



Note by Note Cooking Assignment Report on “The Jiffy Delight”



Subject:- Advanced Molecular Gastronomy TFCS9025:2022-23

Submitted by:- Devanshi Sharma (D22126830)

Submitted to:- Professor Roisin Burke and Pauline Danaher



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Introduction:-

Molecular gastronomy is a scientific discipline that looks for the mechanisms of phenomena occurring during dish preparation and consumption.(This, 2013).

Since its initial definition, Molecular Gastronomy has expanded to include activities ranging from the description and careful analysis of very conventional cooking and food preparation methods to the application of scientific principles for the creation of amazing new dishes and food products. For instance, is the use of ingredient science to create foams, gels, and other food textures.

This discipline was proposed mainly to
a suggestion for a new molecular gastronomy program:

1. to investigate 'culinary definitions' scientifically;
2. to gather and evaluate technical supplementary information;
3. to do scientific research on the artistic side of cooking;
4. to do scientific research on the social component of cooking (This, 2013)

The ability to modify and tailor the texture and look of food has gained attention thanks to developments in food science and technology and the popularization of "molecular gastronomy" or "molecular cuisine." This "molecular" approach has recently expanded to include the utilization of components, procedures, and tools commonly found in scientific labs. Less and less often, chefs and scientists are developing recipes and foods with strong sensory appeal in novel shapes, textures, and flavor combinations. These dishes and the associated approaches offer a special chance to interact with and instruct students on fundamental ideas and complex concepts in chemistry and biochemistry.(Das, 2013)

Note by Note cooking is an application of Molecular Gastronomy. It was first proposed in 1994 by French Physical Chemist and Molecular Gastronomy Co-founder, Hervé This. (Burke and Danaher,.)

Note-by-note cooking promises to add unadulterated nutritional value to dishes of all kinds, actually improving upon the health benefits of so-called natural foods. Cooking with molecular compounds will be far more energy efficient and environmentally sustainable than traditional techniques of cooking . This (2014)

Making a dish that can deal with food waste was the focus of this year's Note by Note cooking program.

Pudding is heavily consumed in Ireland and is a popular dessert. A prepared pudding can last for as long as a week in the refrigerator but still it can undergo some undesirable textural and sensory changes.

The idea for experimentation was to prepare a instant pudding mix which will help in reducing the waste of puddings which are prepared but not sold at restaurants and cafes.

The main element of this dish is the Pudding premix which is prepared by using only 3 ingredients and this mix can be stored for up to 6 months and used to prepare puddings whenever required in less than 10 minutes. The photos are for serving recommendations and the original element is in a powder form .Other elements used can also be prepared in quick time and served with the pudding .

Aims of Experiment:-

The Note by Note cooking aims to create dishes sustainably and this year's theme was to create a dish that can justify this aim I.e a dish which can help in reducing Food waste.

I aimed to make a dish which can be made using minimum ingredients, minimum processing in less time. My basic idea was to prepare

“An instant pudding premix from pure compounds that can be used to make a pudding in under fifteen minutes and served when necessary along-with additional elements which can elevate its taste, balance the flavour, and compliment the visuals.”

Before we began the trials of our dishes we had few weeks of training in the lab with Professor Roisin Burke and Chef Pauline Danaher, who demonstrated us the various techniques like gellification, spherification (basic and reverse), emulsion formations, foam formations and use of liquid nitrogen that are commonly used in molecular gastronomy.

As Note by Note is a branch of molecular gastronomy I aimed to use some of these techniques to create my own dish.

Materials and Methods:-

There were total 3 elements for the presentation of the dish.

A vanilla pudding:- The major element of the dish in a square form.

A molten chocolate base:- To complement the flavour of the vanilla pudding and adding a contrast colour to the plate in a line form.

Watermelon spheres:- Prepared by reverse spherification process to counterfeit the sweetness of chocolate and vanilla and give a burst of refreshing taste in mouth and a pop of colour in plate and in spheres were completing the shapes.

Equipment required:- Mixing bowls, Digital weighing scales (0.01g-500g), cubical metal mold, refrigerator, metal tray, whisks, hand blender, blast freezer.

Element 1:- Vanilla Pudding

Sr No	Ingredients	Quantity	For final element in dish (1 serve)
1.	Sugar	85.6g	15.40g
2.	Corn flour (gem)	8g	1.44
3.	Agar-Agar (Sosa)	6g	1.08
4.	Vanilla Flavor (liquid, lightly colored)	0.4ml	0.072

5.	Gel color Yellow (Powder color was not available)	0.02g	-
6.	Total	100g	18g

Element 2:- Chocolate Base

Sr No	Ingredients	Quantity
1.	Water	20ml
2.	Cocoa Butter	40g
3.	Cocoa powder (80% dark chocolate)	25g
4.	Sugar	15g
5.	Total	100g

Element 3:- Watermelon Spheres prepared by reverse spherification

Sr No	Ingredients	Quantity
1.	Water	535 ml
2.	Calcium Lactate	2.5g
3.	Sodium Alginate	2g
4.	Xanthan Gum	3g
5.	Flavour (Sosa Watermelon)	0.5ml

6.	Color (Gel Red)	0.02g
7.	Total	543.02g

Method for pudding :-

- 1) Weigh all the ingredients as required using digital weighing scales.
- 2) For pudding premix, mix all the ingredients in a mixing bowl and store.
- 3) Measure 18g of premix and add it to 100 ml of milk and stir with a whisk until milk comes to boil.
- 4) Boiling of milk is necessary to activate Agar-Agar.
- 5) Pour the mixture in a square metal mold and place in refrigerator at 15°C for 6 minutes to set the pudding.
- 6) After 6 minutes the pudding should leave the sides of the mold automatically, if its not case freeze it further until it is firm enough to retain the shape.
- 7) Demold the pudding carefully from the mold and place it on the left side of the corner about 1 inch away from the border of the plate.
- 8) Note:- Demold the pudding only after the chocolate base is already presented on the plate.

Method for Chocolate base :-

- 1) Weigh all the ingredients.
- 2) Prepare a double boiler by filling a big pot with about 450ml of water and put one more pot on top of it with cocoa butter to melt the butter.
- 3) Do not melt cocoa butter directly or else it may get burned or get a burnt flavour.
- 4) Keep stirring the cocoa butter to prevent it burning from sides and let it melt completely.
- 5) Add cocoa powder slowly and while whisking to avoid any lump formations.
- 6) Add sugar to reduce the bitterness as cocoa powder at 80% is a little bitter.
- 7) Add water to make the chocolate at flowing consistency and continue to whisk.
- 8) Prepare a smooth mixture and let it cool upto 25°C until a consistency where you can brush it on plate.

- 9) It is important to cool the chocolate or else it will melt the pudding in the plate.
- 10) Using a silicone brush draw a line across the plate with chocolate.
- 11) Place the pudding in center of this line at corner of plate.
- 12) Freeze the remaining chocolate and take a half moon shape of it and place it on top of the pudding for increasing the chocolate content and visual appeal of the dish.

Method of Watermelon spheres:-

- 1) Weigh all the ingredients.
- 2) In a tall and wide utensil add water, calcium lactate, color, and watermelon flavor.
- 3) Blend using a hand blender for about 2 minutes and add xanthan gum to thicken the liquid.
- 4) Blend all the ingredients using hand blender once again for about 1 minute and let it rest for 10 minutes to eliminate the bubbles.
- 5) In another big pot take 475 ml of water, add sodium alginate to it and blend using a hand blender.
- 6) Pour the mixture from step 4 into sodium alginate bath using a spoon for 4 minutes to get the spheres.
- 7) Use a slotted spoon to take out the spheres from the bath and rinse in a pot of clean water.
- 8) Place the spheres on the plate besides the pudding to complete the presentation of the dish.

Results:-

After 3 weeks of experimental trials using different ingredients and techniques I was able to prepare my dish “The Jiffy Delight” which has all 3 elements on it.

Plating

The plate presented was geometrically designed and had used the techniques of reverse spherification and gellification for preparation of elements.

For the geometry of the plate 3 shapes were used, Cube for the pudding, spheres of watermelon, and a rectangular line for the base and a half moon shape chocolate piece

on top for contrasting colors as we had brown at bottom so we needed a color on top as well and for adding a height to the dish.

The slight yellow of vanilla pudding gives it the sensation of natural vanilla color and the cube shape describes the novelty of the technique as most of puddings are round in shape.

I used a white round plate for presentation so that brown chocolate colour could pop out on it.

The slight tinge of yellow was complementing the brown.

The red colour from spheres were the highlight and the half moon shape chocolate piece on the top of pudding was adding more volume to the dish.

The dish is supposed to be consumed as one bite of pudding with molten chocolate base and then a sphere to balance the taste.

Textures

The pudding has the smooth, and shiny surface texture and a clear cut was observed when it was cut.

The color was going well with the other elements and shape was retained after a fair amount of time (20 minutes) after taking out from the fridge.

The mouthfeel was smooth and the pudding was melting in mouth and the flavour was released slowly.

When consuming with chocolate base, the first dominating taste was of chocolate and then the sweetness of pudding takes over and vanilla flavour is released in the end of bite. The watermelon spheres gives a burst of freshness in the mouth and very subtly balances the sweet taste of the pudding.

The chocolate line at bottom had a very flowing and smooth texture but got hard and grainy after it is dried., therefore it was important to have the chocolate consistency correct to get the desired taste. The chocolate in half moon shape had smooth texture but it was solid and was crunchy when biting.

The spheres were wobbly, they were not as visually appealing as I would have liked them to be. There was not enough strength and they were not able to retain their shape properly after they were taken out from sodium alginate bath.

The spheres were not in proper shape and were difficult to plate. The taste and mouthfeel was acceptable as flavor of watermelon was very nice and was balancing the other flavors very well. However, the appearance did not come off as it was conceptualized.



The Jiffy Delight



Discussion:-

Techniques

This dish included 2 major techniques used widely in Molecular gastronomy that is Gellification and Reverse spherification.

For the vanilla pudding,

we used the Agar-Agar as a gelling agent to set the pudding. This hydro-colloid is primarily used for its gelling properties. Gel strength comes from the composition of *Agarose* which is about 70% of total weight and provides the gelling power and is free of sulfates. (Han, 2019)

Agaropectin is the non-gelling fraction, a charged sulfated polysaccharide that will influence solution properties, gel strength and gel features. (Han, 2019)

Heat is required to make agar completely soluble and the solution will gel upon cooling.

1% agar solution solidifies at 32 ~ 42 °C, its gel has elasticity, and its melting point is 80 ~ 96 °C. When compared with gelatin gels, it is tasteless, odorless, and sets more firmly, even at room temperature. Gelatin gels melt around 35-40 °C.

The reason we choose Agar-Agar instead of Gelatin was that Agar-Agar is a vegetarian form and can be consumed by vegetarian people and also since its melting point is high, the pudding can be served even in hotter temperatures without melting.

Agar Agar (E 406) is authorized as a food additive in the European Union (EU) in accordance with Annex II and Annex III to Regulation (EC) No 1333/2008 on food additives and categorized as “additives other than colour and sweeteners” (Han, 2019)

For pudding we used both corn flour and agar-agar as it was important to maintain the texture, if we use only Agar-Agar then the pudding would have been a complete gel but we wanted it to be a little soft and give that creamy texture. Corn flour does binding by using starch which also helped in thickening of the product and binding the whole shape of the pudding.

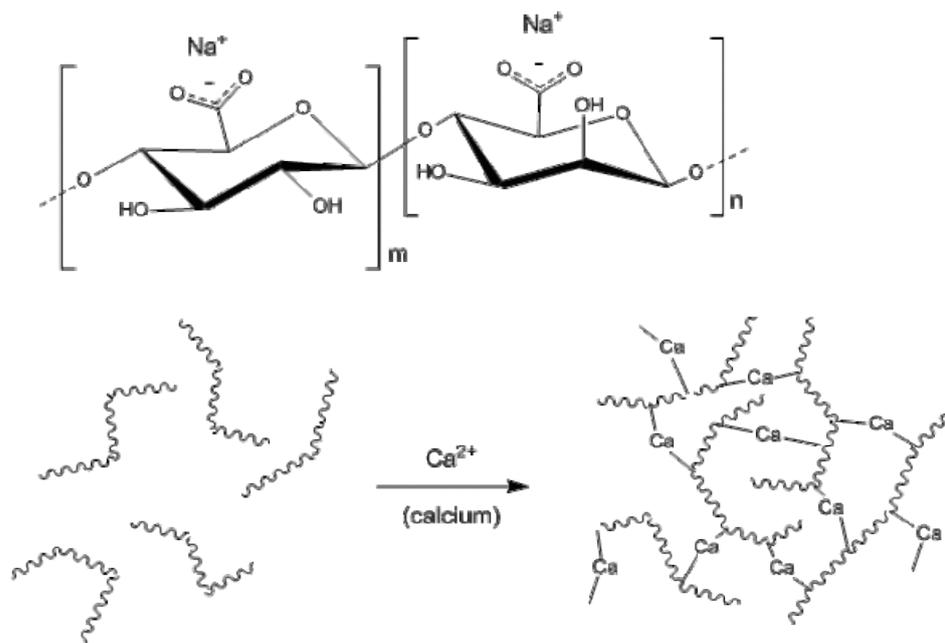
Xanthan Gum:- Xanthan gum is a food additive produced by feeding *Xanthomonas campestris* bacterium strains a solution of glucose and is derived from corn, soy, dairy, or wheat. It is used as a thickener, stabilizer, and emulsifier. The sugary solution is fermented by the bacteria, which creates a protective coating that is sticky and useful for binding and thickening. (Torrens, 2022).

Xanthan gum is an approved food additive (E415) in the European Union (EU) in accordance with Annex II and Annex III to Regulation (EC) No 1333/2008 on food additives and is considered safe for the general population, including infants (over the age of 12 weeks) and young children when consumed at levels used by the food industry.

Xanthan gum was used for thickening the solution of watermelon liquid as we only used water and the outer layer will not be formed.

Reverse spherification;-

The process of Reverse spherification is much more diverse and can be used to make spheres of almost all the liquids. In this process, a gel wall forms around the food as a result of a chemical interaction between calcium and the gum derived from algae known as alginate. Practically, this is accomplished by carefully pouring a calcium salt and flavorful liquid base into a sodium alginate bath. Surface tension shapes the liquid drop into a sphere, and the chemical reaction creates an outer layer to form all around it. (sciencescholars2018, 2017). The spheres will have a thicker membrane which is great for plating, however it does result in an added texture of a solid jelly membrane.(kitchentherdev, 2023)



In reverse spherification, the sodium ions from in the sodium alginate are switched with calcium ions. This changes the chemical structure and properties of the molecules. (sciencescholars2018, 2017)

For our spheres I have observed that they were very low in strength and the shape was not retaining, possible reasons for this could be

Low level of calcium lactate in the solution. I used 2.5g of calcium lactate, probably it was too low to form the spheres.

I had to increase the amount of calcium lactate or probably adding calcium gluconate in the solution would have helped but I didn't had the time for another trial, so the spheres were left as they were.

Presentation

A subtle colour scheme of yellow, red and brown was chosen for presenting the elements. All the colors represented the respective flavour of the element

Yellow for the original vanilla flavour, Brown for the chocolate and red for the watermelon flavor.

The colors complimented each other very well on the dish.

A special element of half moon shape of chocolate was added to the top of pudding because that shape symbolizes optimism and hope and since this dish is prepared by Note by Note cooking which is fairly a new technique I wanted to give hopes and optimism to the dish and this technique by using this symbol.

Conclusion:-

Two elements of the dish were created successfully and the recipe for the instant pudding premix can be finalized and used. However, the watermelon spheres which were to be made using reverse spherification method didn't turned out as desired and there is need of more research and trials to make that element properly.

The dish was curated carefully taking into account the theme of the assignment and an instant pudding premix was prepared which can be stored for up to 6 months and can help in reducing the food waste as restaurants can use this premix whenever there is a order and it will take less than 15 minutes to prepare it along with all the elements. So there is no need for them to prepare the puddings in advance. The dish preparation uses gelling and reverse spherification techniques and the geometrical plating and use

of different shapes symbolizes hope and optimism for the novel Note by Note method of cooking.

I was a little upset about the spheres not turning out well but I overall enjoyed the process of the experiment and the learning.

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Log books

WEEK NO.: 01

DATE: 20/03/2023

Weekly Aims and Objectives

This is the first week and aim of the experiment of this week is to test the recipe of a basic vanilla flavored pudding and making a transparent sheet using and xanthan gum mixture.

The goal of testing this recipe is to determine its viability because vanilla pudding will make up the majority of our dish and we need to ensure that its flavor, shape, and texture are preserved. The transparent sheet will be used as a supplemental ingredient to add flavor and aesthetic appeal to the entire dish. Only 2 elements are being evaluated this week.

Materials and Method

Equipment required:- Mixing bowls, Digital weighing scales (0.01g-500g), round bowl, refrigerator, metal tray, whisks, hand blender.

Element 1:- Vanilla pudding

Sr. No.	Ingredients	Quantity	For final element in dish (1 serve)
1.	Sugar	85.6g	15.40g
2.	Corn Starch	8g	1.44
3.	K- Carrageenan	6g	1.08
4.	Vanilla Flavor (liquid, colored)	0.4ml	0.072
5.	Total	100g	18g

For 1 week no color was added and the objective was to test the recipe only and to see if the pudding is setting or not.

Element-2 Transparent Sheet

Sr No	Ingredients	Quantity	Percentage
1.	Water	200ml	95.2%
2.	Xanthan Gum	1.2g	0.57%
3.	Agar-Agar	8g	3.80%
4.	Flavour Citrus	0.8ml	0.38%
5.	Total	210g	100

Method for pudding :-

1. Weigh all the ingredients as required using digital weighing scales.
2. For pudding premix, mix all the ingredients in a mixing bowl and store.

3. Measure 18g of premix and add it to 100 ml of milk to stir until milk comes to boil.
4. Boiling of milk is necessary to activate K- Carrageenan.
5. Pour the mixture in a round bowl and place in refrigerator at 15°C for 6 minutes to set the pudding
6. Demould the pudding and serve with other elements.

Method for transparent Sheet:-

- 1) Weigh all the ingredients using digital weighing scale except flavour.
- 2) Take water, agar-agar and xanthan gum in a tall and wide utensil, add 3 drops of flavour to it using a dropper and blend using a hand blender for about 3 minutes. Make sure to use a blender for this step as these ingredients will not mix properly by hand.
- 3) Transfer the mixture to a small pot and bring to boil (to activate agar-agar) while constantly stirring with a whisk.
- 4) Strain it through a cheese cloth or a strainer to eliminate the bubbles. If there are bubbles then the sheet will not set properly.
- 5) Spread the mixture on a metal tray and put it in the refrigerator at 22°C for 10 minutes to set.
- 6) Take out the tray from the fridge and cut the sheet in round shape using a mould or a knife.

Results and discussion

The pudding was set perfectly and was easy to demould from the bowl.

It had a clear, smooth and shiny surface and retained its shape after demolding.

After cutting a clear cut was observed which indicated that the texture is perfect and the pudding was set as desired.

The flavour of the vanilla was a little mild and needed to be increased. Also the pudding was not melting in mouth as I desired it to be so the mouthfeel as to be improved. It was perceived as different pieces in mouth instead of a one bite.

For transparent sheet, it was set too early before I could spread it evenly on the tray which resulted in uneven thickness of the sheet. Also the strength of sheet was very low and it was breaking when I tried to cut it out of the tray. Therefore, The

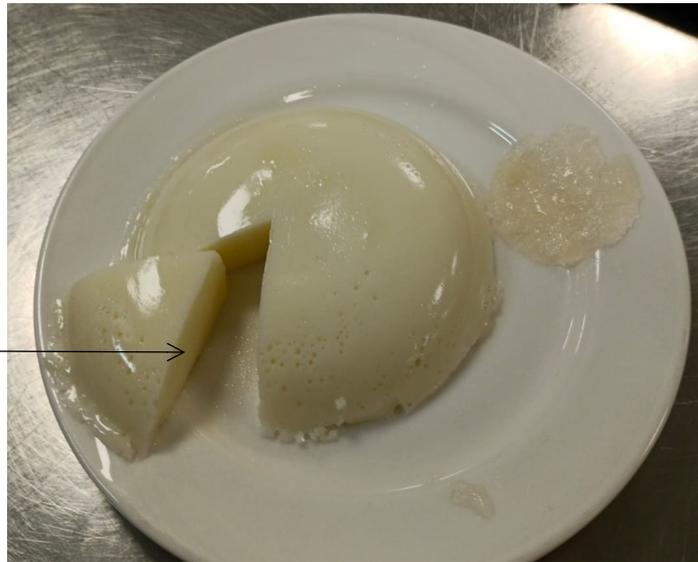
formulation of the sheet has to be changed. Also the flavour of sheet was unacceptable.

Changes in composition of agar-agar and Xanthan has to be done to manage the setting time and the strength of the sheet.



The transparent sheet didn't retained shape and was very weak

Clear, smooth and shiny surface texture of pudding



Clear cut was observed

Sensory Analysis:- The taste and flavour of pudding was very mild and needed to be increased. Also the mouthfeel of pudding was needed to be improved.

The taste of transparent sheet was not acceptable and needed to improve.

Conclusions:-

The pudding premix worked well when added to milk the pudding was set under 15 minutes and had a desirable surface texture and appearance but mouthfeel needed to be improved and transparent sheet didn't workout as required and changes are needed to be made in its composition

Recommendations for following week.

Carry out a trial using different gelling agent instead of K- Carrageenan to improve the mouthfeel and addition of colors to enhance the appearance of the pudding.

Try adding other elements with more flavors and colors.

WEEK NO.: 02

DATE: 27/03/2023

Not available in the lab due to severe sickness.

WEEK NO.: 03

DATE: 17/03/2023

Weekly Aims and Objectives

This is the second week of experiment for me and aim of the experiment of this week is to test the recipe of a basic vanilla flavored pudding using Agar-Agar instead of K-Carrageenan and prepare the recipe in note by note milk and make spheres of watermelon flavor.

The goal of testing this recipe is to determine the changes that occur in texture of the vanilla pudding and to see if I can add note by note milk into the premix to make it a complete powder. Watermelon spheres are being used in place of transparent sheet last week to give more colour and flavour to the dish.

Materials and Method

Equipment required:- Mixing bowls, Digital weighing scales (0.01g-500g), round bowl, refrigerator, metal tray, whisks, hand blender.

Element 1:- Vanilla pudding

Sr. No.	Ingredients	Quantity	For final element in dish (1 serve)
1.	Sugar	85.6g	15.40g
2.	Corn Starch	8g	1.44
3.	Agar-Agar	6g	1.08
4.	Vanilla Flavor (liquid, colored)	0.4ml	0.072
5.	Total	100g	18g

For week 3 no color was added and the objective was to test the recipe and the difference in the texture of the pudding.

Element-2 Note by note milk

Sr No	Ingredients	Quantity
1.	Water	87 ml
2.	Whey Protein	3g
3.	Casein	5g
4.	Lactose	5g
5.	Total	100ml

Element 3:- Watermelon Spheres prepared by reverse spherification

Sr No	Ingredients	Quantity
1.	Water	535 ml

2.	Calcium Lactate	2.5g
3.	Sodium Alginate	2g
5.	Flavour (Sosa Watermelon)	0.5ml
6.	Color (Gel Red)	0.02g
7.	Total	543.02g

Method for Note by Note Milk-

- 1) Weigh all the ingredients.
- 2) Mix well in a big pot using hand blender.

Method for pudding :-

1. Weigh all the ingredients as required using digital weighing scales.
2. For pudding premix, mix all the ingredients in a mixing bowl and store.
3. Measure 18g of premix and add it to 100 ml of note by note milk. to stir until milk comes to boil.
4. Boiling of milk is necessary to activate Agar-Agar.
5. Pour the mixture in a silicone mold and place in refrigerator at 15°C for 6 minutes to set the pudding
6. Demold the pudding and serve with other elements.

Method for watermelon spheres -

7. Weigh all the ingredients.
8. In a tall and wide utensil add water, calcium lactate, color, and watermelon flavor.
9. Blend using a hand blender for about 2 minutes.
10. Blend all the ingredients using hand blender once again for about 1 minute and let it rest for 10 minutes to eliminate the bubbles.
11. In another big pot take 475 ml of water, add sodium alginate to it and blend using a hand blender.

12. Pour the mixture from step 4 into sodium alginate bath using a spoon for 4 minutes to get the spheres.
13. Use a slotted spoon to take out the spheres from the bath and rinse in a pot of clean water.
14. Place the spheres on the center of the plate.

Results and discussion

The pudding was set perfectly and was easy to demold from the silicone molds..

It had a clear, smooth surface and retained its shape after demolding..

The flavour of the vanilla was a little mild and the note by note milk had its own bitterness to the pudding. The pudding was more like a hard gel.

For the spheres they were very weak and not properly set. The color was also not red instead an orange shade was observed, the flavor of watermelon was strong.

Thickening of liquid was required to get the spheres. An additional element is also required to complete the dish and to complement these two flavour.



Spheres started to melt in the plate

Pudding converted to a solid gel when made in NBN ...

The spheres were not retaining the shape

Plate of week 3

Sensory Analysis:- The taste and flavour of pudding was good but it had a hard gel like texture and the milk was having a little bitter aftertaste.

The spheres could not retain shape and needed to be improved.

Conclusions:-

The pudding premix worked well with the note by note milk but adding these ingredients in premix will increase the price of the premix and also the it will be easier to prepare the premix in the milk itself rather than making a milk. Also the flavor obtained from watermelon spheres was good it balanced the sweetness of the pudding but the color and shape were not acceptable and needed to be improved. A lot of improvement in shapes of elements and plating is required.

WEEK NO.: 04

DATE: 21/03/2023

Weekly Aims and Objectives

This is the final week of class and today is the final presentation the dish. The aim of this week to prepare all the elements of the dish and plate it for presentation.

The objective of this week was to take one more trial on the watermelon spheres and addition of molten chocolate base for increasing the flavour profile and the visual appeal of the final dish. It was decided to make the pudding premix in the milk and to replace K- Carrageenan with Agar-Agar in the final recipe.

Materials and Method

Equipment required:- Mixing bowls, Digital weighing scales (0.01g-500g), cubical metal mold, refrigerator, metal tray, whisks, hand blender.

Element 1:- Vanilla pudding (Same as last week)

Sr. No.	Ingredients	Quantity	For final element in dish (1 serve)
1.	Sugar	85.6g	15.40g
2.	Corn Starch	8g	1.44

3.	Agar-Agar	6g	1.08
4.	Vanilla Flavor (liquid, colored)	0.4ml	0.072
5.	Yellow color (Gel)	0.02g	-
6.	Total	100g	18g

For final week I added gel yellow color to provide the authentic vanilla color to the pudding. I intended to use powder colour as I was preparing the premix but since they were not available I added gel colour to the premix.

Element-2 Molten chocolate base

Sr No	Ingredients	Quantity
1.	Water	20ml
2.	Cocoa Butter	40g
3.	Cocoa powder (80% dark chocolate)	25g
4.	Sugar	15g
5.	Total	100g

Element 3:- Watermelon Spheres prepared by reverse spherification

Sr No	Ingredients	Quantity
1.	Water	535 ml
2.	Calcium Lactate	2.5g
3.	Sodium Alginate	2g
4.	Xanthan Gum	3g
5.	Flavour (Sosa Watermelon)	0.5ml
6.	Color (Gel Red)	0.02g
7.	Total	543.02g

Method for pudding :-

1. Weigh all the ingredients as required using digital weighing scales.
2. For pudding premix, mix all the ingredients in a mixing bowl and store.
3. Measure 18g of premix and add it to 100 ml of note by note milk. to stir until milk comes to boil.
4. Boiling of milk is necessary to activate Agar-Agar.
5. Pour the mixture in a silicone mold and place in refrigerator at 15°C for 6 minutes to set the pudding
6. Demold the pudding and serve with other elements.

Method for Chocolate base :-

7. Weigh all the ingredients.
8. Prepare a double boiler by filling a big pot with about 450ml of water and put one more pot on top of it with cocoa butter to melt the butter.
9. Do not melt cocoa butter directly or else it may get burned or get a burnt flavour.
10. Keep stirring the cocoa butter to prevent it burning from sides and let it melt completely.
11. Add cocoa powder slowly and while whisking to avoid any lump formations.

12. Add sugar to reduce the bitterness as cocoa powder at 80% is a little bitter.
13. Add water to make the chocolate at flowing consistency and continue to whisk.
14. Prepare a smooth mixture and let it cool upto 25°C until a consistency where you can brush it on plate.
15. It is important to cool the chocolate or else it will melt the pudding in the plate.
16. Using a silicone brush draw a line across the plate with chocolate.
17. Place the pudding in center of this line at corner of plate.
18. Freeze the remaining chocolate and take a half moon shape of it and place it on top of the pudding for increasing the chocolate content and visual appeal of the dish.

Method for watermelon spheres -

19. Weigh all the ingredients.
20. In a tall and wide utensil add water, calcium lactate, color, and watermelon flavor.
21. Blend using a hand blender for about 2 minutes and add xanthan gum and blend again for 1 minute to thicken the liquid.
22. Let it rest for 10 minutes to eliminate the bubbles.
23. In another big pot take 475 ml of water, add sodium alginate to it and blend using a hand blender.
24. Pour the mixture from step 4 into sodium alginate bath using a spoon for 4 minutes to get the spheres.
25. Use a slotted spoon to take out the spheres from the bath and rinse in a pot of clean water.
26. Place the spheres on the center of the plate.

Results and discussion

The pudding was not setting earlier in the fridge then I had to put it in blast freezer at -22°C for 10 min for it to set, then it was set perfectly and was easy to demold from the metal mold.

It had a clear, smooth and shiny surface and retained its shape after demolding.

The texture of pudding was soft gel and melting in the mouth.

For the spheres were still not properly set even after thickening the liquid using Xanthan Gum.

The chocolate base acted as an additional element and worked wonderfully with the other two elements and gave the completeness to the plate.

Conclusions:-

Overall dish presented was better than I have imagined it to be, it looked and tasted wonderful.

Appendices:-

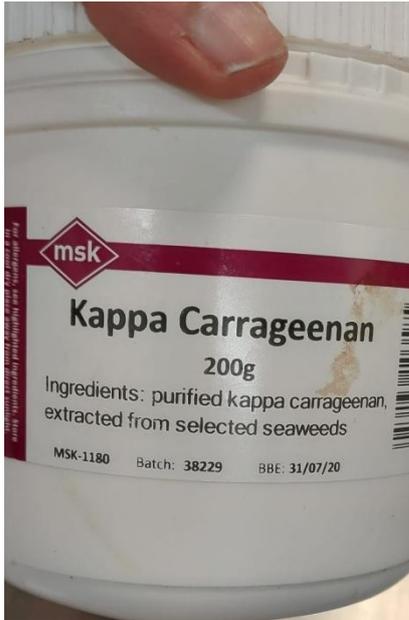
Images of some ingredients used:-



Agar-Agar



Whey Protein



Kappa Carrageenan



Corn Flour



Casein Powder



Yellow color gel