



Acceptability of Sepat Shredded Formulation

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ABSTRACT

Background: Stunting is a condition where a child's growth and development is disrupted caused by a short or very short body based on the Body Length by Age (PB/U) or Height by Age (TB/U) index. One of the causes of stunting in Indonesia is insufficient intake of animal protein. Animal protein acts as a macronutrient that has more complete essential amino acids to activate growth hormone. Fish is a source of animal protein that is easy to obtain and cheap. Sepat fish is a species that is often found in West Bandung Regency. The aim of this research is to analyze the acceptability of toddlers to shredded Sepat in West Bandung Regency.

Research Methods: This research uses an experimental method with two formulations. Formula (F1) uses 100% Sepat fish as the basic ingredient and Formula (F2) uses a mixture of Sepat fish and grated coconut in a 1:1 ratio. The hedonic test was carried out on 20 panelists who tasted both formulas. The analysis was carried out descriptively.

Research Result: The results of the analysis of F1 show average values for color (3), flavor (3.25), taste (3), and texture (3.65). Average F2 values for color (3.3), flavor (3.3), taste (2.85), and texture (3.55). In terms of preference for the acceptability of Sepat fish floss, panelists preferred F2 with an average value of 3.2 compared to F1 with an average value of 2.95.

Conclusion: Sepat fish floss is an innovative processed product that is easy to make and is not yet sold commercially in Indonesia. Sepat fish floss can be used as an alternative to fulfill animal protein because it is affordable, easy to access, and has good acceptability.

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1. INTRODUCTION

The first five years of life are a critical period where all the privileges last so short that they cannot be repeated a second time, or are known as the "golden age period" (Amaliah, 2018). If parents do not receive attention and supervision, this can be detrimental to the child in the process of further growth and development. One sign of disruption to the growth and development process in children is stunting.

Stunting is a problem that is still faced by almost all developing countries, including Indonesia, which is closely related to malnutrition in children. WHO notes that in 2020 there will be 22% or more than 149.2 million children under five in the world suffering from stunting. This prevalence has decreased compared to previous years, namely in 2000 it was 33.1% and in 2012 it was 26.2% (WHO, 2021). However, this figure still does not meet the target for developing nutritional status stated in the Sustainable Development Goals (SDGs), one of which is to reduce the stunting rate in children under 5 years of age by 83 million by 2030 (Quamme & Iversen, 2022).

Based on the results of the 2022 Indonesian Nutrition Status Survey (SSGI), stunting data in Indonesia has decreased from 24.4% in 2021 to 21.6% in 2022. From this data it can be seen that there are 3 provinces with the highest prevalence of stunted toddlers in Indonesia are East Nusa Tenggara (35.3%), West Sulawesi (35%), and Papua (34.6%). On the other hand, the 3 provinces with the lowest prevalence of stunted toddlers in Indonesia are Lampung (15.2%), DKI Jakarta (14.8%), and Bali (8%).

West Java Province is ranked 22nd nationally in terms of the prevalence of stunted toddlers, which reaches 20.2%. However, West Java has the largest number of toddlers suffering from stunting in Indonesia. The West Java Health Service stated that based on measurement data in February 2022 there were 218,286 toddlers suffering from stunting in West Java. Based on data from the Indonesian Nutrition Status Survey (SSGI) in 2022, West Bandung Regency is ranked 3rd in the number of stunting cases in West Java after Sumedang Regency and Sukabumi Regency with a prevalence rate of 27.3%.

There are various factors that can influence the occurrence of stunting, but if categorized, there are two main factors that cause stunting, namely external factors from the community or state environment and internal factors, namely conditions in the child's home environment. External factors include culture, education, health services, food security systems, and water and sanitation conditions. Meanwhile, internal factors are influenced by the provision of exclusive breast milk (ASI) and optimal complementary food for breast milk (MPASI), the mother's condition, home conditions, food quality, parenting patterns, food and water safety, even infections (Nirmalasari, 2020). Lack of nutritional intake in toddlers is one of the main factors in stunting (Nadirawati et al, 2023). Therefore, it is necessary to increase nutritional intake, especially animal protein.

The development of animal protein consumption can be used as a reference to see the quality of protein consumed by the Indonesian population and can be used to support research on nutrition and estimate the elasticity of demand for animal food commodities. In Indonesia, protein deficiency is one of the causes of the poor nutritional status of the Indonesian population, which in the long term will have an impact on the lower quality of human resources (Umaroh & Vinantia, 2018).

Lack of protein consumption and changes in diet are one of the causes of malnutrition in Indonesia. This lack of protein consumption is mostly caused by the low economic level of the Indonesian population which causes low quality protein consumed because quality animal protein sources are relatively more expensive compared to vegetable protein sources

(Umaroh & Vinantia, 2018).

There are various types of food that contain animal protein, one source of animal protein that is quite high is fish. Apart from that, fish is very easy to find so it has the potential to become a commodity that can be used to meet the animal protein needs of Indonesian people, especially in West Bandung Regency.

The Siamese catfish (*Trichogaster pectoralis*) is a fish that is often found in freshwater waters, such as lakes and calm rivers. This fish has quite high economic value, especially in rural areas as a source of animal protein. This astringent fish is often consumed by the public in fresh or preserved form. Apart from consumption, quite a few people use it as ornamental fish (Muslimatun, et al, 2014).

Sepat fish is quite easy to find in various regions such as Java and Sulawesi. In West Java itself, especially in the West Bandung Regency area, there is potential for cultivating Sepat fish because there are still many water areas such as lakes and swamps. Siamese Sepat fish is one of the fish that has quite a high protein content, but its use is still limited to traditional processing, namely dried salted and besamed fish.

Therefore, Sepat fish can be used as an innovative product, one of which is shredded fish. Shredded meat is a type of dry food made from meat by boiling, shredding, seasoning, frying, and pressing. In general, people eat shredded meat as a side dish for rice. Therefore, this research aims to analyze the acceptability of the Sepat fish floss formulation in West Bandung Regency.

2. METHODS

The method used in this research is a simple experiment. The experimental research method is a research method that can be used to find the effect of certain treatments on other treatments under controlled conditions. The place where shredded meat is made and the hedonic test is carried out at the Culinary and Dietetics Laboratory of FPOK UPI. This research was carried out on September 13 2023

A total of 20 semi-trained hedonic test panelists who reside in Parongpong District, West Bandung Regency were selected purposively (purposive sampling). Purposive sampling is a technique for determining samples based on certain considerations that are deemed suitable for the characteristics of the sample that is determined to be used as a sample.

The ingredients used in making shredded meat consist of Sepat fish (126 grams), grated coconut (36 grams), brown sugar (10 grams), lemongrass (2 stalks), bay leaves (4 pieces), lime leaves (5 pieces), candlenuts. (3 pieces), galangal (1 segment), coriander (1 tablespoon), galangal (1 segment), shallots (5 cloves), garlic (3 cloves), and palm oil (30 ml).

Sepat fish is made in two types of formulations, namely Formula 1 (F1) using 100% Sepat fish as the basic ingredient and Formula 2 (F2) using a mixture of Sepat fish and grated coconut in a 1:1 ratio.

There are two types of tests, namely hedonic tests which aim to determine general quality characteristics such as appearance, color, taste, flavor and texture tests. Appearance is an important parameter because it is the first sensory characteristic seen by the panelists. Second, a preference test to determine the overall level of liking and acceptance of a product. The level of liking has 5 ratings, namely like, somewhat like, neutral, somewhat dislike, and dislike. The answer that is least in line with the panelists' wishes is given a score of 0, while the answer that is most in accordance with the panelists' wishes is given a score of 4. The instrument used is a questionnaire.

This research data analysis was processed descriptively by comparing the average values of hedonic indicators and preferences between the two groups.

3. RESULTS AND DISCUSSION

In this research, Sepat fish floss was processed with two different formulations, namely Formula 1 (F1) using 100% Sepat fish as the basic ingredient and Formula 2 (F2) using a mixture of Sepat fish and grated coconut in a ratio of 1:1. Making Sepat fish floss with different formulations for each treatment can influence people's acceptance of Sepat fish floss. The appearance of the processed Sepat fish floss can be seen in Figure 1 and Figure 2.



Figure 1. Shredded Sepat 100% (Formula 1)



Figure 2. Shredded Sepat with grated coconut (Formula 2)

From the results of the research carried out, it can be seen the results of subjective analysis which consists of organoleptic assessments including color, flavor, taste, texture, and preference for the acceptability of Sepat fish floss.

Table 1. Mean of Hedonic Test (color, flavor, taste, texture, dan preference)

Formula	Color	Flavor	Taste	Texture	Preference
F1	3	3.25	3	3.65	2.95
F2	3.3	3.3	2.85	3.55	3.2

The assessment test on Formula 1 (F1) which used 100% Sepat fish showed that the average score of the panelists was superior/higher in the aspects of taste and texture. Meanwhile, Formula 2 (F2) was superior in terms of color, flavor, and overall preference indicators by the panelists.

3.1. Discussion

Hedonic tests are carried out to assess the acceptability of a food product. Hedonic tests generally include color, flavor, taste, and texture. The assessment of a product may also include the overall preferences of the selected panelists.

One component in determining quality that is very important for shredded meat is color, where in general the first impression of a product can be determined from its color. Based on the results of the hedonic test analysis of the Sepat fish floss formulation, the average value of Formula 1 (F1) was 3, and Formula 2 (F2) was 3.3. This value is included in the rather-like scale in the organoleptic test. The addition of grated coconut in Formula 2 (F2) caused a difference in color in the Sepat fish floss, a larger average value also indicated that the panelists preferred this formulation. Floss with Formula 1 (F1) has a darker color compared to the color of floss with Formula 2 (F2). This is due to the low water content resulting from the dehydration process that takes place during cooking, which creates heat which is used to evaporate the water content in the fish floss so that the color becomes brownish. Apart from that, adding salt and sugar along with spices is believed to reduce the water content in fish floss (Anwar & Irhami, 2018). This results in the color of Sepat fish floss

with Formula 1 (F1) tending to be darker than Sepat fish floss with Formula 2 (F2).

Color has an important role in the acceptability of food. The color found in Sepat fish floss with the addition of grated coconut occurs due to the Maillard reaction when frying for a long period of time then produces a heat reaction which makes the fish and coconut dregs turn brownish. The Maillard reaction is a reaction between protein and reducing sugars which ends with the formation of a brown nitrogen polymer (Astuti 2018). Therefore, the color produced by fish floss with Formula 2 (F2) tends to be brighter so it is preferred by the panelists.

The results of the Sepat fish floss product showed that there was no big difference in the assessment of the flavor of F1 and F2. The average value of Formula 1 (F1) is 3.25 and Formula 2 (F2) is 3.3. This value is included in the rather-like scale in the organoleptic test. The average results were not much different, indicating that the addition of grated coconut in Formula 2 (F2) did not make a significant difference in the two Sepat fish floss formulations. Even though grated coconut is added to F2, the flavor of Sepat fish is much more dominant so it is given almost the same score. The flavor of food can be recognized by the sense of smell through its smell. The flavor test can be used as a parameter that can be used to assess whether a product is liked or not. Some of the flavors that arise from the frying process are flavors from chemical compounds that are volatile in nature so they will evaporate along with the free water contained in the food (Astuti, 2018).

Taste is a physical parameter that is commonly used to assess consumer acceptance of a food product. This parameter relies on the sense of taste which is divided into four types, namely sweet, bitter, salty, and sour (Kusumawati, 2015 in Putri, 2018). Based on the results of the hedonic test analysis of the Sepat fish floss formulation, it shows that there is a slight difference in the taste of Sepat fish floss. The average value of Formula 1 (F1) 3 and Formula 2 (F2) is 2.85. This value is included in the somewhat like scale and the neutral scale. The addition of grated coconut in Formula 2 (F2) actually makes the average value smaller than Formula 1 (F1) which is 100% Sepat fish.

Texture is the main characteristic, such as appearance, taste, and smell, which determines the quality of food through sensory means. Sometimes physical appearance is considered more important than smell, taste, and flavor (Kusumawati, 2015 in Putri, 2018). Based on the results of the hedonic test analysis of the Sepat fish floss formulation, it shows a slight difference with the texture organoleptic value in Formula 1 (F1) of 3.65 compared to Formula 2 (F2) of 3.55. F1 shows a slightly lumpier texture compared to F2. The resulting average value is included in the somewhat like scale. Although the difference in the average value of the organoleptic test is not very significant, it can be seen that the panelists prefer the texture of Formula 1 (F1), namely shredded meat with 100% Sepat fish which is more lump because it has more taste. In fact, the formulation is carried out after shredding, so it does not allow for differences in manufacturing methods.

What differentiates fish floss from other products can be seen from its texture, which consists of soft fibers. Texture is one of the factors that influences assessment because the texture of a food will be felt when consumers eat it. In general, fish floss has a softer texture compared to the texture of meat floss (Astuti, 2018).

Based on the results of the hedonic test analysis of the Sepat fish floss formulation, shows that there are differences in the acceptability preferences of Sepat fish floss. The average value of Formula 1 (F1) is 2.95 and Formula 2 (F2) is 3.2. This value is included in the neutral and somewhat favorable scale. From this average value, it can be seen that the panelists prefer Formulation 2 (F2), namely shredded Sepat fish with the addition of grated coconut. Apart from that, it can also be seen that the average value shows the conclusion

of the final scale or all aspects of the two formulations, namely the neutral scale in Formulation 1 (F1) which is 100% Sepat fish, and the somewhat favorable scale in Formulation 2 (F2) which contains adding grated coconut..

4. CONCLUSION

Overall, panelists gave a higher average score to F2 than to F1.

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