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APPENDIX

1. Approved Recipe



CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

APPROVAL RECIPE

Recipe Name : MUNG BEAN SNAKE HEAD FISH CRACKERS
TITLE OF C&D : MUNG BEAN FLOUR AS THE MAIN INGREDIENT
FOR MAKING HIGH PROTEIN SNAKE HEAD FISH
CRACKERS
Yield : 3-4 portion
Main Ingredients : 50 g Mung Bean Flour and 50 g Snake Head Fish

Ingredients :

- | | |
|--------------------------------|---------------------|
| - 50 g Mung Bean Flour | - 35 ml Cold Water |
| - 50 g Snake Head Fish (Paste) | - 5 g Garlic Powder |
| - 50 g Tapioca Starch | - 8 g Salt |
| - 35 g Egg White | - 3 g White Pepper |
| - 5 g Garlic | - 3 g Baking Powder |

Method :

1. In a mixing bowl, combine mung bean flour, tapioca starch, salt, white pepper, and baking powder. Mix well.
2. Add fish paste and egg white into the dry ingredients and stir until evenly distributed.
3. Gradually pour in ice-cold water while kneading until a smooth and pliable dough forms.
4. Roll the dough into a cylinder shape.
5. Steam the crackers dough at medium heat (100°C) for 40 minutes until fully cooked and firm.
6. Let it cool down in the fridge or freezer for an hour until it's cool.



CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

7. Slice the cooled dough into thin pieces (1-2mm thick).
8. Lay the slices on a tray and sun-dry for 1-2 days until its fully dry.
9. Heat oil to 180-200°C in a deep pan and fry it until they puff up and turn golden brown.

Product Description

Mung Bean Snake Head Fish Crackers are a high-protein, nutrient-dense snack made from mung bean flour and ground snake head fish (*Channa Striata*). Mung bean flour contributes a naturally nutty flavour, while snake head fish enhances the protein content, providing essential nutrients such as albumin and dietary fiber. Despite being fried, these crackers offer a superior protein profile compared to traditional prawn crackers, making them a more nutritious alternative. The precise balance of ingredients results in a light, crispy texture with a savoury umami taste, delivering both flavour and functional benefits. These crackers provide a satisfying, protein-rich snack with a unique and innovative formulation.

TRIAL PROGRESS

In the initial trial, the crackers failed to expand properly after frying, resulting in a dense texture and poor crispiness. The dough was too firm, making it difficult to slice thinly, and the seasoning was still under-seasoned, leading to a mild, underwhelming flavour. The issue was traced to an imbalance in the ratio of mung bean flour to tapioca starch, affecting both the dough's elasticity and the crackers' ability to puff.

For the second trial, the formulation was refined by adjusting the flour-to-starch ratio, resulting in a lighter, more expandable dough. This modification improved the crackers' crispiness, texture, and overall flavour, leading to a more balanced and appealing final product.



CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT

TRIAL DOCUMENTATION



Student Name : Emmanuella Michelle Andrea Oentoro
NIM : 2374130010011

Advisor	1 st Examiner	2 nd Examiner
 Name: Windy Habsari, S. T., M.Sc Date: 24/03/2025	 Name: Heni Adhianata, S. TP., M.Sc Date: 21/3/2025	 Name: Ryan Yeremia Iskandar, S.S. Date: 21/3/2025

2. Approved Sensory



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CULINARY ARTS / GASTRONOMY / BAKING & PASTRY ARTS

CULINARY INNOVATION AND NEW PRODUCT DEVELOPMENT SENSORY TEST

DATE : 9 April 2025
NAME : Emmanuella Michelle Andrea Oentoro
NIM : 2374130010011
PRODUCT : MUNG BEAN FLOUR AS THE MAIN INGREDIENT FOR MAKING
HIGH PROTEIN SNAKE HEAD FISH CRACKERS
ADVISOR : Windy Habsari, S.T., M.Sc.

PANELIST	SIGHT	SMELL	TEXTURE	TASTE	OVERALL	TOTAL
Panelist 1	5	3	5	5	5	23
Panelist 2	4	4	4	4	4	20
Panelist 3	4	5	5	5	5	24
Panelist 4	3	4	4	3	4	18
Panelist 5	5	5	5	5	5	25
Panelist 6	4	4	4	2	3	17
Panelist 7	4	5	4	3	4	20
Panelist 8	4	4	4	4	4	20
Panelist 9	4	4	4	4	4	20
Panelist 10	4	5	5	5	5	24
TOTAL	41	43	44	40	43	211

NOTES :

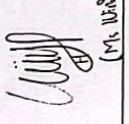
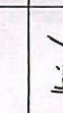
1. Sudah bagus sekali, sedikit keasinan
2. Crispy, ringan dimulut, gurih, rasanya sudah oke
3. Overall is good, but there a slight tanin aftertaste
4. Tekstur agak seret
5. Taste enak, tekstur enak. Pastikan masa simpan nya bisa lama dan tetap konsisten crispy
6. bitter taste. texture. looka all good
7. It's slightly bland, could add more spices or seasoning
8. Rasa tekstur enak untuk cemilan, mungkin bisa di tambah asin sedikit
9. Enakk
10. Overall is good, but there a slight tanin aftertaste





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SEKOLAH KULINER DAN KEMAHIRAN KULINER

**CONSULTATION FORM
 CULINARY INNOVATION AND
 NEW PRODUCT DEVELOPMENT**

No	Date	Topic Consultation	Name/ Signature	Advisor Signature
1	27/2	Konsultasi produk Crackers bengkang		 (Chet Jerry)
2	5/3	Konsultasi produk Ckeripik / kerupuk kacang hijau dan sustitusi tem gabus		 (Chet Jerry)
3	14/3	Konsultasi sample dan perbaikan metode penggorengan	Heni/ 	 (Chet Jerry)
4	20/3	Hasil trial ke-1, Revisi Resep	Heni/ 	 (Chet Jerry)
5	20/3	Hasil trial		
6	2/5	Konsultasi proposal Bab 1-3	Heni/ 	

3. Consultation Form

Name : Emmontella Michelle Andrea O.
 Student Number : 2374130010011
 Advisor : Windy Habasari, S.T., M.Sc.

No	Date	Topic Consultation	Name/ Signature	Advisor Signature
7	7/5	Konsultasi proposal ACC untuk ujian		
8	16/5	Konsultasi Bab 4 & 5		
9	16/5	Konsultasi Cooking demo & Pricing		

4. **Systematic Process Documentation**

1) Mix all the ingredients



2) Mix until the dough form into a ball



3) Shape the dough into a cylinder shape



4) Steam for 40 minutes



- 5) Cool it down for one night in chiller



- 6) Slice it thinly around 1 mm



- 7) Place it under the sun to dry for 1-2 days



- 8) Fry it in a deep fryer for a couple second until the crackers expand

