

## BIBLIOGRAPHY

- Ahmad, M., Manzoor, M. F., & Anjum, F. M. (2019). Importance of food-grade packaging in food preservation: A review. *Journal of Food Safety and Hygiene*, 5(1), 1–8.
- Ali, A., Islam, A., & Pal, T. K. (2016). The effect of microwave roasting on the antioxidant properties of the Bangladeshi groundnut cultivar. *Acta Scientiarum Polonorum Technologia Alimentaria*, 15(4), 429–438.
- Arya, S. S., Salve, A. R., & Chauhan, S. (2016). Peanuts as functional food: A review. *Journal of Food Science and Technology*, 53(1), 31–41.
- Balakrishna, R., et al. (2022). Consumption of nuts and seeds and health outcomes including cardiovascular, diabetes and metabolic disease, cancer, and mortality: An umbrella review. *Advances in Nutrition*, 13(1), 1–15.
- Chong, L. C., et al. (2018). Effect of oven drying on physicochemical and sensory characteristics of fruit-based jams. *Journal of Food Quality*, 2018, Article ID 7537629.
- Feng, C., Volkman, K., Wagoner, C., & Siu, K. C. (2023). Dimensions of food texture: A conceptual discussion. *Journal of Texture Studies*, 54(4), 560–577.
- Fellows, P. J. (2017). *Food processing technology: Principles and practice* (4th ed.). Woodhead Publishing.
- Głąbska, D., Guzek, D., Zakrzewska, P., & Włodarek, D. (2020). The nutritional value and health benefits of almonds: A narrative review.
- Jang, J. H., et al. (2015). Effects of particle size and processing conditions on the texture and stability of peanut butter. *Journal of Food Science*, 80(2), E395–E401.
- Kalpana, S., Priyadarshini, S. R., Leena, M. M., Moses, J. A., & Anandharamakrishnan, C. (2022). Biodegradable food packaging materials and prospects of the fourth industrial revolution for sustainability. *Trends in Food Science & Technology*, 120, 85–104. <https://doi.org/10.1016/j.tifs.2022.01.009>
- Nizamlioglu, N. M., & Nas, S. (2016). Kinetics of color changes in almonds (Akbadem variety) during roasting and storage. *International Journal of Food Properties*, 19(10), 2363–2376.
- Nurfauziah, D. R., Widyaningsih, T. D., & Rahmawati, E. (2022). Formulation of almond jam with agar as a gelling agent. *Jurnal Pangan dan Agroindustri*, 10(1), 1–9.

- Nut Health.org. (2015). Tree nut consumption associated with better nutrient adequacy and diet quality in adults: New findings on nut consumption and health published in *Nutrients*.
- Pascall, M. A., & Lee, J. (2022). Food packaging and shelf life: A practical guide. *Trends in Food Science & Technology*, 124, 180–188.
- Sahay, K. M., & Singh, K. K. (2016). Unit operations of agricultural processing. Vikas Publishing House.
- Sakr, A., et al. (2021). Impact of different roasting conditions on flavor development in peanuts. *Journal of the Science of Food and Agriculture*, 101(15), 6265–6273.
- Sharma, R., Kaur, M., & Kaur, D. (2024). Sustainable food packaging: Trends, challenges, and future prospects. *Environmental Sustainability*, 7(1), 55–68.
- Sharma, R., Ranjan, S., & Thakur, N. (2024). Applications of non-thermal technologies in food processing industries – A review. *Journal of Agriculture and Food Research*, 18, 100456.
- Singh, S., Shalini, R., & Arora, A. (2017). Advances in food packaging technologies: A review. *Journal of Packaging Technology and Research*, 1(1), 1–11. <https://doi.org/10.1007/s41783-017-0001-2>
- Sivakanthan, S., Vasantharuba, S., & Thushyanthy, M. (2018). Effect of hydrocolloids on texture and stability of nut-based spreads: A review. *International Journal of Food Science and Nutrition*, 3(2), 55–60.
- Tejada-Ortigoza, V., Garcia-Amezquita, L. E., Serna-Saldivar, S. O., & Welti-Chanes, J. (2015). Advances in dehydration technologies for the preservation of plant-based foods. *Food Engineering Reviews*, 7, 47–61.
- Tejada-Ortigoza, V., Garcia-Amezquita, L. E., & Welti-Chanes, J. (2015). Advances in the functional characterization and extraction processes of dietary fiber.
- USDA FoodData Central. (2020). Nutrition facts for peanuts and almonds. U.S. Department of Agriculture.
- Yuan, Y., et al. (2022). Comparative study of roasted and raw almonds: Flavor, texture, and bioactive compounds. *LWT - Food Science and Technology*, 154, 112697.
- Zhu, M. J., Mendonca, A., & Wang, S. (2019). Thermal and nonthermal processing technologies for food quality and safety. Wiley-Blackwell.
- Zhu, Y., Chen, H., & Guo, Q. (2019). Effects of storage conditions on the quality and safety of packaged food products. *Food Research International*, 125, 108536.

## APPENDIX

### 1. Approved Recipe



#### CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

##### APPROVAL RECIPE

Recipe Name : SLICE JAM  
TITLE OF C&D : INNOVATIVE SLICED SPREAD: A PRACTICAL AND  
HIGH PROTEIN FROM PEANUTS AND ALMONDS  
Yield : 6-8 portion  
Main Ingredients : 100 gr peanuts and 100 gr almonds  
Ingredients :

- |                  |                  |
|------------------|------------------|
| - 100 gr peanuts | - 7 gr agar agar |
| - 100 gr almonds | - 400 ml water   |
| - 40 ml honey    | - 2 gr salt      |

Method :

1. Roast the peanuts and almonds until cooked.
2. Puree the roasted peanuts and almonds into a smooth paste using a blender.
3. In a sauce pan, mix the agar-agar, water, and peanuts and almonds paste, then stir using a whisk.
4. Cook over low heat.
5. Add honey and salt, then stir until well blended.
6. Cook until boiling and thickened.
7. Pour the mixture into the mold.
8. Leave it at a room temperature until it's not too hot, then put it in the chiller for 2-3 hours.
9. Remove from the mold and cut to size according to the size of bread.
10. Once set, ready to serve.

##### Product Description

This product is designed to make it easier for people to enjoy peanut and almond spread in a practical way while maintaining its nutritional value. Unlike regular



## CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

spreads, this product is presented in slice form, which makes it easier to use. Each slice contains a combination of peanuts and almonds, which are rich in protein and essential nutrients. With this innovation, consumers can enjoy a healthy spread more easily while still benefiting from its full nutritional content.

**Product Purpose:** The purpose of this sliced spread is to provide a more convenient way of using spread without compromising its quality or nutritional benefits. This product is designed to offer a practical solution for consumers who are busy and want a quick, easy way to enjoy spread. Additionally, the product aims to present a healthy and nutritious option that suits an active and healthy lifestyle.

### **Product Advantages:**

1. **Practical and Easy to Use:** With its slice form, this product is incredibly easy to use without the need to spread it. Just take a slice and enjoy the delicious taste.
2. **Combination of Healthy Nutrients:** This product combines the benefits of peanuts and almonds. Almonds are rich in vitamin E and fiber, while peanuts are high in protein and healthy fats, making it an excellent source of nutrition.
3. **Portable and Convenient:** This sliced spread is very practical for on-the-go use, whether at school, work, or while engaging in outdoor activities.
4. **Versatile:** It can be used on a variety of dishes such as bread, biscuits, pancakes, or as a topping for other snacks.
5. **Ideal for a Healthy Lifestyle:** Made with natural ingredients and free from preservatives or artificial sweeteners, this product is a healthy and nutritious choice, perfect for those who are mindful of maintaining a balanced and healthy diet.

### **TRIAL PROGRESS (50 – 100 WORDS)**

The first trial was conducted on March 10, 2025. In the first experiment, I used regular sugar as a sweetener and agar-agar to make it solid. The result was a good



## CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

taste and the texture was as expected. However, after consulting with others, I received feedback that sugar could affect the nutritional content of the final product. As a result, on March 12, 2025, I conducted the second trial. I made two different samples: the first one replacing sugar with stevia, and the second one using honey. For this experiment, I used gelatin instead of agar-agar. The result showed that honey tasted much better than stevia, and honey also had more nutritional content. Additionally, the texture from using gelatin was softer. The final conclusion is that the chosen sweetener is honey and the gelling agent is agar-agar.






## CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

### TRIAL DOCUMENTATION



Student Name : Patricia Gabriel Mintaraga  
NIM : 2374130010029

Advisor	1 <sup>st</sup> Examiner	2 <sup>nd</sup> Examiner
		
Name: Heni Adhianata, S.TP., M. Sc Date: 20/3/2025.	Name: Windy Habsari, S.T., M.Sc Date: 24/03/2025	Name: Michael Valent, A.Md. Par Date: 20/3/2025

## 2. Approved Sensory



AKADEMI KULINER & PATISERI  
**OTTIMMO**  
INTERNASIONAL  
CULINARY ARTS GASTRONOMY BAKING & PASTRY ARTS

### CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT SENSORY TEST

**DATE** : 22 April 2025

**NAME** : Patricia Gabriel Mintaraga

**NIM** : 2374130010029

**PRODUCT** : INNOVATIVE SLICED SPREAD: A PRACTICAL AND HIGH PROTEIN FROM PEANUTS AND ALMONDS

**ADVISOR** : Heni Adhianata, S.TP., M.Sc

PANELIST	SIGHT	SMELL	TEXTURE	TASTE	OVERALL	TOTAL
Panelist 1	5	5	3	4	4	21
Panelist 2	4	4	4	4	4	20
Panelist 3	4	4	4	4	4	20
Panelist 4	2	4	2	4	3	15
Panelist 5	3	4	3	3	3	16
Panelist 6	5	5	5	5	5	25
Panelist 7	4	4	4	4	4	20
Panelist 8	4	4	4	3	4	19
Panelist 9	5	5	3	4	4	21
Panelist 10	4	4	4	4	4	20
<b>TOTAL</b>	<b>40</b>	<b>43</b>	<b>36</b>	<b>39</b>	<b>39</b>	<b>197</b>

#### NOTES :

1. Overall good
2. Nyaman untuk dinikmati
3. All good, kurang tasty sedikit
4. too dry. too thick
5. Taste nya cukup oke, tekstur terlalu padat.
6. Enakkkk!
7. Texture is better flavor is more bland
8. Lumayan
9. Good
10. sudah enak









#### 4. Systematic Process Documentation

##### 1) Weight the ingredients



##### 2) Roast the peanuts and almonds



##### 3) Blend the peanuts and almonds



4) Put all the ingredients into a sauce pan



5) cook until boiling



6) Pour into a mold



7) Remove and cut according to the bread size

