

Note By Note Report

Module: Advanced Molecular Gastronomy TFCS9035

Assignment: Report of Note by Note Cooking N°10

Topic: Savoury dice and fibres (no Rubik's cube)



Prepare by: Chanosnita EAR

Student number: D21127084

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1. Introduction

Note by Note Cooking is an application of Molecular gastronomy, created since 1994 by Hervé This (Burke and Danaher, 2016), with principle of using only pure compounds or mixture of compounds to create foods by designing the shapes, the colours, the tastes, the odours, the temperature, the trigeminal stimulation, the textures, the nutritional aspects and more (This, 2013). The first International Contest for Note by Note Cooking was held in 2013, final event in Paris, and has been continued every year (Paris, 2022). Since then, in 2013, the Note by Note cooking also has been taught at the School of Culinary Arts and Technology and having the students producing first prize award winning dishes in the following years of 2014 and 2015 (Burke and Danaher, 2016).

This year of 2022, the popular International Contest of Note by Note Cooking is having its 10th contest with the topic of “**Savoury dice and fibres**”, with exception of Rubik’s cube and avoiding sweet products. The details and criteria of the contest are listing as below according to Note by Note Theme for 2021 – 2022 (Burke, Rigault and This, 2022; Paris, 2022):

- “the first goal of competitors is to produce dishes that :
 1. include fibres and savoury dice
 2. are as close as possible to pure note by note cooking (i.e., using pure compounds)
 3. are good!
 3. are original.
- the “pure note by note cooking” technique means using only perfectly pure compounds,
- “practical note by note cooking” technique allows the use of mostly pure fractions: for example, oil is a mixture of triglycerides, or corn starch is only 80 % pure amylopectin, but it would not change much if one particular triglyceride were used, on pure amylopectin.
- The participants will be free to purchase the ingredients or to product them by themselves. For example, lixiviation of flour can product gluten and starch, and storing oils in the fridge or in the deep freeze can make various fat fractions, with different properties.
- For odours, they can be extracted by various means (storing a raw material in oil, distillation, etc.), but odorant compounds can now be found on line, in companies such as Iqemusú.”

The specific criteria for students as contestant also stated that “depending on the applications, there can be two groups, those that are culinary arts students and those that are science students. Like the professional chefs, the former most likely have access to specific note by note ingredients and special equipment. The other students may or may not have access to these ingredients or equipment. In the case of the culinary student the judging criteria is similar to that for the professional chefs but the level of skills of culinary arts students may be less. If the other students have a science background, the judging criteria could include the use of scientific knowledge to maximise the use of ingredients which were available.”

After knowing the theme and criteria for the 10th Contest of Note by Note Cooking, the word savoury fibre cube has reminded me of a Chinese dish of Crab and Vegetable soup (see figure 1). The dish is combination of imitated crab meat and vegetable pieces such as carrots, corn, and using corn-starch and egg to thicken the chicken broth. This nutritious dish contains high fibre from the vegetables and high in protein from surimi and egg as well.



Figure1. (Chinese-Style Crab and Vegetable Soup, n.d.)

So, in order to create a similar recipe to the Chinese dish but adapting to the Note by Note theme, the recipe is divided into three parts: the meat pieces, the vegetable pieces, and the soup. The meat pieces can be from the real crab meat, the fake crab meat such as surimi. When talking about surimi, there are different types of surimi in the market which are differentiated by their main ingredient percentages, crab meat and fish meat. The general of this crab meat analogue does not contain real crab meat but using tasteless fish meat and crab flavour for imitation (ref). On the other hand, there are surimi made without fish meat but using alginates and proteins such as soybean (Sinurat, Wibowo and Fransiska, 2017), and this can already be seen as a compound cooking already. In addition, there are several existing recipes using surimi in note by note cooking, such as “Cloud” and “Ultra” (Lavelle, Burke, Kelly and This, 2019). The same reference has also mention that Surimi can be made of 20% proteins (plant, milk or egg) and 80% water, then the dough that is obtained by simply mixing them, adding a starch batter to the protein can provide more consistent surimi, then the mixture can be poured on a flat surface, scratched with a spoon and cooked in the microwave oven.

For the body of the soup, it has a thick and clear to cloudy texture, and keeping the vegetable pieces floating around. Gelatin as thickening hydrocolloid, it also provides a texture that is soft, elastic clear gel, and melt in the mouth (Lersch, 2014). This hydrocolloid should be a good reagent to recreate the body of the soup without using the whole chicken stock and egg in the soup. For the vegetable pieces, are cut into small cube shape floating in the soup and stand out with their bright colour. To imitate the appearance and the hard crunchy texture, aga agar can provides a heat resistant and more brittle gel when compared to gelatin (Lersch, 2014) which might give a closed look to the real vegetable pieces when adding the right colours into it.

2. Aim of the assignment

The main aim of this study and experiment in the kitchen at TU Dublin is to create a dish that is adapting to a Chinese style dish “Crab meat and vegetable soup” by using pure compounds and following the Note by Note Theme and criteria along the whole project. Three objectives as below are established to provide a better measurement and level of achievement to the aim of the study:

1. Creating an imitation crab meat by using process of making surimi
2. Creating a “standing soup” clear to slight cloudy body of the soup with chicken broth flavour. And the body of the soup should be able to stand as a cube shape to fit the Dice theme of the contest as well as to give a different perception of the soup dishes.

3. Creating vegetable pieces to imitate “carrot” in cube shape that can be floated in the body of the standing soup above

All the creation parts should be close to the real dish regarding the tastes and the appearances; however, the textures are expected to be different but should be able to convey the savoury dish perception to the consumer. Hence, the final creations should be completed by having noted all the details of the process, ingredients, and evaluated by sensory testing on the acceptability of the dish.

3. Final Materials & Methods

3.1. List of final ingredients and equipment

All the ingredients and equipment are provided by TU Dublin School of Culinary Arts & Food Technology.

- Ingredients for the crab meat Surimi (in 100g batch)

Ingredients (brand)	Percentage	Quantity
Water	69%	69g
Pea protein Isolate Powder (Myvegan)	20%	20g
transglutaminase (PTMCYERTCUM)	1% of protein = 0.2% in the batch	0.2g
corn starch (GEM)	10%	10g
Fish flavour (Sosa)	3 drops ≈ 0.1%	0.1g
Carrot aroma (Sosa)	3 drops ≈ 0.1%	0.1g
Table salt	0.4%	0.4g
Caster sugar	0.2%	0.2g

Table 1. List of final ingredients for crab meat

- Ingredients for the Soup in 500g batch:

Ingredients (brand)	Percentage	Quantity
Water	96%	500g
200 Bloom Gelatin leaf (Cupcake World)	3% of liquid ≈ 2.5%	15g
Chicken flavour (Sosa)	≈ 0.2%	≈ 1g
Table salt	≈ 0.7%	≈ 4g
Ground pepper (Spicely)	≈ 0.7%	≈ 4g
Caster sugar	≈ 0.5%	≈ 3g

Table 2. List of final ingredients for standing soup

- Ingredients for the carrot pieces and extra scallion pieces:

Ingredients (brand)	Percentage	Quantity
Water	9%	100g
Agar powder (Francois Louis)	0.3% of liquid ≈ 0.3%	0.3g
Inulin powder (Myvitamins)	6% of liquid ≈ 5%	6g
Orange colour (Mallard Ferrière)	< 0.1%	≈ 0.01g
Carrot flavour (Sosa)	≈ 0.1%	≈ 0.1g
Green colour (Mallard Ferrière)	< 0.1%	≈ 0.01g
Leak flavour (Sosa)	≈ 0.1%	≈ 0.1g

Table 3. List of final ingredients for vegetable pieces

- List of required equipment:

Equipment & tools	Brand & Models
Scale	Cely BB-P3888
Stainless steel pots	Any
Whiskers	Any
Oven	Electrolux 700XP
Thermometer	DOQAUS Digital Thermometer
Cube mould / square shape bowl	Any
Knife	Any
Spoon	Any
Refrigerator	Electrolux RCLK-S1200

Table 4. List of final equipment and tools

3.2. Methods

- **Preparation of imitation crab meat Surimi:**

Weight all ingredients according to ingredient list, the mix all ingredients together. Then pour the mixture in the cube mould, and keep in the refrigerator at 5° for transglutaminase (TGase) to set (Transglutaminase, aka Meat Glue – Cooking Issues, 2009). Then the set dough can be microwave cooked (Lavelle, Burke, Kelly and This, 2019), or alternatively steam in a pot for 20 minutes at 80°C.

- **Gelling of the soup** (Lersch, 2014; Fernier, 2006):

- Soak gelatine sheet 15g into cold water for 5 minutes
- Warm 500g of water to reach 50 °C
- Dissolve soaked gelatine in the warm water and add chicken flavour, salt, sugar

- **Gelling of the vegetable pieces** (Lersch, 2014):

1. carrot cube pieces
 - Boil 100ml of water and put 15 g of agar agar powder and inulin powder into the boiled water.
 - Removed the mixture form the heat and set aside about 20ml in a cube mould
 - and add salt and sugar, colour, and carrot flavour.
 - Mix well and pour into the cube mould plat
 - Wait 10 minutes or until the mixture is set, cut them into small pieces
2. Scallion pieces
 - In the set aside 20ml of mixture, add green colour, and leak flavour.
 - Mix well and pour into the cube mould plate.
 - Wait 10 minutes or until the mixture is set, slide them into small pieces like cut scallion.

- **Combination of soup and vegetable pieces:**

Pour the mixture of gelatin soup in the bottom of cube mould plate, add a few pieces of carrot, and keep in the fridge for 15 minutes. Pour another layer of the mixture in the bottom of cube mould plate, add a few pieces of carrot, and keep in the fridge for another 15 minutes. Repeat the step one more time for the final layer. Keep in the fridge to be set for an hour. The remove from the mould, and place on a plate and top with a few pieces of gel scallion.

- **Sensory evaluation:**

Due to time constraints, a proper sensory evaluation test could not be done for this dish. However, the observation and evaluation were done weekly at the end of each session by myself, followed literature review for discussion on all the results.

4. Results

The final result of the dish is shown in figure 4 below. Due to the mentioned time constraints, the surimi pastes from the first week could not be done again, hence, the final dish is including the combination of standing soup with vegetables pieces without meat. However, the result of the surimi paste is still not good enough as a final recipe and need to be improved further. The discussion on the improvement and the results is written in the following discussion section.

4.1. Surimi result:

Aspects	Observation
Appearance	white to slight yellow colour, dough like appearance
Taste	strong pea taste, with slight note of fish
Texture	very tender, bean paste like texture, and easily turn to powder texture when touch

Table 5. Results of Surimi in aspects of appearance, taste, and texture



Figure 2. Surimi after steaming

4.2. Standing soup and vegetable pieces result:

Observation	Discussion
Appearance	Clear standing soup with pieces of carrot floating inside. The shine reflection of the soup gives a similar appearance to a clear broth in a bowl. When remove from the mould, the carrot pieces are floating in the soup body uniformly without giving the layers appearance (see figure 4). The topping with scallion has too light green colour that is hard to notice due to the bright orange colour of the carrot.
Taste	Savoury jelly taste of chicken soup and carrot.

	<ul style="list-style-type: none"> - The body of the soup has a strong savoury chicken broth taste, but also gives a strong jelly taste. - Whereas the carrot pieces taste like carrot jelly. - The combination of both together gives even stronger jelly taste, but a similar chicken soup taste as well.
Texture	The body of the soup has a soft jelly texture which is similar to the real Chinese style crab meat soup, but the cold temperature conveys the taste of sweet jelly rather than savoury taste.

Table 5. Results of Standing soup with vegetable pieces in aspects of appearance, taste, and texture



Figure 3. Set gel soup with carrot pieces in the mould plate.

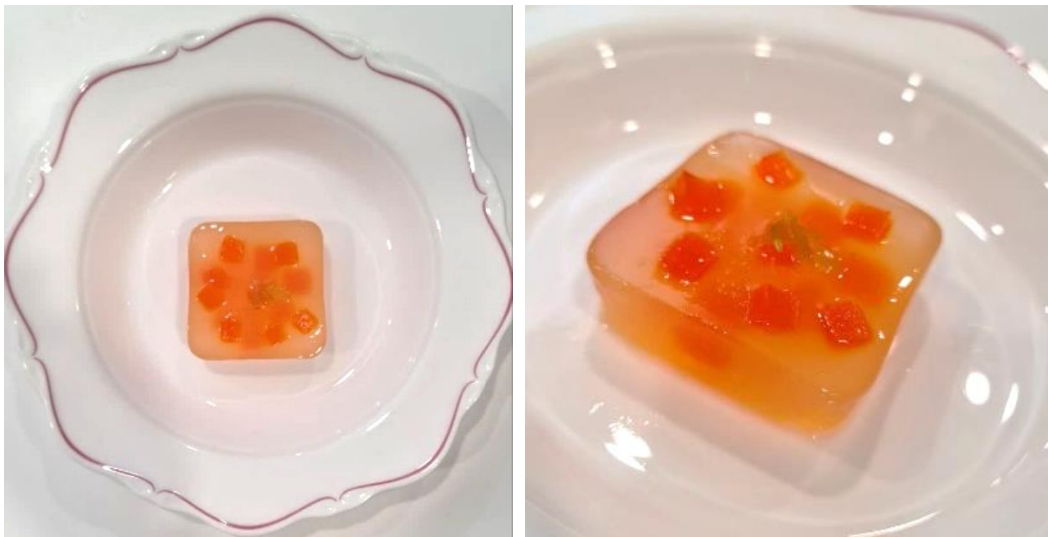


Figure 4. Final result of Standing chicken soup with carrot pieces removed from the mould.

5. Discussion

5.1. Discussion on Surimi results:

The two most important parts of the making crab meat imitation is the flavour, and the texture of the paste should be close to the real crab meat. The result of using the pea protein instead of fish protein gives the taste far from the real crab meat flavour as the pea protein has a strong flavour that is hard to mask. The gelation of surimi texture is happened from the network of my structure of the myofibrillar proteins in the fish muscle tissues (Lin et al., 2019), whereas in the plant based protein does not have this type of muscle protein. There is a study on the usage of pea protein replace partially on the myofibrillar network in surimi by using different concentration of pea protein, and the study shows that the pea protein at concentration 8% and 10% of pea protein to surimi gel increase the gel elastic strength but if increase to 15% shows decrease of gelling strength in the paste (Borderías et al., 2020). This result could link to my current recipe that has 20% of pea protein alone without the fish protein give even less to none elastic strength in the surimi paste.

In addition, regarding the usage of transglutaminase to improve on cross linking of proteins in the pea protein, there is a study on the application of the enzyme at 1% to different pea protein concentrations of 17%, 20% and 23% (MORENO et al., 2020). The result from the study shows that the concentration of pea protein at 23% has the best rheological result regarding the gel strength due to higher concentrations of protein, which is similar the current surimi recipe (20% of pea protein). However, the study also mentions that the ionic and pH are the important factor for protein-protein interactions occur as well, and the optimum condition for pea protein interaction to form a strong gel is pH 7.1 and NaCl 2.0% (w/w) (Sun & Arntfield, 2010). These important factors should have taken to account for the next surimi making to have better control factors to explain on the gelling strength of pea protein surimi.

5.2. Discussion on the final dish:

As mentioned in the result part, the main achievement of the current recipe is the good adaptation of the appearance of the soup and carrot pieces. The good gelling strength in both parts is the result from the right dosage and choice of hydrocolloid. The application dosage of gelatin leaf is typically range from 0.5 to 1% create a soft, tender gel, whereas a firmer gel is use 1 to 3 percent of gelatin (Logsdon, n.d.). In the recipe for standing soup which was formed by using 3% of gelatin also give a firm gel texture, however the gelling taste is very strong maybe due to the high concentrate of use gelatin, so the variation of the gelatin concertation should be done in the future and observe the taste and gelling strength.

The flavour and colour concentration are another important factor to influence on the imitation of the real food. There is a specific recommendation for the dosage when using the Sosa brand flavouring agent which is about 0.2% in the liquid (Sosa aroma / aromas, n.d.). The results of the flavour in the current recipe could be improve by increasing the current dosage to double amount and probable increase the savoury perception to consumer better as the flavour has a strong present. On the other hand, the current recipe batch is too small to control on the amount of the colouring application. However, for the colouring brand Mallard Ferrière, the recommendation is maximum 0.05g per kg which is equal to 0.005% in whole application (Blackcurrant Food Colouring Powder, n.d.). This can explain the bright colour of the carrot pieces outshine the topping scallion pieces as the dosage of colouring agent in current recipe is in double the recommend dosage. The common setting time for gelatin is from 2 to 4 hours at

the refrigerate temperature (How Long Does Jello Take to Set - Will It Harden in 4 Hours?, 2020). So during the layering step of the gelatin mixture for standing soup, it was done less than an hour, and the whole dish was set later in the fridge, and the final dish did not show the layering lines as the dish was not completely set during layering. For the carrot pieces using agar powder at 0.3% gave a firmer and brittle texture to the carrot pieces is due to the high quantity of the powder in the liquid as reported at (SELBY and WHISTLER, 1993) that 0.03 to 1.8% of agar is used for jelly confectionary. However, the experiment on reducing of the dosage should be done to observe if the jelly taste is reduced from the dish and remain the same brittle texture.

6. Conclusion and Recommendation

In conclusion, the overall result of Chinese Crab soup inspired dish, "Standing chicken soup with vegetable pieces" is well adapted regarding the appearance aspect of the dish, with the room for improvement on the taste and texture. However, for this hydrocolloid soup, there is an unavoidable link between these two aspects, where the jelly texture always reminds consumers to the sweet dessert taste of jelly rather than the savoury taste. So, further study on different levels of hydrocolloids should be done in the future and observe on the obtained taste and texture. In addition to this, a proper sensory evaluation should be conducted to see from more consumers point of view if the savoury jelly is acceptable as a savoury dish. On the other hand, the surimi imitation needs to be experimented more with controls factor such as pH and ionic concentration.

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Logbooks

MODULE CODE: TFCS9025

MODULE TITLE: Advanced Molecular Gastronomy

STUDENT NAME: _Chansonita EAR_____

FOOD PRODUCT: ___Standing soup and vegetable cubes_____

WEEK NO.: _1_____

DATE: _28/Mar/2022___

Weekly Aims and Objectives

Objective: To make chicken meat alternative from protein powder and observe the texture.

Materials and Method (Ingredients, Equipment and Method)

- Ingredients: in 1kg batch

1. Batch 1

Ingredients	Quantity (%)	Quantity (g)
Water	79%	790g
Pea protein	20%	200g
Transglutaminase	1% of protein	2g
Corn starch	-	-
Chicken flavour	<0.1%	< 10g
Salt	< 0.1%	< 10g
Sugar	< 0.1%	< 10g

2. Batch 2

Ingredients	Quantity (%)	Quantity (g)
Water	69%	690g
Pea protein	20%	200g
Transglutaminase	1% of protein	2g
Corn starch	10%	100g
Fish flavour	<0.1%	< 10g
Salt	< 0.1%	< 10g
Sugar	< 0.1%	< 10g

- Equipment:

- Scale/ microscale
- Thermometer
- Pots, whisker, Oven
- Mould plate
- Refrigerator

- Method:

- Weight all ingredients and mix well
- Pour mixture into cube mould plate and keep in the refrigerator at least 4h
- Steam in a pot for 20min at 80°C degree

Results and discussion

Batch 1

Observation	Discussion
Appearance: yellow colour, dough like appearance	colour of pea protein powder appears in the dough
Texture: to be observed next week	Transglutaminases need time to be set

Batch 2

Observation	Discussion
Appearance: white colour, dough like appearance	corn starch gives more white colour to the dough
Texture: to be observed next week	Transglutaminases need time to be set

Conclusions

- To be observed in the following on the texture of the fish meat dough

Recommendations for following week.

- Pea protein has strong taste and flavour. If the dough is not giving the desired taste and texture, the recipe should be changed.
- Develop soup from hydrocolloid.

Ingredients required for the following weeks.

Ingredients	Quantity
Gelatine sheet	15g
Chicken flavour	< 1g
Chicken powder	5g
Salt	< 2g
Sugar	< 2g

WEEK NO.: 2

DATE: 01/Apr/2022

Weekly Aims and Objectives

Objective: To make chicken soup from hydrocolloid and observe chicken meat alternative from previous week.

Materials and Method (Ingredients, Equipment and Method)

- Ingredients: in 0.5kg batch

Ingredients	Quantity (g)
Water	500g
Gelatine sheet	15g
Chicken flavour	< 1g
Chicken powder	5g
Salt	< 2g
Sugar	< 2g

- Equipment:
 - Scale/ microscale
 - Thermometer
 - Pots, whisker, and oven
 - Mould plate
 - Refrigerator
- Method:
 - Put gelatine sheet 15g into cold water for 5 minutes
 - Warm 500g of water to reach 50 °C
 - Dissolve soaked gelatine in the warm water and add chicken powder, salt, sugar
 - Pour the mixture in the mould plate and keep in the fridge for 2 hours
- Method for crab meat alternative:
 - Steam the dough for 20min at 80 °C

Results and discussion

1. Batch 1 of crab meat alternative

Observation	Discussion
Appearance: yellow colour, dough like appearance	colour of pea protein powder appear in the dough
Texture: very tender dough and powder	the texture does not represent chicken texture at all, due to pea protein dominant in globulin, albumin, prolamin, and glutelin which provides powdery texture.

2. Batch 2 of crab meat alternative

Observation	Discussion
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Appearance: white colour, dough like appearance	corn starch gives more white colour to the dough
Texture: very tender, less powder compared to batch 1	Corn starch absorb water but also help to link the proteins that are not combined by transglutaminase and make the texture less powdery.

3. Chicken soup from hydrocolloid

Observation	Discussion
Appearance: clear soup, and free-standing gel	Gelatine in flavoured water does not change the colour of the water due to its cleared and tasteless appearance
Texture: firmed standing gel, easy to break, but not fragile	Gelatine is a firmed gelling agent
Taste: chicken soup like taste, but jelly after taste	Chicken powder combined with chicken flavour provide good imitation taste to the chicken soup

Conclusions

- Gelatine is a good gelling agent at 3% dosage, gives firmed gel formation of the liquid.
- Flavour combination with the savoury ingredients provide better imitation to the real soup, with dosage 1%

Recommendations for following week.

- Try vegetable cube pieces and put in the clear gel soup.

Ingredients required for the following weeks.

Ingredients	Quantity (g)
Water	500g
Gelatine sheet	15g
Chicken flavour	< 1g
Carrot flavour	< 1g
Chicken powder	5g
Salt	< 2g
Sugar	< 2g
Agar agar	15g
Orange colour	< 1g

WEEK NO.: 3

DATE: 04/Apr/2022

Weekly Aims and Objectives

Objective: To make carrot pieces from hydrocolloid.

Materials and Method (Ingredients, Equipment and Method)

- Ingredients: in 0.1kg batch

Ingredients	Quantity (g)
Water	100 ml
Carrot flavour	< 1g
Salt	< 2g
Sugar	< 2g
Agar agar	0.3g
Orange colour	< 1g
Inulin powder	6 g

- Equipment:
 - Scale/ microscale
 - Thermometer
 - Pots, whisker, and oven
 - Cube mould plate
 - Refrigerator
- Method:
 - Boil 100ml of water and put 15 g of agar agar powder and inulin powder into the boiled water.
 - Removed the mixture from the heat and add salt and sugar, color, and carrot flavour.
 - Mix well and pour into the cube mould plate
 - Wait 10 minutes or until the mixture is set, cut them into small pieces

Results and discussion

Observation	Discussion
Appearance: smooth and shining orange pieces	does look like chopped carrot pieces due to the colour and smell are adopted well.
Taste: carrot jelly	Jelly taste is due to the texture as well. The soft and cold texture of the agar agar remind to jelly rather than crunchiness of real carrot pieces.
Texture: firmed gel, not fragile	Agar agar normally can set gel to the liquid from 1%, Dosage at 0.3% give even firmer gel to the set liquid.

Conclusions

- Appearance of the set gel, and colour is like the real chopped carrot pieces. However, the shine reflection of the pieces should be improved.
- The taste of the pieces does not remind consumers to the carrot pieces but carrot jelly. This is due to high dosage of agar agar powder.

Recommendations for following week.

- Adding the hydrocolloid carrot pieces into the standing soup from previous week and observed the appearance and the taste perceptions of the whole dish.

Ingredients required for the following 2 weeks.

Ingredients	Quantity (g)
Water	600g
Gelatine sheet	15g
Chicken flavour	< 1g
Carrot flavour	< 1g
Chicken powder	5g
Salt	< 2g
Sugar	< 2g
Agar agar	0.3g
Orange colour	< 1g

WEEK NO.: 4

DATE: 27/Apr/2022

Weekly Aims and Objectives

Objective: To add carrot pieces from previous week in to the soup, and make the whole dish of standing chicken soup and carrot pieces.

Materials and Method (Ingredients, Equipment and Method)

- Ingredients: in 0.1kg batch

Ingredients	Quantity (g)
Water	600g
Gelatine sheet	15g
Chicken flavour	< 1g
Carrot flavour	< 1g
Chicken powder	5g
Salt	< 2g
Sugar	< 2g
Agar agar	0.3g
Orange colour	< 1g
Inulin powder	6g

- Equipment:
 - Scale/ microscale
 - Thermometer
 - Pots, whisker, and oven
 - Cube mould plates
 - Refrigerator
- Method:
 3. carrot cube pieces
 - Boil 100ml of water and put 15 g of agar agar powder and inulin powder into the boiled water.
 - Removed the mixture form the heat and add salt and sugar, color, and carrot flavour.
 - Mix well and pour into the cube mould plat
 - Wait 10 minutes or until the mixture is set, cut them into small pieces
 4. Chicken soup with carrot pieces
 - Put gelatine sheet 15g into cold water for 5 minutes
 - Warm 500g of water to reach 50 °C
 - Dissolve soaked gelatine in the warm water and add chicken powder, salt, sugar
 - Pour the mixture in the bottom of cube mould plate, add a few pieces of carrot, and keep in the fridge for 15 minutes.
 - Pour another layer of the mixture in the bottom of cube mould plate, add a few pieces of carrot, and keep in the fridge for 15 minutes. Repeat the step one more time for the final layer.
 - Keep in the fridge to be set for an hour.

Results and discussion

Observation	Discussion
Appearance: Clear standing soup with pieces of carrot floating inside	Layer technic when setting gelatine soup makes the carrot pieces floating in the standing soup, not just at the bottom of the soup.
Taste: Savoury jelly taste of chicken soup and carrot.	Jelly texture remind consumer more to the dessert or sweet dishes rather than savoury dish, despite having the similar flavour and taste.
Texture: Soft but firmed gel	Gelatine give softer gelation whereas agar agar give firmer gelation to the liquid which represents firmer carrot pieces compare to the body of the soup.

Conclusions

- The appearance of the standing soup is represented well of the intended dish that has the soup body clear and carrot pieces floating inside.
- The taste of the dish is not yet good as consumer is remind strongly to the jelly taste which is hard to change to savoury dish taste.
- The texture is good for the appearance as the choice of hydrocolloids gives good gelation, however they did not convey the savoury taste well for the dish is for.

Recommendations

- Improvement on the texture of the dish by adding more starchy material into the soup and carrot pieces.