

**TFCS9025 ADVANCED MOLECULAR
GASTRONOMY:
NOTE BY NOTE COOKING ASSIGNMENT**



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1.INTRODUCTION

In 1988, a new scientific discipline, that combined science and cooking was introduced. The term coined for this development was molecular gastronomy, which, according to its co-founder Hervé This, a French physical chemist, “looks for the mechanisms of phenomena occurring during dish preparation and consumption” (This, 2013). Citing scientific practitioner William Astbury’s work on molecular biology, meaning the study of structures, functions, and genesis of biological molecules, This and his other co-founder Nicholas Kurti combined this with the word gastronomy meaning “intelligent knowledge of whatever concerns man’s nourishment” (This, 2013).

Before 1988, the area of study of combining food science with culinary processes was largely neglected. However, when This and Kurti introduced molecular gastronomy they sought to modernize culinary practises using methods that were applied in chemistry, physics and biology. By using new tools, ingredients and methods they could create a very different type of food. During traditional food preparation “plant or animal tissues are at least washed and cut, and most food are thermally processed” (This, 2013), however, molecular gastronomy provided a foundation to be more creative and more daring with exciting new tools like siphons to make foams, ultrasonic probes for emulsions, liquid nitrogen to make sorbets and ice-cream, along with a whole range of other equipment that chefs at the time may have found odd to be in a common kitchen, like evaporators and distillers. New ingredients, at least as to western cuisine, like gelling agents (agar-agar and carrageen) were used, whereas gelling agents from things like algae had been used for thousands of years in Asia (This, 2013). Also, many different odour compounds and various colours could be applied to food to give diners a completely different sensory experience than they were used to. This believes that the term molecular cuisine may cease to be used in the future with the adoption of new techniques for preparing this type of food. He suggests that a new type of cuisine called note by note may take its place.

“Note by note cooking is an application of Molecular Gastronomy” (Burke & Danaher, 2016). This type of cooking was first proposed by *Scientific American* magazine in 1994 around the time This was using compounds to create various dishes and drinks. What makes this cuisine different from molecular gastronomy is that it doesn’t use any meat, fish, fruit or vegetables to create dishes, it uses merely compounds, whether they be pure or a mixture, to make something remarkably different from what one might be traditional accustomed to from food. The shape, colours, tastes, odours, temperatures, trigeminal stimulation, the texture and the nutritional content of a dish have to be designed by the individual chef themselves when preparing note by note cuisine.

There are some causes for concern, however, for this type of cooking. For instance, many have questioned the nutritional aspects of it, along with the toxicology levels, economics and politics surrounding it. Some perceive it to be dangerous. Yet, This argues that for note by note cuisine to become accepted in society the issue of food neophobia must first be addressed. He believes that many people may psychologically believe that the food that was introduced to them from an early age to be ‘good’ or that they are safe because they are old to us whilst on the other hand perceiving new food to be ‘bad’. He argues that much of the traditional food we eat isn’t guaranteed to be healthy, with the world facing an obesity crisis, and believes that in order for note by note to succeed, the issue of food neophobia must be tackled.

As part of the module in Advanced Molecular Gastronomy in DIT, the challenge was to create both a dish and a cocktail using only pure compounds. The dish in this instance had to be a 'dirac' which is one that should have the similar properties to protein. With the rising increase the global population expected to reach 9 or 10 billion in 2050 there is the growing threat of food shortages. To combat this, genetically modified organisms using animal tissues have been produced to resemble meat, and the proteins found in it (This, 2016). In other words, they could be classified as artificial meat. However, they are some way off from being readily available for consumption and purchase.

The purpose of this assignment was to experiment with a range of proteins to create the dirac. Both the cocktail and the dirac would have to be produced in such a way that they would, as This proposes, "stimulate the various sensory receptors involved in vision, odour, taste, trigeminal system and temperature" (This, 2013). It was to be conducted over a five-week period and could draw inspiration from both classical and modern styles of cooking. The idea behind the style of the dish was to create dish resembling oyster three ways, one being an oyster with squid ink spaghetti and salmon roe, the second with a breadcrumb like oyster Rockefeller, and the third being an oyster bloody Mary. The cocktail was to resemble the classic accompaniment to oysters here in Ireland, a pint of Guinness.

2.AIM

To create a dirac and cocktail that would stimulate the various sensory receptors. They should both be created by strictly using only compounds and through the application of methods commonly employed in molecular cooking as well as using traditional cooking techniques.

3.MATERIALS & METHODS

3.1.Materials

3.1.1.Equipment

- Stainless steel bowls
- Measuring jugs
- Precision scales
- SilverCrest Digital Spoon Scale
- Measuring spoons
- KitchenAid K5 Heavy Duty Stand Mixer 5KPM5
- Pipette droppers
- Plastic tube and syringe
- Whisks
- Spatulas
- Slotted spoon
- Tea strainer
- Copper pots

- Stainless steel frying pan
- Gas hobs
- Robot Coupe Cutter Mixer R2
- Vacuum pack bags
- Single chamber vacuum packing machine
- Refrigerator
- Ice
- Water
- Desert spoons
- Oyster shells
- Tapioca pearls
- Plate

3.1.2. Ingredients

Ingredients	Quantity	Weight (g)	Weight (ml)
Water			1705
Egg white/Albumin	2		
Corn starch	$\frac{5}{8}$ teaspoon		
Caster sugar		510	
Cake Decoration Nero food colour	$4\frac{1}{4}$ teaspoons		
Cake Decoration Rosso food colour	1 teaspoon		
MSK calcium chloride		5	
MSK sodium alginate		2	
MSK xanthan gum	$\frac{1}{4}$ teaspoon		
KTC coconut oil		20	
Texturas maltodextrin		10	
MSK hyfoamer		60	
Texturas agar		4	
Mallard Ferriere cola flavour	2 teaspoons		
Mallard Ferriere rum flavour	1 teaspoon		
MSK mango flavour	5 drops		
Mane pineapple flavour	15 drops		
Sosa vanilla flavour	3 drops		
Sparkling water			250

3.2.Methods

Sugar syrup

- 480ml water
- 400g caster sugar

The sugar and water were weighed out and placed into a pot over a medium flame until the sugar fully dissolved. It was then allowed to cool.

Breadcrumb

- 20g of coconut oil
- 10g of maltodextrin

The coconut oil and maltodextrin were measured out then placed into a bowl and whisked until they resembled a sandy texture.

Spaghetti

- 250ml water
- 4g agar agar
- 2 tsp black food colour
- 5 drops mango flavour
- 1tbs sugar syrup

The water was gently brought up to a boil. It was then taken off the heat for a moment and the agar agar was added along with the black food colour and sugar syrup. It was placed back on the heat to incorporate. After being taken off the heat for a second time the mango flavour was added. Then the mixture was sucked up by a syringe and injected through the plastic tube. The plastic tube was quickly plunged into a bath of ice water and allowed to cool for approximately a minute to set the mixture. After it was submerged it was taken out and the syringe was reattached to the tube and air was squeezed into it to force the now solid/jellified mixture out.

Caviar

- 750ml water
- 5g calcium chloride
- 2g alginate
- $\frac{1}{2}$ tsp red food colour
- 10 drops pineapple flavour
- 1tbs sugar syrup

First a calcium bath was prepared by whisking the calcium chloride into 500ml of water. The alginate was mixed in a food processor along with the remaining 250ml of water. The red food colouring, pineapple flavour and sugar syrup were added also. The mixture was then poured into a vacuum sealed bag and then into the vacuum sealer itself to remove any air bubbles. It was placed in the refrigerator until needed. When ready the alginate mixture was sucked up by the pipettes and slowly dropped into the calcium bath to allow to spherify. After a few moments they were lifted out with the tea strainer and rinsed in a bowl of water before being ready for assembly on the dish.

Bloody Mary

- 125ml water
- $\frac{1}{8}$ tsp xanthan gum
- $\frac{1}{2}$ tsp red food colour
- 5 drops pineapple flavour
- 1tbs sugar syrup

The ingredients were all measured out and placed into a food processor until thoroughly combined.

Dirac

- 2 egg whites
- 110g caster sugar
- $\frac{5}{8}$ tsp of corn starch
- $\frac{1}{4}$ of black food colour

The eggs were cracked, and the whites were separated from the yolks. They were then placed into the stand mixer and were set on a slow speed at first to mix. After a few moments the stand mixer was set to medium speed and the caster sugar was slowly added to the whites to incorporate. After another few moments the mixer was set on full speed and the corn starch was added to give stability to the egg whites along with the black food colour to give it a grey colour. The meringue mixture was then quenelled using two spoons and were placed into a pan of lighting simmering water to poach (essentially creating floating islands). The meringues were given two and half minutes on each side before being removed with a slotted spoon and allowed to dry on a clean towel.

Cocktail

- 1tsp rum flavour
- 2tsp cola flavour
- 8tbs sugar syrup
- 250ml sparkling water
- 2tsp black food colour
- $\frac{1}{8}$ tsp xanthan
- 100ml water
- 60g hyfoamer
- 10tbs sugar syrup
- 3 drops vanilla

The rum, cola, food colour, xanthan and sugar syrup were all combined in a food processor and then placed in the refrigerator till needed. The mixture was then added to a mixing jug/measuring jug along with the sparkling water. Ice was then added, and the mixture was thoroughly stirred until chilled. The hyfoamer and the water were mixed in the food processor and the sugar syrup was slowly incorporated along with the vanilla. The cola mixture was

poured into a glass and the hyfoamer was slowly poured over the back of a spoon on top of the mixture to give the cocktail a creamy head resembling a pint of Guinness.

4.RESULTS

The results were based on the responses from the participants over the five-week period where the dishes were created (only four of these weeks were taken into account as the final week was solely for assembly of the final dish and cocktail). The number of participants selected remained constant for each of the dishes components that were tested for a more consistent set of results. The participants were asked to rate the dishes components on a scale of 1 to 5:

- 1 = not acceptable,
- 2 = somewhat acceptable,
- 3 = neither/nor,
- 4 = moderateably acceptable,
- 5 = very acceptable

Figure 1 Chart showing participants opinion towards the cocktail (week 1)

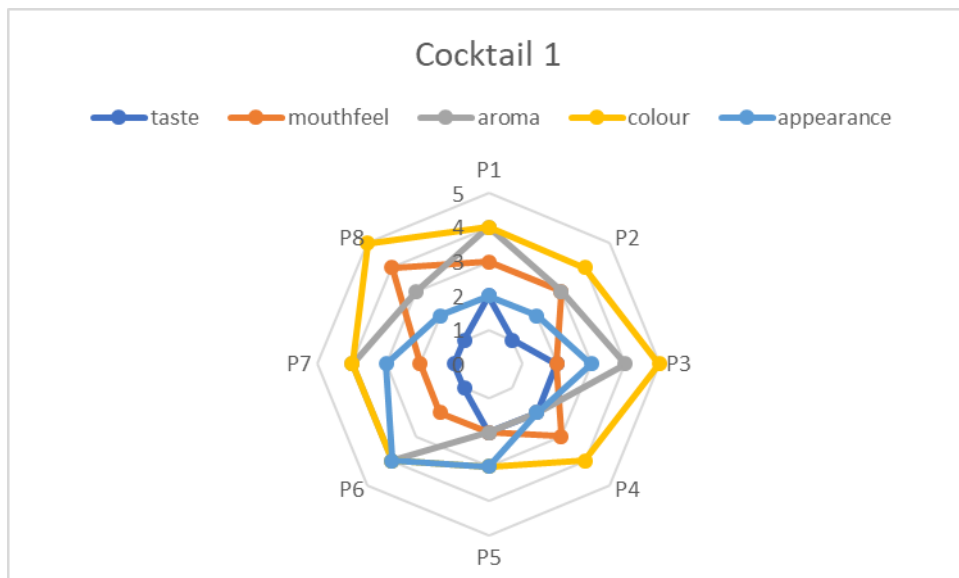


Figure 2 Chart showing participants opinion towards the cocktail (week 2).

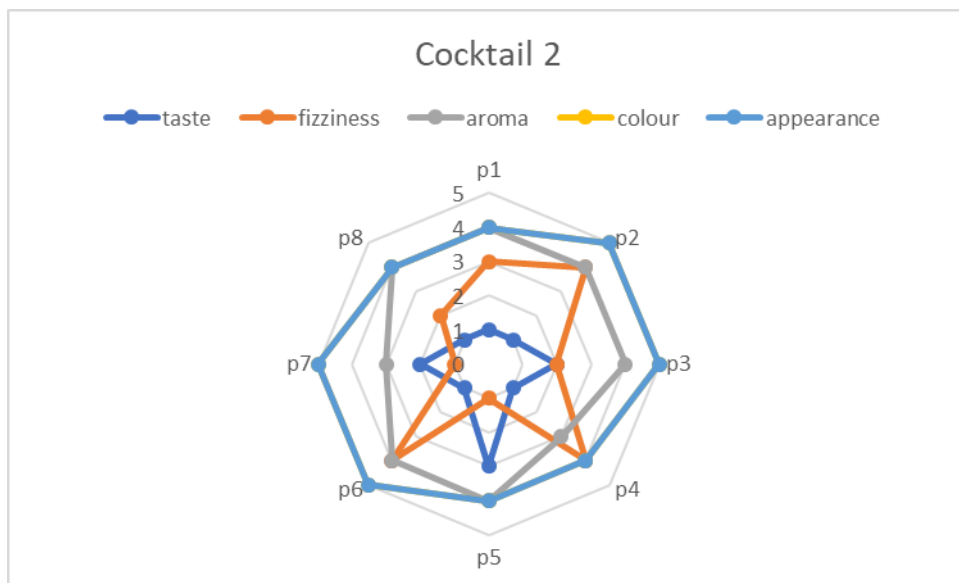


Figure 3 Picture showing the cola/rum cocktail (week 2)



Figure 4 Chart showing participants opinion towards spaghetti (week 2).

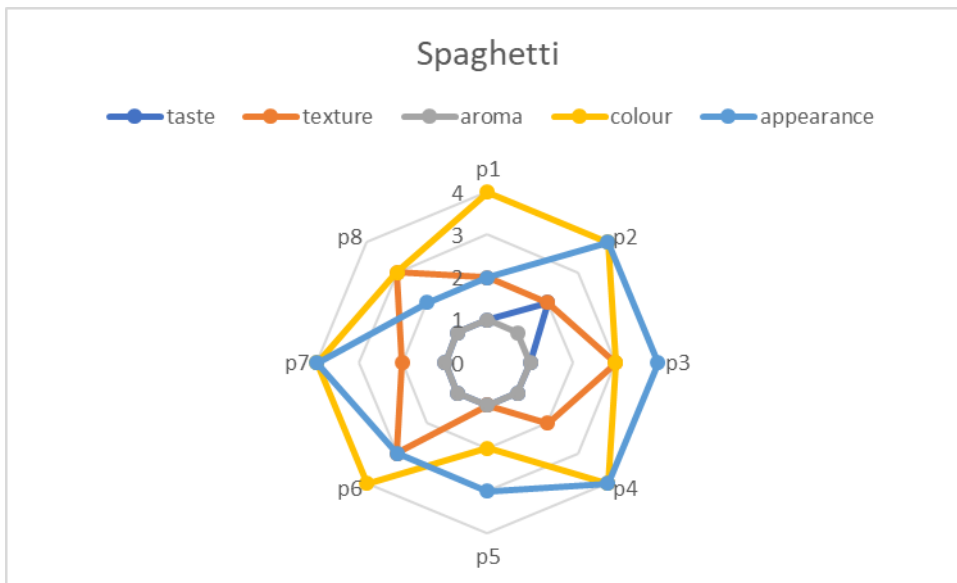


Figure 5 Picture showing the agar spaghetti.



Figure 6 Chart showing participants opinion towards the breadcrumbs (week 2).

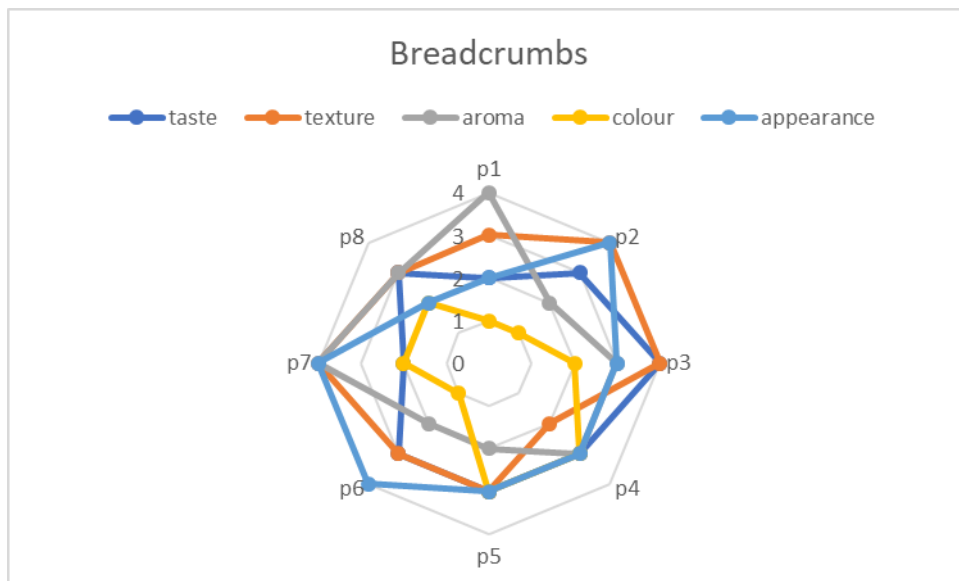


Figure 7 Chart showing participants opinion towards caviar spheres (week 3).

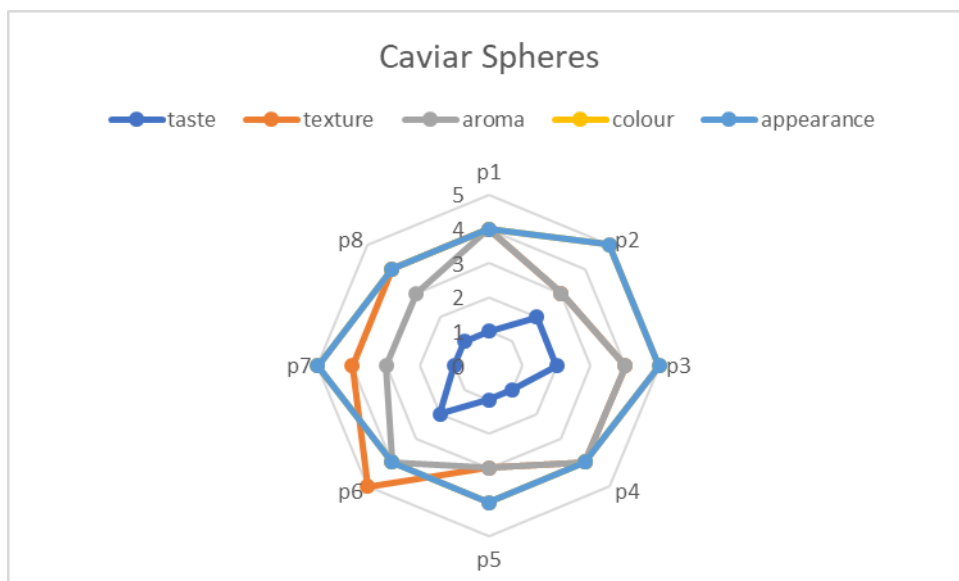


Figure 8 Picture showing the 'floating islands'/oysters for the dirac.



Figure 9 Picture showing the completed cocktail



Figure 10 Picture showing the final completion of the dirac and its accompaniments.



5.DISCUSSION

The process of creating the individual components for both the dirac dish and the cocktail was an ongoing one with changes occurring to the dishes quite frequently over the five-week process. The initial plan was to create a savoury dirac dish with flavours of an actual oyster, salty spaghetti, garlic breadcrumbs, and cucumber flavoured caviar spheres. The dirac was also originally planned to be created using the reverse spherification technique. However, with the aid of weekly testing of the dishes components from participants, there was much trial and error involved before coming to what was presented as the final dish.

Both the final dish and cocktail presented were created using either pure compounds or a mixture of pure compounds. Thinking outside of the box and the application of chemistry, particularly flavour chemistry, physics, toxicology, nutrition, food safety, culinary arts and technology, were needed in order to reach the final stages of development for the dish (Burke & Danaher, 2016). The idea for the dish was based around Marco Pierre White's oyster's tagliatelle and oysters three ways. However, as the savoury elements weren't well received by the participants this allowed for a change in direction and the final dish was sweet 'note by note' rendition of these famous dishes. This would be following along the lines of what Herve This professed when he said, "modern art does not replace old art, but simply adds to it, giving more freedom and choice" (This, 2013). Molecular gastronomy, or in this case 'note by note' cooking will be an "artistic addition" to traditional cooking methods according to This.

One particularly tricky component that caused much frustration was the development of the dirac. There is no participant feedback in this case as the dirac was never fully ready for consumption until the final week of presentation. The reasons behind this are mainly due to the methods and ingredients employed to create the dirac. The plan was for it to be an oyster flavoured jelly like substance created using the reverse sphereification technique, micellar casein as the protein element and with an oyster flavour using the Sosa compound. However, the mixture of the micellar casein and calcium gluconate wasn't setting correctly in the alginate bath. Different measures or ratios of the micellar to water were employed to correct this problem but the mixture still wouldn't set in the alginate bath. On personal tasting the oyster flavour was also non-existent. To combat this problem, both a different protein and another more traditional culinary technique was used to create the dirac. Egg whites or albumin made up the protein and they were quenelled to poach in simmering water, a classic technique used to create 'floating islands' (figure 8). Reflecting on this, the black colouring used for the egg whites looked off putting and the quenelles were certainly too large for the oyster shells that they were served in. They were also quite sweet and perhaps could have done with the addition of some other flavouring like vanilla for example.

The cola/rum cocktail was another part of this experiment that caused frustration. The initial idea for it was to create a cocktail with cola and rum flavours but to resemble a pint of Guinness with a white head. The first method used was cocktail mixture poured out through a siphon using a nitrogen charger. It had a nice colour throughout development and its aroma was also quite pleasant and while it did also produce an interesting mouthfeel, its overall appearance and taste was lacking (figure 1). The next week a soda charger was used in the siphon instead, but this resulted in the liquid becoming too fizzy and having a somewhat acidic taste. Yet, it's appearance was greatly improved from the week before (figure 2) and the addition of the MSK Hyfoamer gave it the distinctly white head that one would be accustomed to with a pint of Guinness (figure 3). However, this effect wasn't correct on the final presentation week possibly due to the cola/rum mixture being placed in the refrigerator the week beforehand. It seemed to have caused the mixture to be sticky and the black colour wasn't as profound as well as the white head not setting on top on the cola/rum mixture correctly (figure 9).

In terms of the embellishments for the dirac, all were envisioned to be savoury, yet due to the constant experimentation and participant feedback these elements were also changed. In terms of the spaghetti (figure 5) it was too salty, lacked flavour and didn't have any aroma profile whatsoever, although it did have a somewhat acceptable texture and the colour was also pleasing. This was changed in the final preparation and mango flavouring as well as sugar syrup were added to enhance the spaghetti's flavour. The breadcrumbs looked well in appearance, possibly looking like real breadcrumbs but weren't at all very colourful. They also had a strong smell of garlic from the Swartz garlic powder used, which some participants found pleasant and others did not (figure 6). This was changed in the final preparation also and maltodextrin was combined with coconut fat, instead of olive oil and garlic powder, to give it both flavour and the fatty element needed to combine with the maltodextrin to give it a crumb like texture. The caviar (figure 10) were certainly visually pleasing to the participants, as well as having a pleasant aroma from the Mane pineapple flavour compound, but they did not have any profound taste. This was corrected with the addition of sugar syrup also.

6.CONCLUSION

It seems clear, at least from the evidence provided here that there is some way to go in order to produce 'note by note' dishes that are both worthy and adequate for human consumption. Many of the savoury flavours used here, albeit in the experimental stages of development, don't quite satisfying experiences in terms of taste. Although, when the dishes were changed to being sweet there seemed to be a greater improvement in taste yet at the expense of being less nutritionally beneficial. Creating the actual texture itself was one area where, at least for the dirac and its components, there seemed to be little issue. However, you could argue that the textures employed here are perhaps artificial and seem somewhat strange from a consumption point of view at least. In order to create something suitable for feeding the human masses in the future, much work will be needed to be done with 'note by note'. This experiment in creating a dirac and a cocktail using only pure compounds, or a mixture of pure compounds further reinforces this notion. However, perhaps there may only need to be more time spent in the kitchen perfecting this particular dish and that this dish of 'note by note' oysters three ways and a Guinness cocktail is not a fair overall reflection of what 'note by note' cooking can be.

7.REFERENCES

Burke, R and Danaher, P. (2016). Note by Note: A New Revolution in Cooking. Available at:

<https://arrow.dit.ie/cgi/viewcontent.cgi?article=1060&context=dgs> . Last accessed 14/01/19

This, H. (2013). Molecular Gastronomy is a Scientific Discipline and Note by Note Cooking is the Next Culinary Trend. Available at:

file:///C:/Users/mark/Downloads/Molecular_gastronomy_is_a_scientific_discipline_an.pdf .

Last accessed 14/01/19

This, H. (2016). What can “Artificial Meat” be? Note by note cooking offers a variety of answers. Available at: [file:///C:/Users/mark/Downloads/n3af-2016m6artificialmeat-hervethis%20\(1\)%20\(1\).pdf](file:///C:/Users/mark/Downloads/n3af-2016m6artificialmeat-hervethis%20(1)%20(1).pdf) . Last accessed 14/01/19

8.APPENDICES

Table 1 Showing participants scores of the cola cocktail (week 1).

Participant	taste	mouthfeel	aroma	colour	appearance
P1	2	3	4	4	2
P2	1	3	3	4	2
P3	2	2	4	5	3
P4	2	3	2	4	2
P5	2	2	2	3	3
P6	1	2	4	4	4
P7	1	2	4	4	3
P8	1	4	3	5	2

Table 2 Showing participants scores of the cola cocktail (week 2).

Participant	taste	fizziness	aroma	colour	appearance
p1	1	3	4	4	4
p2	1	4	4	5	5
p3	2	2	4	5	5
p4	1	4	3	4	4
p5	3	1	4	4	4
p6	1	4	4	5	5
p7	2	1	3	5	5
p8	1	2	4	4	4

Table 3 Showing participants scores of the spaghetti

Participant	taste	texture	aroma	colour	appearance
p1	1	2	1	4	2
p2	2	2	1	4	4
p3	1	3	1	3	4
p4	1	2	1	4	4
p5	1	1	1	2	3
p6	1	3	1	4	3
p7	1	2	1	4	4
p8	1	3	1	3	2

Table 4 Showing participants scores of the breadcrumbs

Participant	taste	texture	aroma	colour	appearance
p1	2	3	4	1	2
p2	3	4	2	1	4
p3	4	4	3	2	3
p4	3	2	3	3	3
p5	3	3	2	3	3
p6	3	3	2	1	4
p7	2	4	4	2	4
p8	3	3	3	2	2

Table 5 Showing participants scores of the caviar spheres.

Participant	taste	texture	aroma	colour	appearance
p1	1	4	4	4	4
p2	2	3	3	5	5
p3	2	4	4	5	5
p4	1	4	4	4	4
p5	1	3	3	4	4
p6	2	5	4	4	4
p7	1	4	3	5	5
p8	1	4	3	4	4

LOG BOOK

WEEK NO: 1

Aim:

To create a cola and rum flavoured cocktail resembling a pint of Guinness.

Objectives:

- To make a cola and rum mixture using various compounds.
- To shake this mixture in a siphon using the nitrogen cartridge.
- To make a white head for the cola/rum mixture

Materials and methods:

Materials:

- Various stainless-steel mixing bowls
- Measuring jugs
- Measuring spoons
- Mixing spoons
- Digital scales
- Food processor
- Hand/stick blender
- Siphon
- Nitrogen cartridges
- Desert spoon
- Ice
- Serving glass

Ingredients:

- Cola flavour
- Rum flavour
- Water
- Vanilla flavour
- Xanthan gum
- Black food colouring
- Sugar
- Soya lecithin

Methods:

Make sugar syrup by boiling sugar in water till dissolved. Combine the cola, rum, vanilla, xanthan, water, sugar syrup and black food colour in the food processor until thoroughly combined. Pour into siphon with nitrogen cartridge and shake. Pour into serving glass. Meanwhile blend soya lecithin powder with water using the hand blender until a foam forms. Spoon foam onto cola mixture

Results and discussion:

The cola mixture didn't produce the desired thickness needed. The soya lecithin foam also didn't look particularly impressive as the Guinness head.

Conclusions:

The nitrogen cartridges don't seem to add anything to this cocktail. The soya lecithin also doesn't add anything to the visual appeal of the cocktail.

Recommendations for following week:

To thicken the mixture with more xanthan gum and to use a soda cartridge instead of a nitrogen one.

WEEK NO: 2**Aim:**

To improve the cola cocktail from the previous week. Also, to create both a spaghetti and breadcrumb element.

Objectives:

- To improve the cocktail by using a soda siphon and Hyfoamer head
- To make a spaghetti using agar agar
- To make a flavoured 'breadcrumb' using maltodextrin

Materials and Methods:**Materials:**

- Various stainless-steel mixing bowls
- Measuring jugs
- Measuring spoons
- Mixing spoons
- Digital scales
- Food processor
- Hand/stick blender
- Siphon
- Nitrogen cartridges
- Desert spoon
- Ice
- Serving glass
- Saucepans
- Gas hobs
- Plastic syringe and tube
- Whisk
- Water

Ingredients:

- Cola flavour
- Rum flavour
- Water
- Vanilla flavour
- Xanthan gum
- Black food colouring
- Sugar
- Hyfoamer
- Agar agar
- Cucumber flavour
- Salt
- Garlic powder
- Olive oil
- Maltodextrin

Methods:

- Cocktail: Make sugar syrup by boiling sugar in water till dissolved. Combine the cola, rum, vanilla, xanthan, water, sugar syrup and black food colour in the food processor until thoroughly combined. Pour into siphon with soda cartridge and shake. Pour into serving glass. Meanwhile blend Hyfoamer with water using the hand blender until a thick white cream forms. Pour cream over cola mixture.
- Spaghetti: Combine black food colouring with water in saucepan and bring to a boil. Add the agar agar, salt and cucumber flavouring and stir till combined. Suck mixture with syringe then fill tube. Quickly drop into ice/water bath and let set. Take out of bath and inject air into tube to remove the jellified mixture.
- Breadcrumb: Whisk maltodextrin, garlic powder, salt and olive oil until mixture resembles fine breadcrumbs.

Results and discussion:

The cola cocktail taste quite acidic and was too fizzy with the addition of the soda siphon. The agar spaghetti also lacked flavour and aroma, it also tasted somewhat salty. The breadcrumb tasted good but lacked colour.

Conclusion:

Don't add salt to the spaghetti and don't use the siphon in the creation of the cocktail, keep it simple and as is.

Recommendations for following week:

Just use sparkling water in the cocktail. Perhaps make the spaghetti sweet with sugar syrup and mango flavour.

WEEK NO: 3

Aim:

To create a reverse sphere 'oyster' and make caviar spheres.

Objectives:

- Make an alginate bath for the reverse spheres
- Make a calcium bath for the direct spheres
- Make the mixture for the reverse spheres using micellar casein
- Make the alginate mixture for the direct spheres

Materials and Methods:**Materials:**

- Various stainless-steel mixing bowls
- Measuring jugs
- Measuring spoons
- Digital scales
- Digital spoon scale
- Mixing spoons
- Vacuum packing machine
- Vacuum pack bags
- Food processor
- Whisk
- Dropper
- Tea strainer
- Water

Ingredients:

- Sodium alginate
- Calcium gluconate
- Calcium chloride
- Micellar casein
- Oyster flavour compound
- Xanthan gum
- Water
- Pineapple flavour compound
- Black food colour
- Red food colour

Methods:

- Alginate bath: Mix sodium alginate with water in food processor. Pour contents into vacuum pack bag then place into vacuum pack chamber to seal and remove air. Place aside till needed.
- Calcium bath: Whisk calcium chloride with water. Place aside till needed

- Oyster mixture: Mix micellar casein with water, oyster flavour and xanthan gum in a bowl with the black food colouring. Add calcium gluconate until thoroughly combined. When ready spoon mixture with measuring spoon into the alginate bath. Remove with tea strainer and refresh in cold water bath.
- Caviar: Combine alginate with red food colour, water and pineapple flavour in food processor until combined. Pour into vacuum pack bag then place into vacuum chamber to seal and remove air. Open bag and suck mixture up with dropper. Drop mixture into calcium bath. After a few moments fish out using the tea strainer and refresh in cold water.

Results and discussion:

The oyster mixture wasn't setting correctly in the alginate bath. It was runny and not jellifying at all. The caviar spheres came out perfect visually and texturally, however, they lacked flavour.

Conclusion:

The oyster mixture needs improvements and perhaps the pH level needs to be corrected in the mixture. The pineapple/caviar spheres need some flavour. Both dishes could benefit from the addition of sweetness which would therefore eliminate the savoury element to the dirac/oysters.

Recommendations for following:

Add sugar syrup to the caviar spheres and get rid of the oyster flavouring for the reverse sphere oysters. Prepare cola mixture and spaghetti for the fifth and final week.

WEEK NO 4:

Aim:

To improve the reverse sphere 'oysters' from the previous week, to add sweetness to the caviar mixture and prepare the latter along with the spaghetti and cocktail mixture for the final week.

Objectives:

- To improve the reverse spheres by testing their pH and possibly adding less calcium gluconate.
- To add sugar syrup to the caviar mixture
- Prepare spaghetti
- Prepare cocktail mixture

Materials and Methods:

Materials:

- Various stainless-steel mixing bowls
- Measuring jugs
- Measuring spoons

- Digital scales
- Digital spoon scale
- Mixing spoons
- Vacuum packing machine
- Vacuum pack bags
- Food processor
- Whisk
- Dropper
- Tea strainer
- Water

Ingredients:

- Sodium alginate
- Calcium gluconate
- Calcium chloride
- Micellar casein
- Xanthan gum
- Water
- Pineapple flavour compound
- Black food colour
- Red food colour
- Cola flavour
- Rum flavour
- Water
- Vanilla flavour
- Sugar
- Agar agar
- Mango flavour

Methods:

- Sugar syrup: Combine sugar and water in saucepan and boil until dissolved.
- Alginate bath: Mix sodium alginate with water in food processor. Pour contents into vacuum pack bag then place into vacuum pack chamber to seal and remove air. Place aside till needed.
- Calcium bath: Whisk calcium chloride with water. Place aside till needed
- Oyster mixture: Mix micellar casein with water, and xanthan gum in a bowl with the black food colouring. Add calcium gluconate until thoroughly combined. When ready spoon mixture with measuring spoon into the alginate bath. Remove with tea strainer and refresh in cold water bath.
- Caviar: Combine alginate with red food colour, water, sugar syrup and pineapple flavour in food processor until combined. Pour into vacuum pack bag then place into vacuum chamber to seal and remove air. Refrigerate until following week.

- Cocktail: Combine the cola, rum, vanilla, xanthan, water, sugar syrup and black food colour in the food processor until thoroughly combined. Vacuum pack until needed the following week.
- Spaghetti: Combine black food colouring with water in saucepan and bring to a boil. Add the agar agar, sugar syrup and mango flavouring and stir till combined. Suck mixture with syringe then fill tube. Quickly drop into ice/water bath and let set. Take out of bath and inject air into tube to remove the jellified mixture. Place into vacuum pack bag and seal until needed the following week.

Results and discussion:

The oyster mixture wasn't setting correctly in the alginate bath. It was runny and not jellifying at all again.

Conclusion:

A solution hasn't been found to correct the reverse sphere oysters, so another method will have to be applied to make the dirac component of the dish.

Recommendations for following week:

Try making floating islands at home using egg whites/albumin for the dirac component of the dish. Assemble the pre-made components from this week and make the breadcrumb and bloody Mary components for final presentation of the dish and cocktail.

