BIBLIOGRAPHY

Asghar, A., Afzaal, M., Saeed, F., Ahmed, A., Ateeq, H., Shah, Y. A., ... & Shah, M. A. (2023). Valorization and food applications of okara (soybean residue): A concurrent review. Food science & nutrition, 11(7), 3631-3640.

Brewster, E. (2024). Market trends Upcycle foods. In *Food Technology | September 2024*. Retrieved May 12, 2025, from https://www.ift.org/-/media/food-technology/pdf/2024/09/0924_mt_f2_catspotlight.pdf

Camille. (2025, March 10). *Sustainable Food Trends for 2025: From Regenerative farming to Lab-Grown Meat*. The Happy Turtle Straw. https://www.thehappyturtlestraw.com/sustainable-food-trends-for-2025-from-regenerative-farming-to-lab-grown-meat/

Choudhury, N. (2025, March 31). *Plant-Based Snacks Market Size, Trends & Forecast 2025-2035*. https://www.futuremarketinsights.com/reports/plant-based-snacks-market

Doshi, Y. (2025, March 26). *Functional Food Market Size and Opportunities, 2025-2032*. Coherent Market Insights. https://www.coherentmarketinsights.com/market-insight/functional-food-market-5829

Facmedicine. (2021). *Baking with tapioca flour: Everything you need to know*. Faculty of Medicine. https://forum.facmedicine.com/threads/baking-with-tapioca-flour-everything-you-need-to-know.89572/#google_vignette

FAO. (2022). *Food is Never Waste Coalition*. FoodLossWaste. Retrieved May 12, 2025, from https://www.fao.org/platform-food-loss-waste/background/food-is-never-waste-coalition/en

FHA-Food & Beverage. (2025, March 26). *Savory Snacks Market 2025: Global & Asia Insights*. FHA-FnB. https://fhafnb.com/blog/savory-snacks-market/

Fu, X. (2021). Cassava as an Important Staple Food and Its Application in the Food Industry--A Review.

Gong, P., Huang, Z., Guo, Y., Wang, X., Yue, S., Yang, W., ... & Chen, L. (2022). The effect of superfine grinding on physicochemical properties of three kinds of mushroom powder. Journal of Food Science, 87(8), 3528-3541.

Helstad, A., Marefati, A., Ahlström, C., Rayner, M., Purhagen, J., & Östbring, K. (2023). High-pressure pasteurization of soy okara. Foods, 12(20), 3736.

Ireri, F. K. (2022). Product Quality Characteristics of Solar Dried Chilli Products (Doctoral dissertation, University of Nairobi).

Jones, S. L., Gibson, K. E., & Ricke, S. C. (2021). Critical factors and emerging opportunities in food waste utilization and treatment technologies. Frontiers in Sustainable Food Systems, 5, 781537.

Kendall, J. (2024, December 23). Embracing zero waste cooking: a sustainable culinary journey - CookingUpdate. *CookingUpdate*. https://cookingupdate.com/what-is-zero-waste-cooking/

Kowalski, S., & Gumul, D. (2024). The Use of Waste Products from the Food Industry to Obtain High Value-Added Products. Foods, 13(6), 847.

Motegaonkar, S., Shankar, A., Tazeen, H., Gunjal, M., & Payyanad, S. (2024). A comprehensive review on carrot (Daucus carota L.): the effect of different drying methods on nutritional properties and its processing as value-added foods. Sustainable Food Technology.

Li, Y., Xia, X., & Yu, G. (2025). The Effect of Frying Conditions on the Physical and Chemical Quality Attributes of Clearhead Icefish (Protosalanx hyalocranius) During Deep Frying and Air Frying. Foods, 14(6), 920. https://doi.org/10.3390/foods14060920

Pawde, Subhash V., Pimonpan Kaewprachu, Passakorn Kingwascharapong, Samart Sai-Ut, Thomas Karbowiak, Young Hoon Jung, Saroat Rawdkuen. (2025). A comprehensive review on plant protein-based food packaging: Beyond petroleum-based polymers: Current Research in Food Science, 10. https://doi.org/10.1016/j.crfs.2025.101104

Salehi, F. (2019). Characterization of different mushrooms powder and its application in bakery products: A review. International Journal of Food Properties, 22(1), 1375-1385.

Sengar, R. S. (2022). Cassava processing and its food application: A review. Pharma Innov. J, 2, 415-422.

Simon, P. W. (2021). Carrot (Daucus carota L.) breeding. Advances in plant breeding strategies: Vegetable crops: Volume 8: Bulbs, Roots and Tubers, 213-238.

Suzuki, A., & Banna, J. (2021). Improving diet quality for chronic disease prevention with okara “food waste”. American Journal of Lifestyle Medicine, 15(1), 14-18.

Swallah, M. S., Fan, H., Wang, S., Yu, H., & Piao, C. (2021). Prebiotic impacts of soybean residue (okara) on eubiosis/dysbiosis condition of the gut and the possible effects on liver and kidney functions. Molecules, 26(2), 326.

TAMSIR, M. M., Ramli, N. S., AB RASHID, N. K. M., Shukri, R., & Ismail-Fitry, M. R. (2021). Comparison of boiling, steaming, air frying, deep-frying, microwaving and oven-cooking on quality characteristics of keropok lekor (Malaysian fish sausage). Malaysian Applied Biology, 50(3), 77-85.

The Business Research Company. (2025, February 11). Leading element driving change in the high fiber snacks market in 2025: the impact of increasing demand for HE. *openPR.com*. https://www.openpr.com/news/3861647/leading-element-driving-change-in-the-high-fiber-snacks-market

Trisnawati, W., Sari, A.R.K., Yanti, N.K.A.T. (2021). The preference and shelf life of crispy fried onions: IOP Conference Series: Earth and Environmental Science, 782. 10.1088/1755-1315/782/3/032067

Valle, C., Echeverría, F., Chávez, V., Valenzuela, R., & Bustamante, A. (2024). Deep-frying impact on food and oil chemical composition: Strategies to reduce oil absorption in the final product. Food Safety and Health, 2(4), 414-428.

Wahjuningsih, S., & Azkia, M. N. (2023). Effect of duration and steaming cycle on nutritional value and functional properties of instant fried corn rice. Food Research, 7(2), 200–208. https://doi.org/10.26656/fr.2017.7(2).1001

Winer, M. (2024, February 19). *What is Aonori?* Marc Winer. https://marcwiner.com/en/aonori/

APPENDIX

1. Approval Recipe

CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

APPROVAL RECIPEE

Recipe Name : VEGAN SOY PULP (OKARA) CRISPS – SPICY NORI
TITLE OF C&D : UTILIZATION OF SOY PULP (OKARA) IN CRISPS DEVELOPMENT
Yield : 2-3 portion (250g)
Main Ingredients : 500g Soy Pulp (Okara)
Ingredients :

(For Soy Pulp Crisps)

- 500g Soy Pulp (Okara)
- 200g Tapioca flour
- 50g Carrot Flour (from waste, dehydrated)
- 6 cloves Garlic (finely minced)
- 4 cloves Shallot (finely minced)
- 10g Coriender (grind)
- 7,5g Mushroom Powder
- 15g Salt
- 2,5g Groud pepper
- 5g Baking powder
- 100ml Water (as needed)
- 1 stalk Green onion (finely chopped)

(For Spicy Nori Seasoning Sprinkle)

- 3 cloves Garlic (finely minced)
- 90g Seaweed Aonori (flakes)
- 45g chilli flakes
- 7,5g Mushroom Powder
- 2,5 Salt
- 2,5 sugar

Method :

1. Mix the soy pulp with garlic, shallot, corriender, salt, mushroom powder, pepper, and green onion. Make sure all the ingredients are evenly distributed by stirring the mixture thoroughly.
2. Add tapioca flour, carrot flour, and baking powder. Stir everything thoroughly until the ingredients are well combined.
3. Gradually add water, little by little, until the mixture can be shaped.
4. Roll the dough into a cylinder (like a lontong), then wrap it in plastic wrap or banana leaves.

5. Steam for 30–40 minutes until firm and fully cooked. Let it cool completely, then slice thinly.
6. Place the slices under direct sunlight for 1–2 days until completely dry.
7. Heat a generous amount of oil. Deep-fry the dried crisps until they puff up and turn golden brown. The chips are then drained to reduce excess oil.
8. To make the seasoning mix, heat a pan and add garlic, chili flakes, and ainori seaweed. Stir the ingredients continously to ensure even cooking.
9. Add salt, mushroom powder, and sugar as seasoning. Mix everything thoroughly to ensure the flavors are evenly distributed.
10. Combine the crisps with the seasoning mix. The crisps are ready to be served.

Product Description

Vegan Soy Pulp (Okara) Crisps – Spicy Nori is a crunchy snack made from soy pulp (okara), combined with tapioca flour, carrot flour (from waste) and a blend of selected spices. Embracing the zero-waste concept, this snack repurposes soy pulp as its main ingredient, creating a more sustainable product without compromising on taste.

Seasoned with a simple yet flavorful blend of garlic, seaweed, and chili flakes, these crisps offer a perfect balance of umami, mild spiciness, and a hint of sweetness. With their crispy texture and rich seasoning, these crisps are the perfect guilt-free snack to indulge in.

TRIAL PROGRESS

The trial production of Vegan Soy Pulp (Okara) Crisps – Spicy Nori has been conducted to evaluate the texture, taste, and stability of the product. The results indicate that the crisps achieve a good level of crunchiness when the dough is thin; however, adjustments to the salt content and drying technique are needed to ensure better texture stability during storage. The combination of spicy nori seasoning provides a distinctive umami flavor, although there is still a slight amount of oil remaining on the surface. Further trials with a more efficient frying

method are required to reduce oil content, along with additional testing to optimize the product's shelf life under various storage conditions.

TRIAL DOCUMENTATION

Student Name : Helena Cecilya Pakpahan

NIM : 2374130010053

Advisor	1st Examiner	2nd Examiner
Name: Elma Sulistya, S. TP., M. Sc Date: 24/3/25	Name: Heni Adhinata, S. TP., M.Sc Date: 24/3/2025	Name: Chef Anthony Sucipto, A.Md. Par Date:

2. Approval Sensory

AKADEMI KULINER & PATISERI
OTTIMMO INTERNASIONAL

CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT SENSORY TEST

DATE : 21 April 2025
NAME : Helena Cecilya Pakpahan
NIM : 2374130010053
PRODUCT : UTILIZATION OF SOY PULP (OKARA) IN CRISPS DEVELOPMENT
ADVISOR : Elma Sulistiya, S.TP., M. Sc

PANELIST	SIGHT	SMELL	TEXTURE	TASTE	OVERALL	TOTAL
Panelist 1	5	5	4	5	5	24
Panelist 2	5	4	3	5	4	21
Panelist 3	4	5	4	3	4	20
Panelist 4	5	4	4	4	4	21
Panelist 5	4	4	3	4	4	19
Panelist 6	5	4	4	4	4	21
Panelist 7	4	4	4	4	4	20
Panelist 8	5	5	4	4	4	22
Panelist 9	4	4	3	4	4	19
Panelist 10	4	4	4	4	4	20
TOTAL	45	43	37	41	41	**207**

NOTES :

1. Rasanya terlalu micin, dan tekstur agak melempem
2. Good tapi keasinan, kurangin dikit asinnya
3. too salty.krng umami
4. Sudah okay. Perhatikan konsistensi bumbu dan tekstur
5. Not crispy enough as a crisp
6. Tekstur bisa dibuat lebih crunchy, rasa sdh ok
7. Everything looks good. Can be made more tastier by adding more seasoning
8. Enak, kalau bisa lebih krispi lebih mantap lagi
9. mungkin bisa lebih krispy lagi
10. Overall good

CULINARY INNOVATION APPROVED NEW PRODUCT DEVELOPMENT

3. Consultation Form

Akademi Kuliner & Patiseri

OTTIMMO INTERNASIONAL

CONSULTATION FORM
CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

Name : Helena Cecilya Palupi a.n
Student Number : .....
Advisor : Ms. Elma

No	Date	Topic Consultation	Name/ Signature	Advisor Signature
1.	9/3 2025	Pemantapan Resep	Heni /	
2.	20/3 2025	Hasil trial 1 dan Pemantapan Resep ?!	Heni /	
3	20/3	Pemantapan produk		
4	21/3	Konsultasi produk trial (teknik pemanasan, tekstur produk)		
5	21/3 2025	Hasil trial 2, perbaikan method	Heni /	
6.	21/3 2025	Hasil trial 2, perbaikan texture rasa		
7.	14/7	Revisi Lembar		
8.	14/7	Konsul bab 4-5		
9		Revisi chap. I & 3		
10.		Revisi Nutrient label.		

4. Correction List

CORRECTION LIST FINAL EXAM
CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

Date : 11 Agustus 2025
Time : 14.30-15.15

Name / NIM : Helena Cecilya Pakpahan / 2374130010053
Product : Utilization of Soy Pulp (Okara) in Crisps Development
Examiner 2 : Anthony Sucipto, A.Md., Par. (19960325 2201 085)

No	Correction List	Page	Approval

AKADEMI KULINER & PATISERI
OTTIMMO®
INTERNASIONAL

CORRECTION LIST FINAL EXAM
CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

Date : 11 Agustus 2025
Time : 14.30-15.15

Name/ NIM : Helena Cecilya Pakpahan / 2374130010053
Product : Utilization of Soy Pulp (Okara) in Crisps Development
Advisor : Elma Sulistya, S.T.P., M.Sc.(19970916 2302 087)

No	Correction List	Page	Approval
-	Perbaiki harga kemasan		

AKADEMI KULINER & PATISERI
OTTIMMO®
INTERNASIONAL

CORRECTION LIST FINAL EXAM
CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

Date : 11 Agustus 2025
Time : 14.30-15.15

Name/ NIM : Helena Cecilya Pakpahan / 2374130010053
Product : Utilization of Soy Pulp (Okara) in Crisps Development
Examiner 1 : Heni Adhianata, S.T.P., M.Sc. (19900613 1402 016)

No	Correction List	Page	Approval
	nutrition fact		

5. Systematic Process Documentation

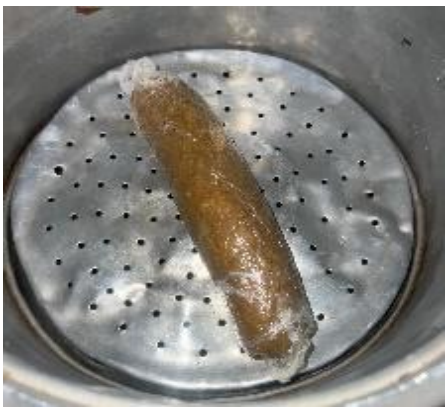
1) Dehydrated the carrot peels

2) Grind the carrot peels

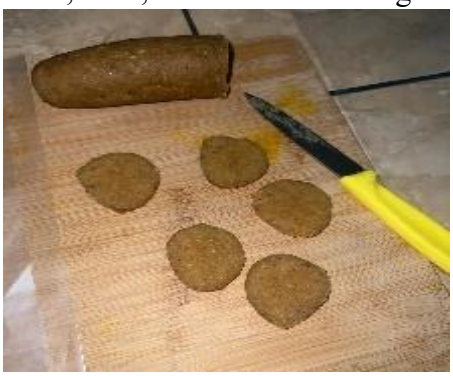
3) Prepare the ingredients of Okara Crisps

4) Blend all Ingredients

5) Steam the Mixture



6) Cool, slice, and flatten the dough



7) Mold the crisps

8) Sun-dry the crisps

9) Deep fry the crisps

10) Saute Spicy Seaweed seasoning

11) Mix Okara Crisps with the seasonings