**WEEK NO 2**

**DATE: April 1, 2022**

### **Weekly Aims and Objectives**

- Adjust the cheese dice flavour
- Adjust the ham wrapping sheet with flavour
- Implement a new nuts crumble method
- Create the wine bubbles

### **Materials and Method (Ingredients, Equipment and Method)**

#### Cheese dice

##### Ingredients

	Weight (g)	Percentage (g)
whey	33	10.84
water	250	82.18
fibre	3	0.98
ioata		
carrageenan	4	1.31
calcium lactate	5	1.64
gouda	7	2.30
salt	2	0.65
Butter flavour	0.2	0,06
total	304	100

##### Equipment

- Dice mold

- Stainless steel bowls
- Balance
- Stove
- Whipping utensil
- Thermometer

### Methods

- Mix dry ingredients together except the gel
- Add the iota carrageenan blend well
- Add to the pan
- Bring to a boil for 80C
- Remove from heat and pour into a mold
- Cool at room temperature for 5mins
- Place in refrigerator to finish setting for 30mins

### Results and discussions

*Texture:* texture is soft and cheesy, could be a bit more strong since when out of the fridge it starts to melts

*Colour:* colour is as a cheese

*Flavour:* too bland, I should add more Gouda flavour

### Recommendations for the following week

To work more on the flavouring of the platter's components.

### **Jambon de parma sheet**

#### Ingredients

	Weight (g)	Percentage (%)
water	90	94.58
agar	3.6	3.78
locust	0.8	0.84
betroot	0.5	0.52
Jambon iberico	0.25	0.52
total	94.9	100

#### Equipment

- Stainless steel bowls
- Balance
- Stove



- Whipping utensil
- Thermometer
- Parchment paper
- Tray

### Methods

- Line the tray with parchment paper
- Blend agar and locust bean gum with water and food powder colorant
- Place the mixture in a pot and bring to 90C
- Simmer for 3-5mins
- Pour the hot gel onto the baking sheet
- Let it set in at room temperature
- Cut the stripe to wrap the dice.

### Results and discussions

*Texture:* it was good, did not detach and was malleable enough to wrap it around the dice

*Colour:* pink colour was satisfying.

*Flavour:* a bit bland, did not feel the ham flavour that much

### Recommendations for the following week

Create 2 different stripes, one darker than this pink and one a bit transparent to mimic the actual ham that has different colours, like bacon. I would like to add a bit of salt to enhance the flavouring and add the drops

### Ingredients required for the following 2 weeks

Cocoa powder, salt.

### Nuts Crumble

#### Ingredients

	Weight (g)	Percentage (g)
water	45	92.307692
cocoa powder	0.5	1.025641
potato starch	3	6.1538462
Bitter almond flavouring		

Biscuit flavouring		
salt	0.25	0.5128205
total	48.75	100

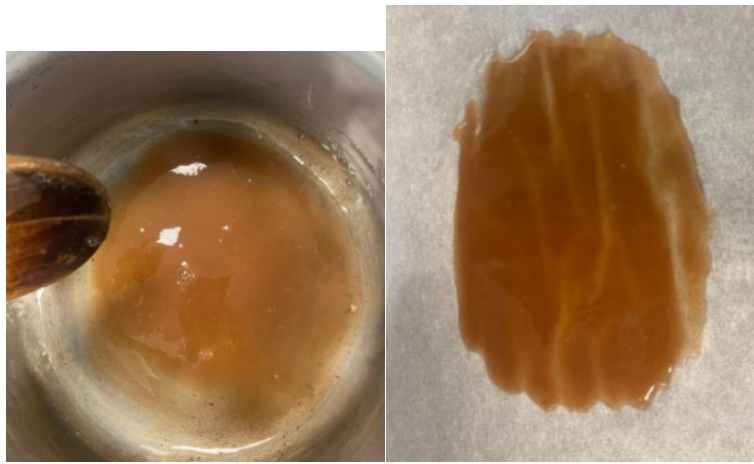
### Equipment

- Stainless steel bowls
- Parchment paper
- Tray
- Oven

### Methods

- Mix the potato starch and water and salt
- Then mix the colorant with the nut flavour and biscuit flavor until it boils
- Take a parchment and roll the mixture in
- Cook it in the oven for 2 hours to dehydrate at 100°C
- Crumble it on top

### Results and discussions



*Texture:* Flaky, just as I needed it to be

*Colour:* Close to the almond skin

*Flavour:* salty, should remove the salt to feel the almond more.

### Recommendation for the following weeks

Reduce the salt content and adjust the almond flavoring.

### **Wine bubbles**

### Ingredients

	Weight (g)	Percentage (%)
water	200	98.59
cocoa powder	0.1	0.049
betroot powder	0.3	0.14
xantham gum	1	0.49
albumine	1	0.49
Wine flavouring	0.45	0.22
total	202.4	100

### Equipment

- Stainless steel bowls
- Fish pump

### Methods

- Combine all of the ingredients and let it set
- Connect to the pump and let it create bubbles.

### Results and discussions



*Texture:* Couldn't reach the right texture that could make the bubbles stand still and not explode directly when put on the plate

*Colour:* Colour matched the red wine colour

*Flavour:* I could feel the wine aromas when tasted

### Recommendation for the following weeks

Work on the percentages to get a texture that could stand still on the plate

Week 3

**WEEK NO 3**

**DATE: April 6, 2022**

**Weekly Aims and Objectives**

- Adjust the cheese flavour of the dice
- Adjust the ham flavouring
- Adjust the nuts flavouring
- Create the wine bubbles

**Materials and Method (Ingredients, Equipment and Method)**



**Cheese dice**

**Ingredient**

	Weight (g)	Percentage (%)
whey	33	10.43
water	250	79.06
fibre	10	3.162
ioata		
carrageenan	6	1.89
calcium lactate	5	1.58
gouda	10	3.16
Butter flavour	0.2	0.0632
salt	2	0.632
total	316.2	100

**Equipment**

- Dice mold
- Stainless steel bowls
- Balance
- Stove
- Whipping ustensil
- Thermometer

### Methods

- Mix dry ingredients together except the gel
- Add the iota carrageenan blend well
- Add to the pan
- Bring to a boil for 80C
- Remove from heat and pour into a mold
- Cool at room temperature for 5mins
- Place in refrigerator to finish setting for 30mins

### Results and discussions

*Texture:* great texture, more gelled than the previous ones but at least it doesn't melt when stored away from the refrigerator

*Colour:* colour is still white, not affected by the fibres addition

*Flavour:* Way better than the first ones, balance between the Gouda and salt flavour

### Recommendations for the following week

Will use this formulation for my final plate

## **Jambon de parma sheet**

### Ingredients

#### *Pink part*

	Weight (g)	Percentage (%)
water	90	94.29
agar	3.6	3.7716
locust	0.8	0.8381
jambon de parme	0.35	0.3667
betroot	0.5	0.5238

salt	0.2	0.2095
total	95.45	100

#### *Dark pink part*

	Weight (g)	Percentage (%)
water	90	93.8
agar	3.6	3.752
locust	0.8	0.834
jambon de parme	0.35	0.365
betroot	0.5	0.521
cacao	0.5	0.521
salt	0.2	0.208
total	95.95	100

#### Equipment

- Stainless steel bowls
- Balance
- Stove
- Whipping utensil
- Thermometer
- Parchment paper
- Tray

#### Methods

- Line the tray with parchment paper
- Blend agar and locust bean gum with water and food powder colorant
- Place the mixture in a pot and bring to 90C
- Simmer for 3-5mins
- Pour the hot gel onto the baking sheet
- Let it set in at room temperature
- Cut the stripe to wrap the dice.

#### Results and discussions

*Texture:* texture is great, but the sheet needs to be thinner.

*Colour:* The pink sheet because it was way too flashy and the two others were really fine when adding the “fat layer” on the darker one.

*Flavour:* Good blend flavour of parma and butter

#### Recommendations for the following week

I will omit the pink sheet, and just use the other two but thinner the sheet.

### **Nuts Crumble**

#### Ingredients

	Weight (g)	Percentage (%)
water	50	93.09
potato starch	3.4	6.33
biscuit	0.1	0.186
almond	0.11	0.205
salt	0.1	0.186
total	53.71	100

#### Equipment

- Stainless steel bowls
- Parchment paper
- Tray
- Oven

#### Methods

- Mix the potato starch and water and salt
- Then mix the colorant with the nut flavour and biscuit flavor until it boils
- Take a parchment and roll the mixture in
- Cook it in the oven for 2 hours to dehydrate at 100°C
- Crumble it on top

#### Results and discussions

*Texture:* Flaky, just like wanted

*Colour:* looks like the skin of the almond

*Flavour:* Less bitter than the other time due to the increase of the biscuit flavour

#### Recommendation for the following weeks

I stored the excess and will use this formulation for my last product

## Wine bubbles

### Ingredients

	Weight (g)	Percentage (%)
water	40	87.82
cocoa powder	3.6	7.903
betroot powder	0.8	1.756
wine flavoring	0.45	0.988
xantham gum	0.5	1.098
sugar ester	0.2	0.439
total	45.55	100

### Equipment

- Stainless steel bowls
- Fish pump

### Methods

- Combine all of the ingredients and let it set
- Connect to the pump and let it create bubbles.

### Results and discussions

*Texture:* I had better bubbles than last time but they stick on the spoon and it was hard to put them on the platter without popping most of them

*Colour:* A bit transparent but it was fine since it is actually the texture that mattered.

*Flavour:* tasted just like wine

### Recommendation for the following weeks

Try to adjust the formulation for the bubbles to hold.



Week 4

**WEEK NO 4**

**DATE: April 25, 2022**



### **Weekly Aims and Objectives**

- Adjust the ham thickness
- Create the wine bubbles
- Adjust the final platter

### **Materials and Method (Ingredients, Equipment and Method)**

#### **Cheese dice**

#### **Ingredients**

	weight (g)	percentage (%)
whey	33	10.44
water	250	79.06
fibre	10	3.163
ioata		
carrageenan	6	1.898
calcium lactate	5	1.581
gouda	9	2.85
Butter flavour	0.2	0.063
salt	2	0.633
total	315.2	100

### Equipment

- Dice mold
- Stainless steel bowls
- Balance
- Stove
- Whipping utensil
- Thermometer

### Methods

- Mix dry ingredients together except the gel
- Add the iota carrageenan blend well
- Add to the pan
- Bring to a boil for 80C
- Remove from heat and pour into a mold
- Cool at room temperature for 5mins

### **Jambon de parma sheet**

#### Ingredients

	weight	percentage
water	90	93.8
agar	3.6	3.752
locust	0.8	0.834
betroot	0.5	0.521
cacao	0.5	0.521
ham	0.2	0.198
salt	0.2	0.208
total	95.7	100

### Equipment

- Stainless steel bowls
- Balance
- Stove
- Whipping utensil
- Thermometer
- Parchment paper
- Tray

## Methods

- Line the tray with parchment paper
- Blend agar and locust bean gum with water and food powder colorant
- Place the mixture in a pot and bring to 90C
- Simmer for 3-5mins
- Pour the hot gel onto the baking sheet
- Let it set in at room temperature
- Cut the stripe to wrap the dice.

## **Nuts Crumble**

Used week 3 remaining sample

## **Wine bubbles**

### Ingredients

	weight	percentage
water	200	96.43
cocoa powder	0.2	0.096
betroot powder	0.8	0.38
xantham gum	2	0.96
Wine flavoring	0.4	0.19
sugar esther	4	1.9
total	207.4	100

### Equipment

- Stainless steel bowls
- Fish pump

## Methods

- Combine all of the ingredients and let it set
- Connect to the pump and let it create bubbles.

## **Results and Discussions**

It was the official plate with the formulations that will be used to write the report, so a sensory analysis was made and the results will be discussed in the report itself.

For the ham sheet, I have just decided to omit the white part, sticking to the pink part only and spreading it in a way to have places thinner than other places.