



Avena Pasta Roll: Healthy Product from Oatmeal Flour as the Wheat Flour Substitute

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Abstract

Healthy food is food that has a health impact on the human body. Avena pasta roll is an alternative food made from wheat flour as a raw material. The aim is to test consumer acceptance of the product and explain the SWOT analysis of the product. The method used is quantitative description (percentage) through organoleptic tests and displays the product SWOT. The finding is to produce high-fibre products made from wheat flour is the preferred category of respondents.

Abstrak

Makanan sehat adalah makanan yang memberikan dampak Kesehatan bagi tubuh manusia. Avena pasta roll menjadi salah satu alterbatif makanan terbuat dari tepung gandum sebagai bahan baku. Tujuannya adalah menguji penerimaan konsumen terhadap produk dan menjelaskan analisis SWOT produk. Metode yang digunakan adalah kuantitatif deskripsi (persentase) melalui uji organoleptic, dan menampilkan SWOT produk. Temuannya adalah menghasilkan produk berserat tinggi berbahan tepung gandum dan masuk kategori disukai oleh responden.

Article History

Received 30 May 2023
Accepted 28 June 2023
Published 29 June 2023

Keywords

Avena, Healthy, Oatmeal Flour, Pasta Roll, Wheat Flour Substitute.

Kata-kata Kunci

Avena, Pasta Roll, Sehat, Pengganti Tepung Terigu, Tepung Oatmeal.

1. Introduction

In Indonesia food system, paddy is the main comestibles in daily life of the society. As the time goes on, the use of paddy prepared for rice now added with the use of oats that also rich in protein and can be use as the substitute of the rice anytime. Likewise, cereal already been used as one of the comestibles for rice substitute in eating breakfast, although a lot of Indonesian people still not getting used to eat breakfast with cereal. Oatmeal is one kind of the cereal comes from oat plant that widely circulated in Indonesia.

Oat (*Avena sativa*) is already well-known since ancient Greece. This plant belongs to grains plant (*Gramina cecae*) or cereals. Wheat (*Triticum sp*), barley (*Hordeum vulgare*), dan also buckwheat (*Sorghum bicolor*) [1]. Oatmeal crackers biscuit are some of the food made from oat. Another product from oat is quaker oat. It is a nutritious food from oat that has a lot of incredible benefits, such as treat diabetes type 2. It can be consuming by all of ages and it is easy to find [2]. In previous research

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conclude that by consuming oat, it gives positive impact for health, because the content of food fibers and phenolic compounds bring higher antioxidant [3]. Oatmeal is one of other foods classified dietary fiber used to increase the volume of eating without increasing calories and gives the feel of full without decreasing appetite [4]. Dietary fiber is influential nutrient for human body. The functions of dietary fiber are arranging the rate of digestion and nutrients absorption, also functionate as a subtract for microflora in intestine and increase lactation [5]. This fact supported by the data that 27 gr of oatmeal (quick types) contain 3 gr of dietary fiber [4]. From this point of view, we know that consume oatmeal as rice substitute can suffice protein need in our body.

In Indonesia, oats have begun to be traded in various brands of commercial products. Oats are often consumed by adults aged 19 years and over ranging from 6.5%-11.1%, while for ages 3 to 18 years the consumption is still small, ranging from 1.1-4.6% [3].

Oats contain the highest protein and various protein advantages when compared to other cereals [6]. Oats contain avenanthramide, a polyphenolic compound with low molecular weight soluble phenolic compounds, which is an antioxidant that has been shown to have a number of advantages, including anti-inflammatory, antiatherogenic, antiproliferative, anticancer, and anti-inflammatory. these effects may be beneficial in preventing coronary heart disease, colon cancer, and skin irritation [7]. On the other hand, oats also contain auxin, a plant hormone that helps development, this then makes oats suitable for children in their growth period. The silica content in oats has a diuretic effect to break down liquids. The protein content in oats includes six types of essential amino acids and oils. Oats also contain carbohydrates that are not difficult to process so they can add energy and strength. Protein is part of the macro elements contained in foodstuffs other than fats and carbohydrates. Protein is the origin of amino acids in which the elements C, H, O and N are chemically bonded. Phosphorus, sulfur and other types of protein that contain copper are protein molecules [8]. The main function of protein in the body is as a substance that forms new tissue and protects existing tissue from being easily damaged. If the energy needed by the body is not fulfilled by carbohydrates and fats, then protein can be used as a substitute. Protein has the influence to regulate a series of actions in the body (direct and indirect). By regulating substances that regulate processes in the body, proteins can regulate fluid balance in tissues and blood vessels, namely by causing colloid osmotic pressure. This osmotic pressure can pull tissue fluid into the blood vessels. On the other hand, protein amphoteric has a property that can react to acids and bases, can arrange an acid-base balance in the body [9].

By utilizing oatmeal which is rich in nutritious content for the body of all ages, a paste is formed from the basic ingredients of oatmeal. Pasta is a food ingredient made from flour mixed with water and eggs, and can be made in various forms [10]. In general, the manufacture of pasta that is widely circulated among the public is made from flour as the main ingredient, but in this product preparation, pasta will be processed with the basic ingredients of oatmeal. However, it is unfortunate that the production of wheat flour in Indonesia is not sufficient to support the growing needs of the community. Wheat flour is the first product obtained from wheat, which until now is difficult to cultivate properly in Indonesia, so it must be taken from abroad. Imports of wheat flour from each year are still relatively high. Therefore, there is a need for a substitute for wheat flour in the manufacture of pasta derived from local food ingredients [11].

In studies and trials from several other researchers, some of the benefits of oatmeal that can help food needs in Indonesia are the addition of oatmeal to the *betakul*. *Betakul* is a by-product of the agricultural sector that can be found in Indonesia which is commonly used as animal food, but it can be used to increase the body's nutritional intake needs. The combination of *betakul* and oats makes a new functional food product known as *oats-betakul*. *Oats-betakul* is designed to be a food that is not only sensory appealing, but also contains sufficient nutrients for the body that are physiologically beneficial for consumers.

Departing from this, in this study we chose oatmeal as the main ingredient in the manufacture of this pasta product. This is done with the aim of creating a new product innovation with easily available ingredients with new flavors and presentations. Hope in making this product can add to the list of culinary in Indonesia and can add insight.

2. Theory and Methods

2.1. Research Design

This Avena Pasta Roll product research using descriptive qualitative research. This research is used to explain an object/phenomenon specifically based on the data (fact) collected from places narratively [12]. The production done through some procedures and experiment to reach best result, so that the product is worthy to sold.

2.2. Product Making Procedures

Avena Pasta Roll is a healthy product made from oatmeal. As a side material, the product used some ingredients, such as egg, oil, water, and salt. Other ingredients used to make tomato sauce are minced beef, water, cheese, and butter. The complete procedures of Avena Pasta Roll is as follows.

2.2.1. Ingredients

- Pasta
 - o 600 gr quick oatmeal
 - o 6 eggs
 - o 2 teaspoons of salt
 - o 12 tablespoons of oil
 - o 5 tablespoons of water
- Sauce
 - o 1 bottle of tomato sauce
 - o 297 gr minced beef/ cornet
 - o 2 tablespoons of butter
 - o 1 pack of cheese
 - o 250 cc of water
- Stuffs
 - o Blender
 - o Sieve
 - o Big bowl
 - o Spoons
 - o Rolling pin

- Pan
- Grater
- Knife
- Scissor

2.3. Cooking procedures

2.3.1 Pasta making

- a. Prepare tools and materials to be used. Puree 600 grams of oatmeal using a blender until smooth like flour. The mashed oatmeal will be filtered using a sieve to separate the coarse and fine particles, then place the fine particles in a prepared bowl and the coarse particles will be mashed again until all the oatmeal is smooth.
- b. Then all the oatmeal is prepared in a bowl, put 6 eggs, 5 tablespoons of cooking oil and a tsp of salt. Then knead the dough until smooth and let stand for about 30 minutes in a closed container.
- c. When the dough is felt to have risen, take the dough and place it on a flat place so that it is easy to flatten using a rolling pin.
- d. Thin the dough as thin as possible so that in the process of rolling it does not crack and become thick. The thinned dough will then be cut into a rectangle measuring 3 x 1.5 cm. All the dough that has been cut will then be rolled up to form small rolls of pasta.
- e. When all the dough has been rolled and ready, the next step is to prepare 2.5 liters of water to boil using a saucepan to boil all the pasta. When the water has boiled, put the pasta mixture into the saucepan and wait for about 90 minutes. When the pasta dough is done, prepare a place to drain the pasta while the sauce is being made.

2.3.2. Sauce making

- a. Prepare the tools and materials that will be used to make pasta sauce while the pasta is still draining.
- b. Prepare a medium-sized pan and then add the butter that has been heated until it becomes oil ready to fry. Add cornet, cook until done. Then add the sauce and water and stir until evenly distributed. When it is cooked add water and boil for 10 minutes on low heat.
- c. Remove the sauce when it becomes thick.

2.4. Data Collecting

In this study, the data collection process was carried out by testing several panelists of Avena Pasta Roll products. The panelists were all 21 students of the Sekolah Tinggi Filsafat Theologia Jaffray Makassar who took Entrepreneurship courses in the short semester of the 2020/2021 academic year and 1 lecturer who taught Entrepreneurship courses, so the number of panelists was 22 people.

2.5. Data Analysis

This research using SWOT analysis and organoleptic test for the data analysis. SWOT analysis itself is a process in identifying all the factor, internally and externally to reach certain purpose through assessment of alternative solutions and management, as well as strategy development [13]. SWOT based on logic: maximize

strengths and opportunities, but minimize weaknesses and threats [14]. In the implementation of this research, internal factors include strengths and weaknesses of Avena Pasta Roll products, while external factors include opportunities (opportunities) and threats (treats) from Avena Pasta Roll products. Meanwhile, organoleptic test is a scientific assessment that relies on the sensory responses of the panelists (test group) to produce a sensory response that will be used as the value of the test results [15]. The organoleptic test for Avena Pasta Roll products uses panelists' senses which include the tongue as a tool for assessing product taste, nose as a tool for assessing product aroma, eyes as a tool for assessing product color, and skin as a tool for assessing product texture. In this data analysis, several panelists were given the opportunity to express their opinions on the Avena Pasta Roll product, including criticism or suggestions for the product, both in indicators of taste, aroma, texture, color, and overall product as an effort to develop future products.

3. Result and Discussion

3.1. Limited Organoleptic Test

In this organoleptic test, ratings are given regarding the level of liking, liking, moderate and disliking the taste, aroma, texture, color, and overall Avena Pasta Roll product which is marked by giving a rating scale from 1 to 4 [16], with the following explanation:

- 1 = disliked
- 2 = Enough
- 3 = Like
- 4 = Very like

The trial of the Avena Pasta Roll product was carried out on Saturday, July 10, 2021, along with the organoleptic test of 22 panelists. The results of the assessment of Avena Pasta Roll products are presented in table 1.

Table 1. Likert Scale

No.	Indicator	Value			
		1	2	3	4
1	Taste	-	5 (22,73%)	14 (63,63%)	3 (13,64%)
2	Smell	-	2 (9,09%)	16 (72,73%)	4 (18,18%)
3	Texture	-	4 (18,18%)	13 (59,09%)	5 (22,73%)
4	Color	-	-	16 (72,73%)	6 (27,27%)
5	Overall	-	-	20 (90,91%)	2 (9,09%)

Table 2. Respondents' Assessment Result

Respondent	Taste	Aroma	Textur	Color	Overall
1	3	3	4	3	3
2	3	3	4	3	3
3	3	4	3	3	3
4	3	3	3	3	3
5	3	3	4	4	3
6	4	3	4	4	4
7	3	3	3	3	3
8	3	3	3	3	3
9	4	3	3	4	3
10	3	4	3	3	3
11	3	3	3	3	3
12	2	3	2	3	3
13	2	2	3	3	3
14	3	4	3	3	3
15	2	3	2	4	3
16	3	4	3	4	4
17	3	3	3	3	3
18	3	2	3	3	3
19	3	3	3	3	3
20	2	3	2	3	3
21	4	3	4	4	3
22	2	3	2	3	3

In the process of testing this too, as many as 4 panelists gave a number of opinions, which included criticism and suggestions for Avena Pasta Roll products. First, regarding the level of thickness (pasta size) which is too thick and which affects the level of doneness of the pasta, so that it is not cooked perfectly. The researchers accepted the proposal and for the next process, before marketing, several improvements were made by reducing the size of the Avena Pasta Roll product to 3 x 1.5 cm and increasing the cooking time for the Avena Pasta Roll product to 60 minutes. Second, regarding the taste of pasta which is abstract, bland and less salty. For the proposal, in the process of making the product to be marketed, the amount of salt in the process of making the dough is increased to 6 tsp and after the product is boiled, the cooked pasta is cooked together with the sauce that has been made, so that the taste of the sauce can be absorbed into the pasta and no longer becomes a tasteless paste.

3.2. SWOT Analysis

In the manufacture of pasta products with oatmeal-based ingredients, there are many processes that can ultimately develop good quality products. In producing oatmeal paste based on the analysis that has been carried out, it has been shown that the content in good oatmeal such as avenanthramide, a polyphenolic compound with low molecular weight phenolic compounds dissolved, is an antioxidant which shows it has a number of advantages, including anti-inflammatory, antiatherogenic, antiproliferative, anticancer which is good for maintain a healthy balance in the body. As a food that is rich in vitamins, oats can also be used to replace rice consumption because it also contains carbohydrates and proteins that are better than rice. This can help conserve existing food sources so that more diverse nutrients are received by the body. Because oats are one of the food fibers that have high and good dietary fiber content, oats can be an option for consumption by every level of society.

Although rich in nutrients and vitamins, oats have less gluten free so that the production process is difficult and the production process is quite time consuming. The lack of color pigment in oats makes the color in the final product less attractive and does not have a distinctive aroma that almost does not feel the natural aroma of oats.

As for marketing the product, the obstacle is the lack of interest in this food, as data shows that users who usually consume oatmeal are people aged 19 years at 6.5%-11.1% while ages 3-18 years are only around 1, 1-4.6% in Indonesia. In addition, there are competitors from the same business with more creative product innovations that can be considered in the production of pasta from oatmeal.

Even so, the use of oatmeal for people with type 2 diabetes and diet patients can use oatmeal as an option to be consumed every day. This is because the data in Indonesia with type 2 diabetes is relatively high, if it is not addressed early on, in the future the number of patients with type 2 diabetes can increase.

4. Conclusions

Oatmeal pasta is a food product of choice that is rich in nutrients and natural benefits that can meet the needs of the body. Processed oatmeal can be an economical and dynamic choice of healthy product business. On oatmeal pasta products, panelists gave an assessment based on organoleptic tests which included taste, aroma, color, texture and overall. Pasta is processed with oatmeal substance that has gone through various processing processes.

Acknowledgements

The study is based on a final-year project under the supervision at the Entrepreneurship Program, Sekolah Tinggi Filsafat Theologia Jaffray Makassar, Indonesia.

Author Contributions

Study conceptualization and design: R.M.R; data collection and manuscript writing: R.M.R., R.F.R; manuscript review: R.P.

Funding

This study received no any external funding.

Institutional Review Board Statement

Not applicable.

Data Availability Statement

Not applicable.

Conflicts of Interest

All authors declare no conflict of interest, financial or otherwise.

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