

Indonesia International Institute for Life Sciences

ENRICHMENT PROGRAM REPORT

Sensory Analysis of Potato Chip New Flavor at PT Indofood Fortuna Makmur: An Internship Report

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INTERNSHIP REPORT Sensory Analysis of Potato Chip New Flavor at PT Indofood Fortuna Makmur: An Internship Report

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We hereby declare that this EP project is from student's own work. The EP Report has been read and presented to i3L's Examination Committee. The EP has been found to be satisfactory and accepted as part of the requirements needed to obtain an i3L bachelor's degree.

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ABSTRACT

Indofood is a company committed to enhancing its value to stakeholders, developing innovative processes and technologies, and providing sustainable food solutions. To achieve these goals, they consistently introduce new products that cater to evolving consumer needs, broaden their offerings, and maintain a competitive advantage. They also strive to make a positive impact on society and the environment. The motivation behind launching new products includes increasing demand for potato chips and growing market competition.

During my internship at Indofood, I gained invaluable experience in developing new snack products that primarily feature potatoes. This process involves creating a sample by devising a base and flavor, followed by consumer testing to evaluate the prototype. The packaging development process determines the appropriate size and materials. The new product is then registered in compliance with food regulation laws, such as Halal and BPOM, before being launched. It is crucial to grasp the product development process and hone skills in sensory evaluation and time management to ensure adherence to the timeline.

Keywords: Indofood, New Product, Potato Chips, Product Development

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LIST OF ABBREVIATIONS

Balai Besar Pengawas Obat dan Makanan
PT. Indofood Fortuna Makmur
Consumer Branded Products
Good Manufacturing Practices
Perseroan Terbatas
Product Development and Quality Control
National Sales Promotion Manager
Human Resources
Division of Accounting Manager
Product Development
Quality Control
Hydroxycinnamic Acid
Compound Annual Growth Rate
kilocalorie
Overall Acceptance
Nomor Makanan Dalam
Badan Penyelenggara Jaminan Produk Halal Kementerian Agama RI
Lembaga Pemeriksaan Halal
Majelis Ulama Indonesia
Standart Operating Procedure

INTRODUCTION

PT. Indofood Fortuna Makmur (IFM) is a company that specializes in the production of snack foods. This company is considered one of the companies that were under PT. Indofood CBP. The PT. Indofood CBP is categorized as a food and beverage manufacturing company that has the license of Halal and Good Manufacturing Practices (GMP). Cikupa is one of the location from the three IFM factory that have snacks as their main product, while the other two factories are located in Tangerang and Semarang. The IFM was first established in Cikupa in the year 2013 (History -Indofood, n.d)).

The vision of PT. Indofood is to create a total food solutions company, while the mission consists of many points, including (1) providing sustainable food solutions, (2) continuously improving the people, processes, and technologies, to contribute to the welfare of society and the environment in a sustainable manner, and (3) to continuously improve stakeholders' value. However, for the snack category company, its mission focuses on improving the processes and technologies and the stakeholders' values (Vision, Mission & Value - Indofood, n.d).

The structure of IFM is shown in **Figure 1**. The company is led by a CEO, who oversees all divisions/departments. There are seven departments in IFM, i.e. sales, product development and quality control (PDQC), manufacturing, national sales promotion, human resources (HR), agricultural, and accounting (DAM). Each of these departments is supervised by a manager. Each production site for the snack products has its own production management, and it was also known that not all snack products of Indofood were produced at the same production site. The PDQC and the production manager are responsible for overseeing the production and development process of the three production sites located in Cikupa, Tangerang, and Semarang (Managemnet Structure - Indofood, n.d)).



Figure 1. The Company Structure

Product development (PD) and Quality Control (QC) were placed in the same department, hence the name is PDQC, which the PDQC manager oversaw. The main activity an intern would be

doing in this department is mainly assisting and learning the step-by-step procedure to launch a new product. During this internship, my placement was in the Product Development division to participate in the base and flavor development of potato chips. In addition to that, I also gained some insight into the follow-up process after a new product is developed.

INTERNSHIP ACTIVITIES

The internship lasted for 11 months. During the internship duration, I follow the normal staff working hour, i.e. nine hours from 8 am until 5 pm, five days per week (Monday to Friday). I was assigned to the Department of PDQC and was working under the supervision of the PDQC Manager in the Product Development team. Most of the tasks assigned to me involved base and flavor development, along with occasional documents handling responsibilities. Nonetheless, there are some biotechnology knowledge that are relevant to my internship activity. This includes the basic knowledge of enzymes and nutrients in food production. For example, the phythohormone present in the greening potato, which is salicylic acid. The importance to know about salycilic would be that upon high dose consumption would lead to serious consequence such as metabolic imbalance and gastrointestinal complications (Suliburska & Cholik, 2024). The knowledge useful is the use of emulsifiers in food production. In extrudent product production, lecithin is used as an emulsifier when mixing oil and water. This principle was taught in biochemistry course. Lastly, the statistical analysis which was relevant when the supervisor asked me to assist with some data analysis.

Table 1 and **Table 2** summarizes the two main activities during the internship program, the primary and secondary. The Primary activity (**Table 1**) is activities that are directly related to the project assigned as an internship project. Meanwhile, the secondary activity (**Table 2**) is a supporting task that involves the intern helping and assisting with other tasks and activities not directly related with internship project.

No.	Steps in Workflow	Activities	Description	
1.	P fr Base Development	Preparation for frying	After being sorted out and analyzed by the QC team, the potato is ready to be used for base development. The potato was washed and the skin was peeled. Once peeled, it was cut in half before being placed on the slicer machine. Following the SOP, the thickness of the potato was measured and the desired thickness is around 0.03 to 0.05 mm.	
		Frying the sliced potato	Following the SOP in the frying process and its attribute, 200 g of the sliced potato was fried in the deep fryer for 2.5 to 3 minutes at 180 °C. The fried potato was strained and the frying process was repeated to obtain 1.5 kg of potato	

Table 1. Primary Activities Done During the Internship Program

			chips. Once the frying process is done, the potato chips are ready to be used or stored for later use.	
2.	Flavor Development	Flavor development for four sample prototype	Four seasonings from a different supplier but with the same flavor was estimated for each of their coating percentages. After the concentration percentage has been determined the coating process will start. Plastik bag with the label of the supplier name was prepared before the dusty coating process. Once the base was coated with the seasoning, it was stored for a day before being used for sensory evaluation.	
		Benchmark from market	This activity involves going out to the market with some of the PDQC team to research and gather data on the desired flavor. The method used is oral tasting and taking notes of its taste and aroma for the flavor development process.	
3.	Screening	Creating a Sensory Evaluation form	Creation of code for each of four samples, consisting of a random three-digit number. Notes are taken on which code is which sample. Table consisting of the sample code along with its attribute for rating purposes was made. The application consists of taste, aroma, texture, appearance, and overall appreciation. There will be another section for the panelists to rank from their most to least favorite of the four samples. The last section is where the panelist could add their comments on the samples.	
		Packing for sensory evaluation	The four different coded samples were packed and labeled. Thirty packaging for each sample. In total one hundred twenty packs of samples were made. It was later sorted out by stapling the four different coded samples. The samples were later given to the sensory evaluators to be distributed to the whole team.	
		Doing the sensory evaluation as a panelist	The steps were done by taste testing and observing the sample. Rating the taste, aroma, appearance, texture, and overall acceptance of the four samples. After rating the samples attribute, ranking the samples from the most favorite to the least favorite.	

No.	Division	Task or Activities	Description
1		Developing potato based for decreasing fat components	Assisting in the project to reduce fat composition in potato chips. Measuring the thickness of the potato chips, no less than 0.03 to 0.05 mm. Once it was sliced according to the SAP guidelines, three different methods of frying were used.
2		Application of oil- dusty methods for flavor development	The base of the tortilla was made of corn and the coating methods applied for these bases were oil-dusty. Involves spraying a small amount of oil according to the SAP percentage to coat the base before adding the seasoning powder to coat the base.
3		Application of slurry methods in flavor development	This base was made from corn, which has a different shape from tortilla chips. The coating method is slurry, where the seasoning powder is mixed with oil according to the percentage in the SAP before mixing it with the base.
4		Packaging of samples	This activity involves cutting the metalized roll and creating the metalized bag to be used for different purposes. It is to be used for packaging samples, self-life samples, dummy samples, and storing bases and samples.
5		Sorting out costing documents	Sorting out the accounting bills to excel documents. Calculating and counting the raw materials purchased, income, and profit earned during a month.
6		Transfer sensory evaluation data to computer	The comments in the sensory evaluation form were handwritten, which requires the data to be transferred by typing it into an Excel document to be stored and shared with the PDQC team.
7		Creating ppt	The ppt involves market research on the internet. The ppt was a short summary of new snack products in the market from the local or global market.

 Table 2. Secondary Activities Done During the Internship Program

8	Market research	Market research involves purchasing and taking notes of all snack products that are sold in the market. Listing the data of the types of snacks, manufacturer, flavor, price, packaging types, composition, etc.
9	Factory Visit	The event where visitors from different schools, universities or the TNI (Tentara Nasional Indonesia) came to visit the company.
10	Assisting in the sensory test	There are periods when the QC team will have to take a sensory test. The test involves oral tasting, perception, and texture of the test samples. The student assisting in creating a solution of diluted
11.	Helping in Market Tasting	During the week for market testing, I was assisting in sample preparation. During that week, two projects were tested for market testing. A total of seven samples were used for the market testing. The preparation starts by preparing the packaging to store the samples. Checking the packaging for defects such as leakage or disfigure or wrinkled appearance. Once inspecting the packaging was done, labeling all the packaging with the three-digit number for the 7 samples. After labeling the packaging, I assisted in packing the samples after it was weighed by the PDQC team.
12	Self Life Weight Measurement	The self-life measurement is by weighting the 5 samples with the same product name and flavor. The weight was recorded until the end of the self-life trial (max 3 months). The PDQC team later used it to get the average to estimate the product's shelf-life.
13	Join to visit Expo Events	When to the Jakarta Expo to find potential partnership opportunities and buying related products to the company.

There are some challenges that I encountered during the internship, such as handling certain seasoning methods, managing documents, and helping with packaging. When handling seasonings, different bases have various methods, requiring extra precaution and steps. I faced difficulties in

transferring the information from paper documents, due to difficulties in deciphering handwriting. Lastly, estimating the size for a certain weight was also challenging.

PROJECT DESCRIPTION

1. Introduction

Due to the high demands of consumers and the ongoing change of trends in the culinary world, it makes a good opportunity for Indofood to create a new flavor for their potato chip product to keep up with the market demand. This strategic move will not only attract broader consumers but also cater for the changing market trend. The goal of the Indofood company is to consistently enhance stakeholders' values, continuously develop processes and technologies, and provide sustainable solutions for food demands, leading to the creation of new products as its form of strategy (Indofood, n.d). Thus, new product development could foster the company's growth and expansion.

According to Woff (2022), the customer survey that was conducted in the year 2022 shows that 34.6% of Indonesian consumers purchased potato chips even before the survey was conducted. Another statistic was taken where it was estimated that the Compound Annual Growth Rate (CAGR) of these potato chips in Indonesia would be 5.6% from 2020 to 2026 (6Wresearch, 2023). **Figure 2** shows the total newly launched potato-based products during the year 2020 to 2023, the number has increased by 63.3% in that period which also shows the demand and consumption of potato-based products had increased due time (Innova Market Insight, n.d). This leads to the idea of developing a new potato chip product with a new flavor that correlates with the trends in the culinary world.

Another reason for creating this new product would be due to the increase of competitors. This happens at the same time during the pandemic year when new competitors start appearing and creating partnerships between business competitors (Aditya, 2021). This results in more requirements of strategies to compete and overcome the competition between competitors.



Figure 2. Diagram of Launching New Potato-Based Product During the Year 2020 to 2023 (Source: Innova Market Insight, n.d)

1.2. Objective

The general objective of this internship is to study and understand the flow process of creating a new product, from generating ideas to developing the product and ultimately launching it in the market. During the course of the internship, a small project aimed to assess a newly developed snack flavor was also assigned.

The creation of the new flavor was inspired by the new trends and popular food that was in this year. It was also to create innovative flavors that attract consumers by tapping into current culinary trends. The strategy was also applied in the past when Japanese culinary food gained popularity in 2023, leading to the launch of a new product that aligned with this trend.

From 2020 to 2023, the consumer of potato chips has increased which leads to high demand for potato chips products. Creating new products could also help address the growing competition in the market. Following the strategy of using trends to attract consumers, for 2024 the spicy and sweet flavor will be popular (Grebow, 2023). The food production companies can use this idea to attract customers and remain competitive.

2. Literature Review

2.1. Potato Chips

Potato chips are a very well-known snack around the world and many consumers enjoy this particular snack. As its name suggests, this snack is mainly made of potatoes that are thinly sliced and fried until they are crispy. The nutritional value of this snack has a high calories compared to other snacks, but it is different if its from a sweet potatoes. Potato chips has a high source of Carbohydrates, Vitamin C and Potassium minerals (Kalita & Jayanty, 2017) . Depending on the colored flesh of the potato, such as the red and purple flesh, they have higher phenolic compounds consisting of anthocyanins and hydroxycinnamic acid (HCADs) (Bravo et.al, 2023). Another value that makes this snack popular is its shelf life. This snack has a good shelf life depending on how it is stored, where it must be stored in a cool place away from sunlight and must be sealed tight to maintain its quality and prevent rancidity (Irfan, 2023).

These simple snacks are not just delicious but also very simple and easy snacks to be made. The potatoes are normally sliced into very thin pieces and fried in hot oil. However, it is more complicated when it comes to potato chips in snack manufacturing companies. According to Alongi et.al (2023), for industrial scale, there are six steps to be completed making it more complicated than the home-made one. These steps include: (1) washing, (2) peeling, (3) slicing the potato into thin

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slices, (4) blanching , (5) frying, and (6) seasoning. The 1st-3rd steps are usually done using a food processor. Blanching was done by dipping it in hot oil between 163 °C to 177 °C for a second to soften the potato slice. Once blanched, the oil is removed by draining and absorbed using a paper towel, then potato is fried in hot oil at 177 °C to 190 °C until it is golden brown and crispy. Seasoning is done before cooling. Lastly, seasoned potato is packed in a sealed bag to ensure its quality is maintained.

Despite potato chips being made from raw potatoes, they do not share the same nutritional value. This is due to the addition of oil being used during the process of cooking. The research found that raw potatoes had more nutrients than cooked ones, with the main distinction being a roughly 40% decrease in fat content in chips. It is also mentioned that potato chips have more fat, sodium, and calories compared to raw potatoes (Amoroso et.al, 2019).

The nutritional value of potato chips is up to 149 calories, which consist of 9.5g of fats, 15g of carbohydrates, and 1.8g of protein. While for raw potatoes, it has 58 calories that consist of 92% carbohydrates, 7% protein, and 1% fats (Nutritionix, n.d & Nutritionvalue, n.d). **Table 3** below is a summary of the nutritional value of both potatoes.

Nutritional Value Potato Chips		Raw Potato
Protein	1.8g	1.5g
Carbohydrates	15g	13g
Fat	9.5g	0.1g
Calories	149	58

2.2. Variety of Potatoes and its Nutritional Value

Potatoes have many different varieties that are usually used to produce potato chips. Some of these varieties are Atlantic, Russet, Granola, and Olimpus. According to Sembiring and Kusmana (2020), Granola is a common potato variety that was chosen by many respondents due to them being more familiar with this variant after long-term agriculture of this specific variant.

Table 4 below shows four different varieties of potatoes with their nutritional value. The variety with the most calories would be the Granola variety with a value of 150 kcal. While the lowest calories would be the Russet variety with 95 kcal. For the most protein composition, the Olympus

variety would have the most value that was up to 3g and the least would be both Atlantic and Granola with the value of 2g. The variety that has the highest fat would be the Atlantic Variety, where the value is 7g and 0g for the lowest which is the Olympus variety. Lastly would be carbohydrates and sugar, where both nutritional values share the same variety when it comes to the highest value. The Variety's name is Granola, where the carbohydrates are 27g and sugar is 7g. However, the lowest carbohydrates and sugar would be the Russet variety with a value of 21.4g, and the Olympus variety with a value of 1g.

Potato	Nutritional Value				
Names	Calories (kcal)	Protein (g)	Fat (g)	Carbohydrate (g)	Sugar (g)
Russet	95	2.63	0.13	21.4	1.08
Atlantic	110	2	7	26	5
Granola	150	2	5	27	7
Olympus	110	3	0	26	1

Table 4. Nutritional Value of Each Variant Potato

2.3. Function of Seasoning & Application

Seasoning has many functions, its main function is to enhance the flavoring of food. Using flavoring to improve the flavor in food, also helps in enhancing the natural taste, balancing the taste as well as cutting the richness in foods. Enhancing the natural taste of the food could mean intensifying or making the taste more noticeable. This seasoning could also help in balancing the taste of food, such as decreasing the strong taste bitter or sour in food making it easier to taste different flavors from the ingredients used. The last would be cutting the food richness, like decreasing the taste of fatty or very rich taste (Wamogo Culinary Arts, n.d).

Seasoning usually consists of salt and sugar, where they usually act as natural preservatives. The salt acts as a preservative by reducing the water activity, osmotic shock to the microbial cells, and inhibiting the undesired microorganism. To reduce the water activity, salt binds with water molecules resulting in less amount of unbound water for microbial growth or chemical reactions. Osmotic shock is due to the addition of water that affects the cells by losing the water in the cells and causing cell death or inhibiting their growth. Lastly, salt inhibits undesired microorganisms, through a selection of microorganisms that were favored by salt by their salt tolerance such as lactic acid bacteria. It also inhibits microorganisms and fungi that cause food spoilage that is naturally present in food (Ravinshankar & Juneja, 2014). Sugar does have the same role as salt and both share

the same methods of preservation. The sugar causes dehydration in food by undergoing osmosis. They also serve as indirect preservatives due to hastening the buildup of antimicrobial chemicals from the growth of specific other microbial species (Keerthika, 2020).

There are many methods of application for seasoning for different types of bases. The application that was used in this company involves dust, slurry, sugar-caramel, oil-dusty, liquid, absorption, filling, enrobing, and battering. For this particular project, the coating application that was used for the potato chips would be the application of dust. This involves spreading and mixing the seasoning powder with the base. Another example was liquid coating, which usually involves a sweet flavor, coating with a mix of syrup and seasoning such as in popcorn (P. Andayani, personal communication, 18 March 2024).

2.4. New Product Launching Workflow

Figure 3 below shows the steps by steps of creating and launching a new snack product in accordance to the Indofood standard of operation for new product development.



Figure 3. Flow Diagram of New Product Launch Procedure

2.4.1 Base Development

Base development is the process where the base or the main ingredient is determined, such as corn, potato, cassava, or soybean. The base development was initially done on a lab scale. It starts by determining the types of potatoes and finding the vendors that could supply the raw materials which in this case would be potatoes. Next was to also determine the parameters that were acceptable to be used for later production, such as the diameter, fresh defects, and fried defects. Following, determining the types of cutting and thickness for the base to be used. Common types of cutting are wavy-cut, flat-cut, deep-ridged cut, and net cut (**Table 5**). The last part of the base development would be to determine the duration for frying, temperature, and other parameters. Once the frying process is done, it could be used immediately or stored for later use. After base development was completed, a trial was conducted to assess the production scale (P. Andayani, personal communication, 18 March 2024).

Wavy	Flat	Deep-ridged	Net

Table 5. Types of Potato Cuts

2.4.2. Flavor Development and Screening

Flavor development usually involves coating the base with seasoning from partner suplliers. The seasoning that would be used must have the same aroma and taste as the referenced food. This can be achieved by doing research, where the product development team will do the testing for the taste and aroma of a chosen benchmark. Once the benchmark data was collected, it was compared with the seasonings if they had a similar taste and aroma. The coating seasoning is usually in the form of powder, which then can be applied by mixing the powder with the base to coat the outer layers with the seasoning. Another seasoning application is called liquid coating, which involves mixing a syrupt-type flavoring into the food. This is a common seasoning application in sweet snacks such as popcorn.

For potatoes, powder seasoning technique is commonly used and the first procedure is calculating the percentage desired for application into the prototype sample. Once it was calculated, the mass of the seasoning was weighed according to the calculated value and the weight of the base. After that, it was mixed with the base in a plastic bag before it was shaken gently. The sample prototype was later stored in a sealed metalized bag to be tested later (P. Andayani, personal communication, 18 March 2024).

Once the sample was aging enough, it was ready for screening process where sample are tested and evaluated for its suitability with market demand. Attributes to be tested would be the taste and aroma which would be compared with the reference found in the market that is the same as the flavor of the product that was planned to be launched. An example would be the BBQ beef flavor of Chicago, where they took the reference from the real BBQ beef sold in the market as its reference for its taste and aroma. After obtaining the data, it will be compared with the sample to see if they are similar in taste and aroma (D. Puspita., and P. Andayani, personal communication, 1 April 2024).

Once the product development team approved it, the sample was ready to be tested by customers during the market testing process. The samples are written in codes and were evaluated based on their flavors. After the consumer test result is out, there shall be the Overall Acceptance (OA) number. The sample with the highest OA score wins for further processing namely the Production trial, nutritional analysis, and shelf-life test (P. Andayani, personal communication, 18 March 2024).

2.4.3. Packaging Development

The packaging development process consists of two types of packaging, i.e. primary and secondary. The primary packaging involves determinations of the appropriate types of packaging and materials used for the packing as well as the size and contents of the packaging. Example of primary packaging is whether to use a can as its packaging or a metalized bag and the appropriate size for the packaging for the net weight of the product. Once the materials were chosen, the design, description, and information input for the packaging were created to give customers insight into the products. The information was obtained from the product development team, where the input would be the composition, allergen, and nutritional composition. The secondary packaging is the package used for delivery, such as the carton box for the products. This usually involves determination of the appropriate size and material to prevent the product from sustaining damage or the carton being damaged by external force. Having a dent on the packaging due to the inappropriate size of the carton box after being stacked with another box could be one of the errors. This problem-solving is usually done during the packaging development stage (P. Andayani, personal communication, 19 March 2024).

2.4.4. Registration

The registration process is crucial when creating a new product to be sold in the market. This process has two types which are internal and external. The internal involves only the company while the external involves the organization outside the company such as Halal and BPOM. During the registration process, it was required to create a company account registration to obtain a 'Badan

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Pengawas Obat dan Makanan' (BPOM). The BPOM certificate is an assigned governmental responsibility for food and drug monitoring in compliance with the laws, rules, and regulations. The industry and factory checking is where the inspection takes place by the assigned members of the BPOM organization. The inspector will monitor and examine the workplace and production site to see whether the condition of the industry reached its standard of acceptance before validation and whether the company is commendable in receiving the BPOM certificate. Once the inspection was complete, creating the company account in BPOM and registering for a distribution permit was authorized. Then there are the steps in registration, which must consist of spect composition and analysis results. For spect composition, it must consist of all of the raw materials in the product component while the result of analysis must consist of the nutritional value, micro and metalize value (L. Hardianti, personal communication, 4 April 2024).

Before the registration proceeds further, the design label must be inspected again in order to get the crucial information that is applied in the packaging verified. These crucial components are always at the front of the packaging which is the company name, label, verification of Halal, name of flavor, No. MD (nomor makanan dalam). In the composition section of the packaging, the allergen ingredients must be written in bold to ensure consumers are aware of the allergen present in the product. Direction and duration of storage are also a must to be placed in the production labeling, which consists of the preparation date and production code. The net weight per each packaging is also labeled along with consumer service and its phone number on the label to allow consumers to contact the customer service department of the company and report their issues to them. The diagram and figure in the packaging must not be misleading, such as adding figures of ingredients that weren't included in the composition section. With all the components being inspected and verified, the registration for a certificate of BPOM will be made and given to the company for the new product (L. Hardianti, personal communication, April 4, 2024)

The last registration requirement for this company would be the Halal certificate. Registration of Halal certificates is a must especially since it was stated in the laws that food, drinks, and any distribution service must have a Halal certificate in 2024. It was stated that there are three parties involved in the Halal certificate registration, it was the Badan Penyelenggara Jaminan Produk Halal Kementerian Agama RI (BPJPH), Lembaga Pemeriksaan Halal (LPH), and Majelis Ulama Indonesia (MUI). According to the BPJPH, many steps and documents must be completed before receiving the Halal certificate. Registrants must have an active email that is risk-free to register on the BPJPH website, they then must create an account in BPJPH and apply for Halal certification by submitting the required documents on the BPJPH website. The BPJPH will later verify the documents

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submitted and the LPH will calculate the payment needed for inspection. During this process, the registrant must choose which LPH they wish to apply to be audited. The LPH will request the submission of documents such as the application layer for the certification of Halal, raw materials, and the product name. Once it is paid, the BPJPH will verify the payment and do an inspection of the company for the new product. MUI Fatwa Commission will then conduct a Fatwa hearing and upload the Halal decision to SIHALAL once the product is confirmed to be Halal or not. Lastly would be that the BPJP published the Halal certificate which the registrant could finally apply to their product (N. Sekar, personal communication, 4 April 2024).

The internal registration only involves creating the internal code of the seasoning to ensure that the information regarding the seasoning cannot be leaked easily, such as the name of the flavor of the seasoning. Last but not least are the costing documents, which involve the estimation of the raw material price and the profit obtained after long-term production (P. Andayani, personal communication, 5 April 2024).

2.4.5. Launching

Before the launching of the product takes place, there are some adjustments to be made. Trials for a new product take place, where the trial only lasts for a short term of 1 hour. This trial is to ensure there are no technical issues and errors regarding the production process, such as the type of seasoning that became adhesive too easily. After the trial was complete, the test for self-life took place. This is to analyze whether the duration of the product is still good quality, where the PDQC team tested the prototype to see if it's still appropriate to be consumed according to their standard. Once all testing is completed, purchasing the new seasoning from the supplier takes place, this process involves asking for the internal code of the seasoning and bargaining with the suppliers for an appropriate price which is usually called central purchasing (P. Andayani, personal communication, 5 April 2024).

Briefing was done by informing company partners and introducing the prototype of the new product. If the company partners request an adjustment to the prototype, the product will be readjusted and redeveloped to reach their standard. The long-term launching takes place when the company is ready to mass produce the newly made products and introduce the new product by launching it to the market (P. Andayani, personal communication, 5 April 2024).

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2.5. Product of Potato Chips in Markets

Table 6 shows some well-known potato chip products. Based on its main ingredients, these products can be divided into two different categories. The categories would be the products that use 100% potato and those less than 100%, which usually consist of a mix of potato flour or wheat flour.

No.	Picture	Producer	Flavor	Weight	Price
1	Fig 1. Pringle	Kelloggs'	 Cheddar Cheese Salt and Vinegar Sour Cream and Onion 	107 g	Rp. 16.000 - Rp. 19.000
2	Fig 2. Tricks	Tays Bakers	- Bulgogi - Rendang - Kimchi - Original Aian BBQ	20 g	Rp. 1.200 - Rp. 6.000
3	Fig 3. Japota	Pt. Calbee Wings Food	 Ayam Bawang Sambal Bawang Umami Japanese Seaweed Honey Butter Sapi Panggang 	68g	Rp. 5.700 - Rp. 12.000
4	Fig 4. Portable	Pt. Calbee Wings Food	 Beef BBQ Ayam Bakar Spicy Nori Seaweed Wagyu Beef Steak 	68g	Rp. 7.400 - Rp. 11.000
5.	Fig 5. Ruffles	Frito-Lay	 Original Chicken Cheddar and Sour Cream Jalapeno Ranch Flamin Hot Sour Cream and Onion 	184,2g	Rp. 75.000 - Rp. 135.000

 Table 6. Products of Potato Chips Sold in Indonesia Market

Table 7 shows the types of potato-based for each product that was shown above. Those products with 100% potato-based were Japota, Potabee, and Ruffles, while those products which were less potato-based were Pringles and Tricks.

Table 7. Types of Foldto Das	
Types of Potato Based	Products
Net 100% Detete	Pringles
NOT 100% POTATO	Tricks
	Japota
100% Potato	Potabee
	Ruffles

Table 7. Types of Potato Base for Each Products

3. Materials and Methods

The following are materials and methods used to assess a newly developed snack flavor. In this project, the student was assisting in developing the new product as well as understanding the workflow of the creation of a product. The student was assisting in base development, flavor development as well as screening sessions in the workflow. The PDQC team members handled the rest of the steps in the workflow according to their specialized position.

3.1. Materials and Equipment

3.1.1. Materials

The materials that were used to conduct this project were Potatoes, oil, and seasoning powders. The seasoning powder consists of four different seasonings from different suppliers. All four seasonings were named Seasoning A, seasoning B, Seasoning C, and Seasoning D.

3.1.2. Equipment

The equipment used were a weighing scale, kitchen knife, slicer machine, bowl, micrometer, deep fryer, stopwatch, tray, paper towel, low-nitrogen weighing paper, spoon, plastic bag, labeling paper, metalized packaging, sealer packaging machine, sensory evaluation form, water, and pen.

3.2. Methodology

3.2.1. Based Development

Potatoes as its main ingredients would be supplied by suppliers and were delivered to Indofood company factories. It depends on whether the suppliers would deliver fresh and whole potatoes or sliced and fried potatoes. During the base development phase, the use of a whole fresh potato would be used. The potatoes were first analyzed and sorted out by the Quality Control Department. The Quality Control Department will determine which potatoes have defects and check the sugar components in the potatoes.

Once the Quality Control department has done its analysis, the potatoes are ready to be used for the base development. **Figure 4** summarised the steps of a product development. Continuing on this procedure, all the variables of the base, as well as its cooking methods, are based on the Company SOP. The potatoes were cut in half with a kitchen knife before being sliced in the slicer machine. The thickness of the sliced potato was measured where it must be around 0.03 mm to 0.05 mm. Once the potatoes were sliced, they were placed in a bowl and washed with cold water to remove starch. Once it was washed, the potatoes were strained and ready to be fried in the deep fryer. The oil was poured into the deep fryer until it reached the mark, turned on the power, and adjusted the temperature to 180°C to 190°C in the temperature selection. Once the heat indication in the fryer is off, add 200 g of sliced potatoes to the fryer and let it fry for 2.5 to 3 minutes by using a stopwatch to keep track of the time. Once it is fried, strain the potato chips and place them on trays of paper towels to lessen the oil in the chips. The potato chip base was left to rest for a few minutes to cool it down before being used for seasoning development.



Figure 4. Flow Chart of Base Development Process

Preparation was made by labeling the plastic bag with the paper label consisting of the seasoning names. Once it is labeled, the potato chips weigh around 300 grams per pack totaling four packs. Once it's done, the procedure of Seasoning called dusting is made. The seasoning A was taken out and weighed according to the percentage desired, the weight should not exceed or be less than the value of the percentage. The table below shows the supplier seasoning percentage for each sample.

Supplier	Percentage (%)	Weight (g)
А	8.4	25.2
В	8.5	25.5
С	8.1	24.3
D	8.3	24.9

Table 8. Percentage of Supplier Seasoning for Each Sample

Once the seasoning was weighed, it was spread to the base in the same label packaging as the seasoning. The plastic wrap containing the base and seasoning was sealed temporarily with air in it and shaken to mix it. Once it was mixed, it was sealed and placed in the metallic package. The procedure was repeated with four different seasonings. Once all the base was seasoned, the plastic bag was placed in the metallic package together, sealed with the sealer packaging machine, and labeled with the name of the seasoning and the time it was made. The sample was left for days to be fully marinated to bring out the flavor of the sample.

3.2.2. Screening

The samples that were prepared earlier were subsequently packaged in small metalized bags, with 30 samples contained in each. Each bag is labeled with a code to ensure the anonymity of the samples and maintain the confidentiality of their information. Once the samples were packaged, the sensory evaluation form was created following the structure outlined in **Table 9**. This form includes categories for aroma, flavor, texture, appearance, overall assessment (OA), and the evaluator's ratings for the four sample attributes. The approval ratings range from one to five, indicating a spectrum from aversion to preference for each attribute (**Table 10**). In the next section of the sensory evaluation form, panelists will rank the samples from their favorite to least favorite (**Table 11**). They will also have the opportunity to provide comments regarding the samples they tasted.

Attributo	Sample Code					
Attribute	359	930	081	895		
Flavor	-	-	-	-		
Aroma	-	-	-	-		
Appearance	-	-	-	-		
Texture	-	-	-	-		
Overall Acceptance	_	_	-	-		

Table 9. Sensory Evaluation Form Table

Table 10. Hedonic Scale of Sensory Evaluation for All Sample

Attailautee	Ranking					
Allfibules	5	4	3	2	1	
Aroma	Like Very Much	Like Moderately	Like Slightly	Neither Like	Dislike	
Flavor	Very Good	Good	Fair	Poor	Very Poor	
Texture	Very Good	Good	Fair	Poor	Very Poor	
Appearance	Very Good	Good	Fair	Poor	Very Poor	
Overall Acceptance	Like Very Much	Like Moderately	Like Slightly	Neither Like	Dislike	

Table 11. Ranking of the Samples

Ranking	Sample Code
Ranking 1	-
Ranking 2	-
Ranking 3	-
Ranking 4	-

Once the panel for evaluation was done, the data was collected and analyzed by the writer. The data will show each sample that was required to be improved according to each vote of the applicants as well as the ratings on which the panelists mostly favored the sample. This data will be used by the PD team to develop further or improve the favored sample by the panelist.

3.3 Data Analysis

Once the data was obtained, it was arranged and input in an Excel file. Once all of the data was recorded in the table, use the formula in excel to calculate the average for every attribute in each sample. The formula to calculate the average of the 5-hedonic scale would be as follows:

Average of Hedonic Scale = $\frac{\Sigma(rating \ score \times number \ of \ voter)}{total \ number \ of \ voter}$

This formula was used to calculate the average for both the raw materials on the sample attributes as well as for the sample ranking data.

4. Result and Discussion

Descriptive Analysis

After the evaluation form was distributed and completed, it was later collected to the Product Development and Quality Control (PDQC) department for analysis. The total evaluation formed submitted was thirty including the addition of the writer evaluation with some comments attached to the form. The evaluation form consists of two questions, where the panelist rating the sample attributes and gives their favorability ranking of the four samples. The results of the panelists' rankings—ordered from least favored to most favored—were compiled and presented in **Table 12**, providing a clear visual representation of preferences. The average of the total voters for each sample attribute was summarized in **Table 13**. Based on the data collected and the graphs used to aid in the analysis, the results show minimal differences between the samples. This indicates a striking trend: many panelists exhibited very similar preferences and levels of favoritism towards all four samples assessed. The overall consistency in responses suggests that the samples may be perceived as equally favorable, highlighting the challenge of distinguishing qualities among them.

All four flavoured samples have the same flavor name but their attributes such as appearance and its flavor in taste and aroma are varied between each samples. For appearance, the color for this specific flavor is between the color blood orange to bright orange. The four sample shows different shade of colors despite the almost similar appearance, where there are the lighter shade or darker in red. During the oral test, the taste and aroma shows a tint difference which is quite hard for the panelists and the writer to give their votes for rating both the attributes of the four samples. A strong pungent and stinging sensation could be sense from smelling the aroma and during the tasting process. The different samples has a different levels of pungent and stinging aroma from a strong, light pungent or none at all. While for the taste of the samples, there are a mixture of sweet, sour, spicy, umami, and slightly salty flavor. Despite having the combination of all of the following tastes, each samples have different level of dominance for each taste. There is a sample that are more dominant in its sweetness, while the other is more spicy and sour. With this difference, the panelist could differentiate on their perseverance in this flavor and give an insight into whether the samples could be improved better according to their preference.

Table 12 presents the result of the rankings for each sample and the corresponding number of votes received for each ranking position. The use of different colors emphasis the analysis results to visually indicating the panelist preference level when ranking the sample from least favored to most favored. The darker shade of red indicates the least number of vote which is the value three. While the darker shade of green represents the highest number of vote which is value twelve. The orange to yellow color indicates an intermediary vote number where the value range from 6 to 8. According to the results, sample 930 emerge as the most favored with 12 panelist votes, followed by sample 895 as the 2nd place with 11 panelist votes and 3rd place were 359 with 11 panelist votes, and last place was sample 359 with 11 panelist vote this sample as rank 4th.

Table 12. Number of Panelist Ranking for Each Sample. Color indicates different rank, being red color is the lowest and green is the highest.

Sample Code	Ranking					
	1st	2nd	3rd	4th		
359	5	8	6	11		
930	12	8	5	6		
081	8	4	8	10		
895	5	11	11	3		

The bar graph showed in **Figure 5** illustrates the attribute ratings provided by panelists for various sample codes. Specifically, Graph A represents data from sample code 359, Graph B from sample code 930, Graph C from sample code 081, and Graph D from sample code 895.



Figure 5. Attributes Rating of all Panelists for All Samples

This graph captures the number of panelists who rated each sample's attributes based on their preferences. The analysis reveals the overall liking of each attribute, which aids in understanding panelist preferences across all samples. Sample with the highest positive votes in their attributes in the graph would be 930 with 15 panelist that vote it as good. While neutral votes for the overall acceptance attributes go to the sample 081 with 12 panelists voting it as normal, but it also has the highest negative votes in their overall acceptance attributes with 2 panelists voting it as very dislike. But among all the samples, 081 sample has the most vaborable average attributes.

Table 13 summarized the the average values for various attributes across all samples. This data helps to analyse the preferences associated with each samples, highlighting attributes that are favored in each samples. The average value for all of the attributes are consistent, however for sample 081 has a lower average value (2.87) compare to all sample. The result might be due to the robust flavor and the heat intensity are overwhelming for the panelist. It could be the result of unbalanced in the flavor combination such as the umami flavor might be to bold, the spice level is to high or the taste is to robust.

Attribute	Sample Code					
Attribute	359	930	081	895		
Flavor	3.1 <u>+</u> 0.92	3.57 <u>+</u> 0.97	2.87 ± 1.01	3.27 ± 1.05		
Aroma	3.17 ± 1.05	3.57 <u>+</u> 1.04	3.1 ± 0.96	3.10 ± 0.76		
Appearance	3.50 ± 0.57	3.53 ± 0.63	3.37 ± 0.96	3.40 ± 0.72		
Texture	3.67 ± 0.80	3.70 ± 0.75	3.5 ± 0.94	3.73 ± 0.69		
Overall Acceptance	3.20 ± 0.85	3.74 ± 0.74	2.97 ± 0.89	3.23 ± 0.77		

Table 13. Average Value of of Hedonic Scale of All Sample



Figure 6. Web Chart of Average Value for All Sample

The web graph above (Figure 6) shows the average values of various attributes for different samples, facilitating an understanding of their acceptance rates among panelists. Results shows that sample 930 has the highest attributes average all in combine compares with the rest of the samples. While the sample with the lowest average attributes would be sample 081. Both 359 and 895 was on par with almost the same amount of average value of the samples attributes. In general, all the sample have a normal acceptance level, however this score is vary from good (score 4) to dislike (score 2) indicated by the standart deviation value of all the sample and the attributes. A key factor influencing the crispiness of the samples appears to be the starch content, which is notably lower in sample 081 compared to the others, despite them suppose to be the same. Starch content is a primary determinant of the texture in potato chips. Additionally, components such as protein nitrogen and non-starch polysaccharides, particularly pectic substances like protopectins, also play significant roles in textural quality (Reyniers et.al, 2020). The error in the texture could also been caused by the base preparation procedure, where the base was fried in a longer time or with a higher temperature or reheated in the oven for to long. This is due to another content factors which is reducing sugar in the potatoes. It could affect the appearance due to the caramelized sugar during frying process in a high temperature and enhancing the flavor. Browning from the caramelized sugar was also caused by frying in a high temperature in a long duration, leading to increase in crispiness to the potato chips (Agrwal et.a, 2021). These texture variations will not affect the end result of the products to the company, as their main focus lies in the samples aroma and flavor ratings. The panelists particularly noted a favorable balance of flavors in sample 930, which includes agreable levels of spiciness, umami, and sweetness.

5. Conclusion and recommendation

The conclusion from the results indicates that sample 930 has the highest sensory value, positioning it as the most favorable option. This suggests that sample 930 may be a potential candidate for the development of a new flavor. However, this conclusion does not guarantee that sample 930 will be chosen as the final product for the company project. The decision ultimately lies with the managers and management staff, but consumer opinions will carry significant weight in the final decision. There remains a strong possibility for redevelopment or improvements to the samples, which could result in modifications to or replacement of the current samples.

Several improvement suggestions could aid future projects. During the base development stage, it is important to maintain a constant oil temperature and adhere to the specified frying time according to the company's Standard Operating Procedures (SOP). If the base is prepared in advance and needs to be reheated, ensure that the oven is set to a consistent temperature and follow the SOP for the duration of heating. Conducting oral testing with professionals is vital to ensure the texture meets the required standards. During application, the base should be sealed before use to prevent moisture buildup. When applying seasoning, it is crucial that the weight of the seasoning is accurately matched to the coating ratio and that it is distributed evenly to avoid overcoating some chips. For more reliable results, it is recommended to involve more than 30 panelists in the sensory test, along with using a 10-point hedonic scale for assessment.

SELF REFLECTION

During the period of my internship program, I learn the workflow in creating a new potato based product. I also help my supervisor and the members of the PDQC team in their work. There are many new skills that I accumulated during the internship period. I managed to learn and practice in seasoning methods, from slurry, dusty and oil dusty. There are other skills such as gaining the knowledge in packaging, conducting sensory evaluation, taste testing knowledge and handling certain documents such as costing and making reports from the results after exibition events. All of this skills are specified to be used in food industries like snacks company.

I discovered many of my flaws and strength during my stay in Indofoof Fortuna Makmur as an intern. The strength would be the understanding of using my soft skill such as microsoft, excell and power point presentation since it was used often. The other strength would be the ability to keep a confidential information such as the upcoming product or the project from leaking out. Adapting to the new workplace is also the strength that I used during my internship as well as the confidence to learn more helps my journey as an intern better. While the flaws I have is my calculation in creating a temporary packaging for the sample. I have difficulty in adjusting and creating the packaging to ensure the size are fit for the samples to be store. Another flaws would be my lack in skills as a sensory panelist, my sensory knowledge and understanding is still lacking and required the guidance from the professionals to give a proper and good feedbacks regarding to the samples tested.

There are many suggestions that I could give before and after entering the internship workplace. Before applying to companies for the internship program, the student was recommended to have the skills that matches with the department that you are applying for. The intern must also have the determination and willingness to learn and experience new things during the internship program, since the internship purpose is to gain new experience. Adapting to the new environment is also the skill that is going to be need for the rest of the program period, that includes socializing with the coworkers in the company, willingness to assist them with their task and the curiosity to learn and ask questions. If the intern wish to apply in a food industry company, the intern at least must have a basic knowledge in cooking since this will be applied on every occasion in the industry work place. The intern must also have a high interest in conducting cooking experiments as well as a high curiosity in testing new samples and different products. Intern must also be aware of their own allergies, since the intren will be required to taste testing samples that might consist of many allergen.

CONCLUSION & RECOMMENDATION

I manage to fullfill the original goal which is to learn th work flow of how a new potato chips flavor product was launched from the beginning up to the end. I was given the opportunity to learn theoretically by exchange communication with the PDQC members. However, i was only allowed to participate in assisting throught the base development and seasoning development and screening. The other goals is that the manager encourage me to learn all the work and task that the PDQC members undergo.

My recommendation for future internship experince would be to never hesitant to ask question when you don't understand. When there is an opportunity was given to us, make sure to take that opportunity to learn and gain new experience and skills. Last recommendation would be try to interact with more people and get to know them to help with socializing in the future business career.

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APPENDICES

	Attributes				
Panelist	Aroma	Flavor	Texture	Appearance	Overall Acceptance
panelist 1	3	4	3	4	4
panelist 2	2	2	4	3	3
panelist 3	3	3	4	3	3
panelist 4	2	1	5	4	2
panelist 5	4	4	5	4	4
panelist 6	3	3	4	4	3
panelist 7	3	3	4	3	3
panelist 8	4	3	4	4	3
panelist 9	3	4	3	3	3
panelist 10	4	3	3	4	3
panelist 11	2	2	2	2	2
panelist 12	4	4	4	4	4
panelist 13	4	4	4	4	4
panelist 14	2	2	3	3	2
panelist 15	5	4	4	3	4
panelist 16	5	4	4	3	4
panelist 17	3	3	4	4	4
panelist 18	3	3	2	4	3
panelist 19	2	3	4	3	3
panelist 20	2	2	3	3	2
panelist 21	2	2	3	3	2
panelist 22	2	3	4	4	3
panelist 23	5	3	4	4	4
panelist 24	4	5	5	4	5
panelist 25	4	4	3	3	4
panelist 26	3	3	4	4	3
panelist 27	4	4	4	4	4
panelist 28	3	2	2	3	2
panelist 29	1	2	4	4	2
panelist 30	4	4	4	3	4

Table 14. Attributes Rating of All Panelists for Sample 359

Densliet			Attributes		
Panelist	Aroma	Flavor	Texture	Appearance	Overall Acceptance
panelist 1	4	4	3	4	4
panelist 2	3	3	3	4	3
panelist 3	3	4	4	3	4
panelist 4	3	4	5	4	4
panelist 5	5	5	5	3	5
panelist 6	4	4	4	3	4
panelist 7	4	4	4	3	4
panelist 8	4	4	4	4	4
panelist 9	3	4	3	3	3
panelist 10	4	2	3	4	3
panelist 11	2	3	3	3	3
panelist 12	2	2	4	4	3
panelist 13	4	4	4	4	4
panelist 14	4	4	3	3	4
panelist 15	5	5	4	4	4
panelist 16	5	3	4	4	4
panelist 17	4	4	4	4	4
panelist 18	3	2	3	3	2
panelist 19	4	4	3	4	4
panelist 20	3	3	3	2	3
panelist 21	4	4	3	2	4
panelist 22	2	2	3	3	3
panelist 23	4	2	4	4	3
panelist 24	3	3	2	4	3
panelist 25	2	2	4	3	3
panelist 26	4	4	4	4	4
panelist 27	4	5	5	4	5
panelist 28	5	5	5	4	5
panelist 29	1	4	4	4	4
panelist 30	5	4	4	4	5

 Table 15. Attributes Rating of All Panelists for Sample 930

Deneliet			Attributes		
Panelist	Aroma	Flavor	Texture	Appearance	Overall Acceptance
panelist 1	4	4	3	4	4
panelist 2	1	1	3	3	1
panelist 3	2	2	3	2	3
panelist 4	3	3	5	4	4
panelist 5	5	4	5	5	4
panelist 6	4	3	4	4	4
panelist 7	4	3	4	3	3
panelist 8	4	2	4	3	3
panelist 9	3	4	3	4	3
panelist 10	3	3	3	4	3
panelist 11	3	4	3	3	3
panelist 12	3	3	3	3	3
panelist 13	4	4	4	4	4
panelist 14	3	3	3	3	3
panelist 15	2	2	3	3	2
panelist 16	3	2	4	2	3
panelist 17	4	4	4	4	4
panelist 18	4	3	3	4	2
panelist 19	4	2	2	2	2
panelist 20	3	2	3	3	3
panelist 21	4	5	4	4	4
panelist 22	3	4	4	4	4
panelist 23	2	2	4	3	2
panelist 24	2	2	5	5	2
panelist 25	2	2	2	2	2
panelist 26	3	3	4	4	3
panelist 27	4	4	4	5	4
panelist 28	3	3	3	3	3
panelist 29	1	1	1	1	1
panelist 30	3	2	5	3	3

 Table 16. Attributes Rating of All Panelists for Sample 081

Densliet	Attributes				
Panelist	Aroma	Flavor	Texture	Appearance	Overall Acceptance
panelist 1	3	3	4	4	4
panelist 2	2	2	3	3	2
panelist 3	3	2	3	2	2
panelist 4	3	2	5	4	3
panelist 5	4	5	5	4	5
panelist 6	3	5	4	4	4
panelist 7	3	5	4	4	4
panelist 8	3	2	4	3	3
panelist 9	3	4	3	4	3
panelist 10	4	3	3	4	3
panelist 11	3	4	4	3	3
panelist 12	4	4	4	4	4
panelist 13	4	4	4	4	4
panelist 14	2	3	3	3	3
panelist 15	2	2	3	3	2
panelist 16	3	3	4	2	3
panelist 17	3	4	4	4	4
panelist 18	2	2	3	3	3
panelist 19	3	3	2	3	3
panelist 20	3	2	3	2	2
panelist 21	2	2	4	2	2
panelist 22	2	2	4	4	3
panelist 23	3	3	4	4	3
panelist 24	3	4	5	4	4
panelist 25	3	4	4	3	3
panelist 26	4	4	4	4	4
panelist 27	4	5	4	4	4
panelist 28	3	3	3	3	3
panelist 29	4	3	4	3	3
panelist 30	5	4	4	4	4

 Table 17. Attributes Rating of All Panelists for Sample 895

No.	Comments
1.	Sample 895 is balanced
2.	the 895 is creamy and spicy but the 359 is too sweet
3.	Good mouthfeel for samples 895 and 930, but sample 895 tends to be more savory and has hints of onions or garlic
4.	359: i don't like it, taste strange 930: too sweet, but tasty 081: savory 895: sausage
5.	The taste is strange, making you nauseous, and smells musty
6	spicy
7	Spicy cheese
8	The taste is strange and very artificial. The aftertaste causes nausea especially sample 081
9	The overal aroma is okay, however not strong enough in 359 and 895, the taste in samples 081 and 930 is bulat, comfortable, bold and could imagine the dish. Taste for sample 895 is reach in cheese and other element but not very specific leading to guessing on what flavor it really is not very salty. Sample 359 is not very salty. Texture of potato is mostly hard, 895 is better in texture.

Table 18. Comments Written in the Evaluation Form