

ENRICHMENT PROGRAM REPORT

SWEET PRODUCT APPLICATION INTERNSHIP AT PT INDESSO NIAGATAMA

STUDY PROGRAM
**Food Science
& Nutrition**

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ENRICHMENT PROGRAM REPORT
SWEET PRODUCT APPLICATION INTERNSHIP AT PT
INDESSO NIAGATAMA

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ABSTRACT

This internship report records the six-month of professional work experience at PT Indesso, focusing on the product innovation and development at Sweet Innovation and Application Department. A lot of projects were conducted throughout the six-month period, including creating applications for cookies, chocolate, gummy, and other product requests. The project that was detailedly explained was reformulating a chocolate-flavored cream filling by reducing cocoa powder content by 50% while maintaining the sensory properties including flavor, texture, and color comparable to the benchmark product. The reformulation process included tons of trials in flavorants, colorant, and alternative ingredients such as cocoa shell-based products to enhance texture and mouthfeel. The author's responsibilities included assisting with flavor and color formulation, preparing base products, conducting sensory evaluations, and supporting cost-reduction strategies for clients projects. Additional tasks such as determining price strategies for natural colorants and supporting sensory tests such as triangle tests were also done by the author. The internship provided hand-on experience to industry practices, enhanced knowledge in product development, and developed soft skills as teamwork, problem solving, collaboration in addressing client requirements while adapting to market current trends, such as rising raw material costs.

Keywords: *chocolate, cocoa reduction, cocoa-shells, colorant, cream filling, flavor, refiner*

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CHAPTER I. INTRODUCTION

1.1 Company Profile

PT Indesso is a leading Indonesian company specializing in the production of natural ingredients, particularly essential oils, flavors, and fragrances, utilizing Indonesia's abundant natural resources. The name "Indesso" originated as an abbreviation of "*Indonesia Essential Oil*," reflecting the company's early focus as a small-scale distillation and export business for clove leaf essential oil. Founded in 1968 by Robertus Hartanto Gunawan in Purwokerto, Central Java, PT Indesso has significantly expanded over the decades. In 1992, the company began distilling clove oil derivatives such as Eugenol, Isoeugenol, and Caryophyllene Acetate, and expanded its product line to include botanical extracts like cocoa, coffee, tea, vanilla, ginger, red ginger, and other spices.

PT Indesso's commitment to quality was recognized in 1996 when it became one of the first companies in Central Java to achieve ISO 9002:1994 certification for its Quality Management System; this certification has continuously been upgraded to meet the latest standards. To support its growing operations, the company established a manufacturing facility in Cileungsi, West Java, in 2001. Over time, PT Indesso expanded its business into new segments, including seasoning and savory ingredients through the Culinaroma Group, and proceeded into the food service sector. Additionally, the Niagatama Group was also established as a new segment of Indesso's business as a specialty ingredients distributor.

The company has also earned its success and has earned numerous recognition, including the prestigious Primaniyarta Award as the Best Performing Exporter in 2009, the most recent one is in 2021 which therefore received a total of nine times. Today, PT Indesso operates multiple offices in Indonesia, with its head office located in Tanah Abang, Jakarta, and has expanded its presence internationally with offices in Malaysia, Singapore, and Tanzania.

1.2 Vision and Mission

PT Indesso's vision is to become a global leader in food industries through dedication to sustainability, innovation, and the well-being of both society and environment. This vision is closely aligned with its mission, which focuses on ensuring customer satisfaction through creation of innovative solutions and producing high quality products and services while also prioritizing sustainable and environment protection approach in all aspects of operations.

1.3 Company Activity

Indesso is a research-oriented and innovation-driven company which applies sustainable practices. The company utilizes Indonesia botanicals and other natural resources to develop a diverse

range of natural ingredients to support the creation of limitless everyday products that brings solutions to their customers. The four businesses that Indesso's offer to customers include Aroma Ingredients, Taste and Wellness, Food and Savory Solution, and Specialty Ingredients Distributor.

1.3.1 Aroma Ingredients

On the Aroma Ingredients, Indesso specializes in creating ingredients from natural and nature-based sources to enhance the specific aroma and flavor. They also provide ingredients that could improve specific aromas, taste, and overall well being, which benefits and is used in many industries including flavor and fragrance industry, aromatherapy, cosmetics, personal care, and pharmaceutical.

1.3.2 Taste and Wellness

For Taste and Wellness, it provides Indonesian botanical extracts and CO₂ extracts to boost overall taste of food and beverage applications while also providing beneficial and functional properties that can serve other purposes in different industries such as cosmetics, nutrition, pharmacy, agriculture, and animal feeds.

1.3.3 Food and Savory Solution

As for Food and Savory Solution, it provides support to clients by helping the clients to adapt to the market growth by producing customized seasoning and savory ingredients. Which are now expanded into providing food and beverage solutions.

1.3.4 Specialty Ingredients Distributor

The Specialty Ingredients Distributor refers to Indesso's collaboration with leading global specialty ingredient companies, such as Firmenich, Oterra, Nexira and other partners, to distribute and market their products in Indonesia. Through innovation and application, Indesso supports customers in developing diverse product applications.

1.4 Student's Department Description

Under the Sales & Marketing Food Ingredients, which is led by the Administrative Assistant, there are a total of six other departments, these include Sales Food Ingredients, Marketing Food Ingredients, New Business Development, Sweet Product Innovation and Application, Financial Planning and Analysis, and Operation. Within the Sweet Innovation and Application, there were several subdivisions with each focusing on specific product categories. These include Product

Development - Food Service and Sweetener, Sweet Innovation and Application Bakery, Innovation and Application - Cheese Powder, and Product Development - Beverage (Figure. 1)

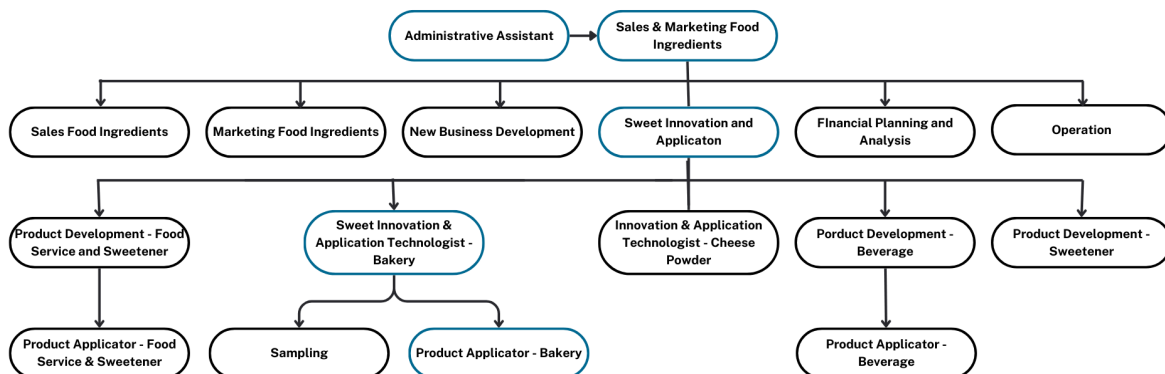


Figure 1.1 Organizational Structure

The Sweet and Innovation department plays a crucial role in the company as a formula creator or reformulation to support the client in adapting to the market demand by providing or producing customized product applications using the product of Indesso and its partner industries (include Oterra, Nexira, Firmenich). On this Internship, the author was given the opportunity to work under the Sweet Innovation and Application - Bakery. In this division, the author experienced reformulating and producing applications for chocolate cream, chocolate compound, butter biscuit, gummy, dessert premix, and other product applications according to the client's request. The role of the author as an intern involves assisting the supervisor in formulating or reformulating a project that had been given by the Sales and Marketing Food Ingredients team to create a sweet product application for client, based on the client request.

CHAPTER II. INTERNSHIP ACTIVITIES

2.1 Working Conditions

The author was assigned to the Sweet Product Innovation and Application department, where the focus was on product development within laboratory setting. The internship program was carried out from July 1st, 2024 until 31 December 31st, 2024. Throughout the internship period, all interns of the sweet innovation R&D department were required to work daily in the office laboratory.

Similar to most of the offices, PT Indesso owned a fixed work schedule, with working hours starting from 8AM to 5PM, Monday to Friday. Interns were also provided with daily lunch in which it could be enjoyed during the lunch break schedule starting from 12PM to 13PM. The company's schedule was consistently followed by employees, and despite the abundant project given to each division per day, the author rarely worked beyond the regular office schedule. Due to the high number of projects daily which can reach two to three or more tasks per day, it can be considered that PT Indesso reflects a fast-paced work environment.

2.2 Daily Tasks

The author was assigned to do day-to-day activities which are usually given by the supervisor directly on that day. It usually follows the typical steps for each project assigned starting from studying the base formulation of the product that will be reformulated, the trial and error process, and the packing. The tasks that were given can be classified as follows:

2.2.1 Application preparation

The main activity of the internship involved product application and innovation, which focused on creating product applications for various projects. However, achieving this required an initial phase of application preparation, a critical step in creating the base product for subsequent trial-and-error formulations. This phase involved studying the materials and procedure for the base product, followed by its preparation from scratch, which included tasks such as weighing ingredients, mixing, and using specific equipment. Each application preparation was tailored to the unique requirements of the project, as different products demanded different base preparation methods.

For chocolate-based projects, such as developing chocolate cream fillings or chocolate bars, the base preparation required creating a chocolate cream base using a refiner machine. The

process began with studying the formulation provided by the supervisor, which included the ingredients and procedure. The author then measured precise quantities of oil, cocoa powder, milk powder, and creamer. After weighing, the ingredients were mixed and processed using the refiner machine to achieve a smooth chocolate cream base. This base was then used in subsequent steps for flavor and color formulations to meet client specifications.

For butter cookie projects, the base preparation involved creating a non-flavored dough. Similar to the chocolate projects, the first step was to study the formulation and procedure, which detailed the required ingredients and steps. The author then carefully weighed the ingredients, including eggs, non-flavored butter, icing sugar, and low-protein flour, and prepared the cookie dough base. This dough was used as the foundation for further applications, such as adding butter flavoring or substituting sugar with healthier sweeteners, depending on the project objectives.

For gummy projects, the preparation phase focused on creating an unflavored gummy base. The author studied the procedure provided by the supervisor, weighed the necessary ingredients, and followed the steps to prepare the base using a hot plate. This process involved precise temperature control and stirring to achieve the correct gummy texture, which was later used for flavor and color formulation trials.

These tasks were fundamental in the application preparation phase. While the general workflow like studying the formulation, weighing ingredients, and creating the base, remained the same across projects, the specific procedures, ingredients, and equipment varied depending on the product being developed. Each project provided an opportunity to apply these unique techniques while adapting to the unique demands of the product.

2.2.2 Assisted Product Application Formulation

The author was assigned to assist in the formulation of product applications using base products prepared during the earlier steps. This process often involved adjusting the color and flavor of products that had been altered, either through ingredient reduction or substitution, to meet goals like cost reduction, health considerations, or specific client requests.

The formulation process was typically led by the supervisor, who selected the appropriate flavorings and colorants based on their volatility, compatibility, and how they interacted with

the product's base or carrier. Once the supervisor determined the initial flavor products, the author adjusted the flavorant dosage, under the supervisor's guidance, until the product matched the benchmark.

During this process, the author and the supervisor conducted several internal evaluations to check whether the product's sensory properties—like taste, aroma, and appearance—met the target or needed further adjustments. These evaluations did not involve any specific tools but instead relied on the supervisor's strong sensory skills. The supervisor also often asked for input from other colleagues in the lab to ensure the product was as close as possible to the client's expectations. This process of testing and revising was repeated until the client's requirements were fully met.

Through these tasks, the author gained valuable experience in formulating various applications, such as matching flavors for butter cookies, developing gummy candies, formulating biscuits, creating cream fillings, and enhancing wafer products. The formulation approach for these applications followed the same process as described above.

2.2.3 Application of 5R

The 5R of PT Indesso was known as the rules found in the company's laboratory. This abbreviation stands for Ringkas, Rapi, Resik, Rawat, dan Rajin. This rule was expected to be followed by all employee work in the product application lab in order to maintain the cleanliness of the lab. The activities of 5R include positioning all raw materials, instruments, and equipment to the original place every time each project was finished and before switching to work for another project. The author was also assigned to create the labeling for trash can.

2.2.4 Irregular Tasks

The author also performed several irregular tasks during the internship. These tasks were typically carried out to assist coworkers with urgent projects that required additional support to meet deadlines. Examples of such tasks include assisting the beverages team - dairy with the UHT (Ultra-High Temperature) process by managing to move the sterilized milk into the empty bottles after it went through the UHT machine that the co-worker operates.

On several occasions, the author contributed to determining the pricing of natural colorants by matching their shades to those of artificial colorants. Once the color was successfully

matched, the dosage of the color used was recorded and submitted to the supervisor. This information was then shared with the marketing and sales team, who used it to calculate the final selling price of the natural colorant.

Lastly, the author regularly assisted in conducting triangle tests for product samples. This involved preparing the samples by labeling them with unique codes, distributing the samples and questionnaires that contained three different unique codes for panelists to identify the odd sample. After the panelists completed the questionnaires, the author collected the responses and tallied the results. However, the author was not involved in the data analysis process.

2.3 Theory and Practical Comparison

Most of the activity during the author internship period was found to be related to the courses that the author learnt in campus's course. Author got to have hands - on experience with precise adjustment of flavor to produce a desirable outcome based on the client's request. This experience reminds the author of a flavor chemistry course that was taught on campus as the fundamental knowledge of flavor formation. The sensory evaluation course also taught a fundamental knowledge on the sensory term of food. The author found several differences between the sensory evaluation obtained from campus and during internship, in which the one that was obtained from campus is more towards the data analysis and fewer sensory tests, while during intern, the sensory test was a lot more than the campus as each trial required testing or evaluating resulting to broader terms and knowledge on sensitivity of taste buds for sensory tests, although no data analysis done.

PT Indesso also gave me the opportunity to directly apply and formulate the additive, mostly colorant, to food products while also learning on-site regarding the usage limits of different type of colorant, such as differences in natural and artificial colorant usage limit. This opportunity was related to the Food Additive course that was learnt on campus. Lastly, they also gave the author the opportunity to use the equipment and tools independently in the actual workplace.

2.4 Challenges

The author successfully overcame several challenges during the internship period. Precision in weighing small amounts of ingredients during the trial-and-error process was initially difficult, requiring attention to detail to minimize mistakes. Adapting to new tools in the fast-paced lab environment also posed a challenge, as it demanded rapid learning and adaptability.

Differentiating subtle flavors was another hurdle due to limited prior experience with diverse foods. However, regular sensory evaluations and triangle tests helped improve the author's ability to distinguish between different tastes. Additionally, the fast workflow, often involving overlapping projects, required the author to document all formulations carefully to track progress and ensure improvements were effectively managed.

CHAPTER III. PROJECT DESCRIPTION

3.1 Introduction

During the internship, the author was not assigned to specific, in-depth projects, instead, the author was given various daily tasks aligned with the bakery division to support the host institution in managing its extensive workload. These tasks were primarily client-driven and focused on ingredient substitutions, cost reduction, and the development of new product applications, including flavor and color formulations. The projects provided an opportunity for the author to contribute meaningfully to the institution's objectives while gaining practical experience.

The workflow for each project followed a similar process. It began with the marketing and sales team receiving client requests, which often involved altering product formulations to substitute or reduce certain ingredients, or to create new applications. The marketing team then relayed the project details to the author's supervisor, who assigned tasks to the author. The author's responsibilities included studying the provided formulations, preparing bulk base products, and assisting in the application development process. This involved extensive trial-and-error work to adjust flavors, colorants, or other ingredients to meet the desired client specifications. Once the product was optimized, internal evaluations were conducted with laboratory team members, followed by assessments with the marketing team. If the product met expectations, typically three proposals were prepared and sent to the client for final selection. If it still did not satisfy the client, further revisions and trials were done based on client feedback.

Throughout the internship, the author contributed to several significant product development projects. These included reducing cocoa powder in chocolate compounds and cream filling, creating cost-effective butter cookies by using margarine enhanced with butter flavor and replacing sugar with healthier sweetener options, developing gummy candies with customized flavors tailored to client specifications, and other interesting projects. One of the projects that the author thought is the most memorable and most frequently done was the cocoa reduction which will be discussed further.

3.2 Cocoa Reduction on Chocolate-Flavored Creamfilling

The increase in cocoa prices has become a major concern for chocolate-producing industries, with prices exceeding \$10,000 per metric ton in March 2024, double the price seen in January 2024 and surpassing previous years. This problem is primarily attributed to poor cocoa harvests caused by

adverse weather conditions such as heatwaves and heavy rains, which were influenced by the El Niño phenomenon (UNCTAD, 2024).

In this project, a client, which was a sweet wafer snack producer, requested a 50% reduction in the cocoa content of their wafer chocolate cream filling due to the increase in cocoa price for the past few years. The cocoa powder content was initially 10% in the cream filling in which according to Badan Pemeriksaan Obat & Makanan Republik Indonesia (2023), This product could not be categorized as “chocolate creamfilling” as it did not contain 25% or more cocoa powder, but instead was grouped as “chocolate-flavored cream filling” due to the amount of cocoa powder contained in cream filling were in the range of 5-10%. This reduction was aimed to address the rising in cocoa price, while still maintaining the similar selling price, and ensure that the sensory profile — flavor, texture, and color — of the product remained similar.

In order to successfully achieve the objective of the product, the detailed sensory characteristics of benchmark’s cream filling were thoroughly studied and described as shown in the table below.

Table 3.1 Sensory Characteristics of Benchmark Cream Filling

Benchmark Creamfilling Sensory Characteristics	Description
Flavor	Intense chocolate flavor with bold bitter bottom note
Texture	Thick and creamy body
Color	Dark brown color with a little hint of bright orange and red

Table 3.1 summarizes the sensory characteristics and description of flavor, texture, and color. These were created by both author and supervisor to serve as a target profile for formulating the 50% reduced cocoa cream filling with sensory attributes closely resembling those of the benchmark.

3.2.1 Procedure of Base Preparation and Formulation

To begin the cocoa reduction project, a base chocolate-flavored cream filling was prepared with a 50% reduction in cocoa. This base was created by mixing cocoa powder with milk powder, sugar, whey powder, and non-dairy creamer. Lecithin and oil were then added to allow the refinement during processing. This reduced-cocoa base was used for a series of

trials to match the flavor and texture of the benchmark chocolate cream, which had no cocoa reduction.

After the base was prepared, Three flavorant were selected by the supervisor and tested one by one in order to determine the effect of each flavorant on the base of the chocolate cream filling. It was then evaluated by questioning all possible questions regarding the flavor profile of the product, such as whether the flavor profile was suitable and appropriate or not to the base / carrier added. The flavor was then sorted into fewer flavorant that were potential to be used for the cream filling. In this case two out of three flavorant that produce a similar flavor profile as the benchmark was selected. The mouthfeel or the body of the reduced chocolate were also compared to the benchmark by evaluating the physical sensation experienced in the mouth between the two chocolate cream filling using smoothness, creaminess, and richness attribute. Ingredients such as cocoa shells were selected by the supervisor to replace 50% of the cocoa content. This substitution was done to adjust the body of the reduced cocoa, ensuring it matched the texture and mouthfeel of the benchmark.

After the flavor formulation has been matched, color formulations were conducted. Three different oil-based natural colorants were selected by the supervisor which were Colorfruit Black, CulinaColor Orange, and Fruitmax Red. Each of these colorants were blended in different dosages until matched the color of the benchmark. A tempering processing was also done after the color match was conducted. Final dosages were then recorded to be submitted to the clients.

3.2.2 Project Results

From the numerous project trials, the results of each parameter — flavor and color — could be shown into further tables. **Table 3.1** shows the type of flavor that was added into the base of reduced 50% chocolate cream filling. The dosage used was censored due to the confidentiality of the company. It was shown on the results that flavor A and C, on single use, had potential in matching the cream filling of benchmark chocolate cream filling. meaning it gives a potential flavor profile to the benchmark although it missed several notes. Flavor A gives an intense chocolate flavor however it does not remain long in the after taste part, whereas flavor C lacks chocolate top note flavor but creates rich bitter chocolate on the after taste. Flavor B on the other hand, did not have any potential in matching the flavor of the benchmark cream filling due to its difference in chocolate characteristics such as long sweet

note. Whereas the blending of flavor A and C in n/a dosage used could successfully match the benchmark cream filling flavor, in which it provided a bitter and intense chocolate bottom note that resembled the original product.

Table 3.2. Flavor Results

Type of Flavor	Description of Flavor Profile	Dosage	Matched/Potential/Unmatched
A	Intense chocolate	Confidential	Potential
B	Long sweet after taste	Confidential	Unmatched
C	Rich bitter chocolate aftertaste	Confidential	Potential
A+C combination	Intense chocolate flavor with bold bitter bottom note	Confidential	Matched

On **Table 3.2**, the results of color matching were shown. Turns out the mix of three different colorants which was Colorfruit Black, Culina Color Orange, and Fruitmax Red, each with different dosage recorded, matched the benchmark chocolate-flavored cream filling color.

Table 3.3 Color Results

	Type of Colorant	Dosage	Matched / Unmatched
Proposal 1	Colorfruit Black	Confidential	Matched
	CulinaColor Orange	Confidential	
	Fruitmax Red	Confidential	

Each of the results were discussed in detail into different subheadings seen below.

3.2.3 Flavor and Mouthfeel Formulation of Cocoa Reduction

In the flavor formulation process, the supervisor suggested several potential flavorings to match the benchmark chocolate-flavored cream's taste. The final formulation included a blend of two Firmenich flavors: A and C Flavor. These flavors provided a bitter and intense chocolate bottom note that closely resembled the original product. Additionally, Cocoa Booster, a product from Indesso made from cocoa shells, was added to improve the body and thickness of the cream filling. Cocoa Booster was key in achieving a texture similar to the original chocolate-flavored cream.

Research shows that cocoa shells can serve as a potential alternative to cocoa powder in various food applications, including bakery products. Cocoa shells are less expensive than cocoa powder, but still contain valuable nutrients and bioactive compounds such as dietary fiber, polyphenols, and theobromine, which can contribute to a similar sensory profile to cocoa powder. The high fiber content of cocoa shells, which ranges from 13.86% to over 50% depending on processing methods, helps improve the thickness and mouthfeel of chocolate cream fillings (Younes et al., 2023; Rojo-Poveda et al., 2020). Additionally, the theobromine found in cocoa shells imparts a mild cocoa-like taste, although it may not fully replicate the complete flavor profile of cocoa powder (Souza et al., 2022).

3.2.4 Color Formulation of Cocoa Reduction

After the flavor formulation was achieved, the next step involved the formulation of colors using three different oil-based colorants from Oterra to match the color of the benchmark chocolate cream filling. These colorants included Colorfruit Black, Culinacolor Orange, and Fruitmax Red, used in different dosages to replicate the benchmark's brownish color with a hint of orange and red. The colorants from Oterra are made with natural ingredients and are oil-soluble, enabling them to be incorporated into the cream filling. The high fat and oil content in the cream filling allow the color to blend effectively, creating a uniform and vibrant color distribution (Luzardo-Ocampo et al., 2021).

A tempering process was also performed to correct the darkness and gloss appearance differences between the reduced cocoa chocolate-flavored cream and the benchmark. Tempering process is actually a controlled heating at 50-55°C and cooling at 27°C process used to stabilize the crystalline structure of cocoa butter in chocolate, in which it will ensure that the chocolate has glossy appearance and smooth texture (Larasati et al., 2022). However, this process could also indirectly darken the chocolate cream filling due to the short heating process which created maillard reaction and caramelization, hence could contribute to match the dark color differences and give glossy appearance to the cream filling. This difference in dark color appears due to the difference in refining methods used during the production. The Indesso laboratory uses a three-roll refiner, which applies mechanical pressure and shear forces to break down particles. In contrast, the benchmark chocolate-flavored cream uses a ball mill refiner, which generates both heat and friction through rotating steel balls. This process leads to chemical changes, including the Maillard reaction, which darken the color of the chocolate (Barrera et al., 2021).

4.3 Conclusion and recommendation

This project successfully achieved the target request of the clients which was to reduce 50% cocoa powder from cream filling and be able to replicate the color, mouthfeel, and flavor similar to the benchmark cream filling. To achieve a similar flavor as the benchmark, a mixture of two flavorant, which was A and C was used to provide a rich, bitter chocolate bottom note. Additionally, an addition of Cocoa Booster, to substitute the reduced cocoa content, was also done to enhance the texture and mouthfeel of the reduced chocolate cream filling. As for the color, the formulation successfully matched the benchmark by blending three different natural oil-based colorants and applying a tempering process to indirectly address the differences in the chocolate's darkness, ensuring the product maintained a consistent appearance.

To improve future projects, it is essential to carefully follow the procedure for creating the product base. This minimizes errors and gives more time spent on trial and error during the formulation process. Additionally, when incorporating flavors and colors into the base, starting with very small quantities, such as 0.01 grams, helps avoid unnecessary repetition and save the base product, making the development process more efficient.

CHAPTER IV. SELF REFLECTION

Over the past six months of internship, the author gained so much valuable experiences and skills related to food industries, especially regarding the research and development. The author was able to learn unfamiliar equipment at a fast-paced system, being able to have good communication with colleague and supervisor which initially became the author's hurdle but thankfully the environment and people were friendly and open to everyone, which helped the author to adapt fast. This internship also gave the author insights into current trends in the food industry as well as basic knowledge on the usage limits of various colorants and differences in dosage requirement between natural and artificial colorants. These helped the author to be more awake on what's going on. The internship experience was also able to improve the authors' sensory skills, particularly in differentiating subtle tastes by frequent evaluations every trial made.

The author felt grateful to contribute in a lot of BRIGHT programs of i3L through workshops and seminars which are designated to prepare students for professional careers, that i3L had provided. The i3L value of grit, role-model, and integrity that the campus has embedded students also help the author to build the personality of being easily adapted with new environments, discipline, and be a responsible individual. In regards to the academics, the author discovered that most of the courses studied at i3L that the author received really support the author to pass through the internship period.

In conclusion, the author successfully completed the responsibilities assigned at the host institution, contributing to various projects under the Sweet Product Application and Innovation department. The author extends sincere gratitude to PT Indesso for providing this invaluable opportunity to gain hands-on experience and for their continuous guidance and support throughout the internship.

CHAPTER VI. CONCLUSION & RECOMMENDATION

During the internship, the author gained extensive learning opportunities, starting from managing daily tasks to completing assigned project responsibilities. Positioned in the Bakery division under the Sweet Innovation and Application department, the author also had the chance to explore other divisions, such as Beverages and Dairy. This exposure significantly expanded the author's knowledge, skills, and practical experience in the food industry. Additionally, the author was able to apply Food Science and Nutrition knowledge acquired in college, further honing the author's soft and hard skills during the internship.

For future interns at PT Indesso, it is recommended to approach the experience with enthusiasm and a proactive mindset, actively seeking out opportunities to learn and gain additional insights. Embracing challenges and demonstrating a willingness to adapt will be key to broadening the intern knowledge and skills.

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APPENDICES

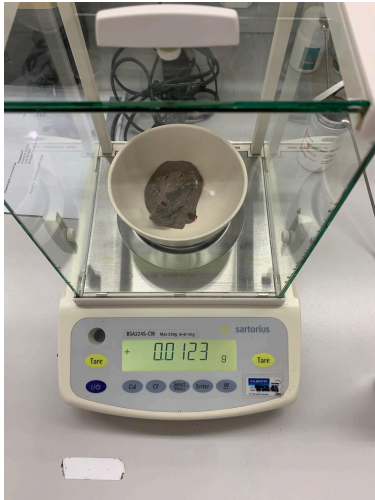
Appendix 1. Target vs Reduce 50%



Appendix 2. Chocolate Refine Process



Appendix 3. Color Weigh to Chocolate



Appendix 4. Public Communication at PT Indesso



Appendix 5. Turnitin Proof

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