SAGELA POWDER (SAGEBUK) AS A NATURAL TREATMENT OF REPLACED MONOSODIUM GLUTAMATE (MSG)

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ABSTRACT

Food safety is a matter that must be considered in the organization of food. The use of Monosodium Glutamate (MSG) flavoring has been widely used but has been known to cause various negative effects on the human body. Because it is necessary to find alternative flavorings from natural ingredients. Sagela, which comes from smoking roa (Hemiramphusbrasiliensis) has a savory taste so that it can be processed into an alternative food flavoring.

The purpose of this study was to make flavoring from Sagela Powder. The research method is experimental. The product was tested using Nutrisurvey software, organoleptic test, water content test, and heavy metal qualitative test, microbiology, and a preference test.

It was found that the product has a high nutritional value of protein and vitamin A and meets the test requirements. Sagebuk (Sagela powder) can be used as an alternative flavoring.

Keywords: sagela powder, flavoring, nature.

INTRODUCTION

Food Safety according to Government Regulation of the Republic of Indonesia Number 28 the Year 2004 concerning food safety, quality and nutrition are the condition and efforts needed to prevent food from possible biological, chemical and other contaminants that can disturb, harm and endanger human health [1]. For food to taste delicious, housewives usually add flavoring. Among the scientists themselves, some refer to glutamate as "umami" which is a reference to the fifth taste (other than sweet, salty, bitter, and acid) that can be felt by the human sense of taste. one of them is MSG (Monosodium Glutamate).

MSG has been used as a food additive for a long time and can have harmful effects on the body if used excessively. Several studies have been conducted on making natural flavoring from mushrooms, tofu dregs, starfruit seeds, kesum plants, apah leaves, virgin coconut oil waste and so on. Therefore, we are interested in making natural flavoring ingredients using Roa / Sagela fish. Sagela fish (Hemiramphusbrasiliensis) which is widely known by the people of Gorontalo.

From the above background, a problem can be formulated on how to make Sagela Powder into Natural Flavoring Powder, whether Sagela Powder to Taste Flavoring meets SNI standards, and How does the people's consumption interest in Sagela Powder become Natural Flavoring Powder?

The purpose of this study was to determine the stages and ways of making Sagela Powder into Natural FlavoringFla-

vor, to determine the fulfillment of SNI standards for Sagela Powder to Natural Flavoring, and To determine the level of public consumption interest in Sagela Powder.

LITERATURE REVIEW

MSG has been used as a food additive for a long time and can have harmful effects on the body when overused, such as sweating, rapid heartbeat, redness of the skin, numbness, tingling or burning sensation in certain body parts, such as the neck and face, nausea, chest pain, headache, pressure or feeling tight on the face, and the body becomes weak. Reports on the relationship of MSG with Chinese Restaurant Syndrome have re-emerged in the form of headaches, palpitations (palpitations), nausea and vomiting. In this year also known that glutamate plays an important role in the functioning of the nervous system, so the question arises, how far MSG affects the brain [4][31]. Research in experimental animals also shows that MSG can cause a tendency to neurodegeneration, hypertensive seizures, glaucoma and diabetes [4][24].58% of school children snacks in PercutSei Tuan subdistrict contain flavor enhancers [22]. 100% of mothers in the village of Perampu, Labuabi sub-district, West Lombok, add MSG to their food [2]. Although in Makassar it is found that MSG content is still at a safe level, this must still be anticipated [28].
School children have low knowledge of the dangers of MSG. Married mothers and housewives have a positive attitude towards the use of MSG [3][15][25], but students of the KK Faculty of Engineering Department of Padang State University have a negative attitude towards food coloring and flavoring[5]. There have been previous studies of natural flavoring used by the community (Kardina, 2019) (Manangka, Linda and Mukarlina, 2017) or by making products made from natural ingredients. Study of mushroom-based products [29], [18], blondo as residual waste from Virgin Coconut Oil [30], Belimbingwuluh (sriwuluh (sri) , 2015), Apah leaves [14], Kesum plants [13], bulungan plants [23], tofu waste [26] or fish-based [10][12] trying to find alternatives to using MSG. Botutihe has conducted studies on the potential of Roa fish as a powder seasoning [6]. Researchers, in this case, try to make a flavoring based on roa fish with the addition of carrots. Roa fish in English Garfish, better known from the North Sulawesi or Manado and surrounding areas [7], when the Ternate people call it by the name of the fish named Latin Hemiramphusbrasiliensis-Gepe. Roa fish have a characteristic lower jaw longer than the upper jaw, like a long beak with a smooth surface that is shiny silver and black. Breed in the sea with a body length of up to 30 cm which is a flying fish that can be found in the waters of the North Sea of Sulawesi Island to the Maluku Islands. Roa fish is a type of seawater fish that has been through the process of maturation by fumigation (not dried or burned).

RESEARCH METHOD

Research is a type of experimental research. Manufacture of flavoring products at the Polytechnic Laboratory of Chemistry and Microbiology, Ministry of Health, Gorontalo City, Gorontalo. This research was conducted in May-July 2019. To make Sagela a natural food flavoring, the following ingredients are needed:

Sagela powder	125 g
Shallots	45 g
Garlic	50 g
Onion	20 g
Onion stems	10 g
Carrot	100 g
Salt	2,5 g

How to make it is to mix all ingredients (except sagella powder and salt), puree using a blender, prepare a container and then mix the ingredients that have been mashed with sagela powder. Add salt

when seasoning is evenly mixed with sagella, preheat the oven to 100 ° C for 5 minutes. Add the sagela skillet and bake for 30 minutes. Sagella stirred every 10 minutes, after dry, remove sagella and blend until smooth. To get drier results, bake the sagella again for 10 minutes, remove from the heat and blend again. Filter sagela blender results to get smoother results.

Testing

a. A Calculate nutritional value using the Nutrisurvey application. This calculation was carried out by a nutritionist at the Nutrition Health Laboratory, Ministry of Health, Gorontalo.
b. Testing in accordance with the standard of spice powder (SNI 01-3709-1995) [19], including:
   1) Organoleptic tests, including color, taste, and odor tests.
   2) Test the moisture content, carried out by weighing a sample of 5.0018 g, heated using an oven at 105 ° C for 2 hours. The sample was weighed again. Water content is calculated by the difference in sample weight before and after heating divided by the original weight of the sample multiplied by 100%. SNI standard, which is a maximum of 12.0%.
   3) Qualitative test of heavy metals Pb and Cu PB Test
      a) HCl solution is added to the sample to form a white precipitate (positive Pb)
      b) Samples were added by reacting NH3 solution (positive Pb)
      c) Samples added with no hot water (positive Pb) Cu Test
      d) Samples added with a solution of NaOH to form a blue precipitate (positive Cu)
      e) Samples added with KI solution cause brown deposits (positive Cu).
   4) Calculating the Total Plate Number (ALT) is done by inoculating a sample in PCA media. Count the number ofcolonies from 10-1 Petri dishes to 10-5 Petri dishes. Maximum sample of 1,000,000 colonies /gram.
c. Favorite test of 34 respondents. The preference test on the product is done by applying sagebuk to fried rice. Fried rice was given to 34 respondents of SMP N 1 Gorontalo City. Respondents were asked to give grades 1-5.

RESULT AND DISSCUSSION

The product produced is instant sagella fish powder which can be an alternative flavor for household food. The resulting product is sagella powder as shown in Figure 6 in the appendix.

The superiority of Sagela Powder as a Natural Flavoring Product includes:

a. Practical
b. Easy to make
c. The price is affordable
d. Safe for health because it comes from natural ingredients and does not contain MSG
e. Has a high nutritional value.

Nutrition Value calculation using the Nutrisurvey application

No	Component	Amount	Units
1.	Energy	89,3	Kkal
2.	Water	89,3	g
3.	Protein (73%)	92,1	g
4.	Fat (10%)	5,8	g
5.	Carbohydrates (17%)	21,1	g
6..	Fiber	5,9	g
7.	Alcohol (0%)	-	g
8.	PUFA	0,3	g
9.	Cholesterol	-	mg
10.	Vitamin A	1603,2	µg
11.	Carotene	7,8	mg
12.	Vitamin E (eq.)	0,7	mg
13.	Vitamin B1	0,1	mg
14.	Vitamin B2	0,1	mg
15.	Vitamin B6	0,3	mg
16.	Total Folic Acid	39,5	µg
17.	Vitamin C	16,7	mg
18.	Sodium	1033,2	mg
19	Potassium	536,0	mg
20.	Calcium	81,1	mg

No	Component	Amount	Units
21.	Magnesium	32,8	mg
22.	Phosphor	95,7	mg
23.	Iron	2,7	mg
24.	Zink	0,9	mg

Testing according to the standard of Spice powder (SNI 01-3709-1995)
The organoleptic test shows that the light brown sample in the form of fine granules such as flour, normal taste is delicious, has an appetizing aroma. This is by SNI.

Moisture Test. The result of the water content calculation shows that the sample water content is 10%, smaller than the SNI standard, which is a maximum of 12.0%.

Heavy Metal Test

PB Test; The sample is added to the HCl solution does not form a white precipitate (negative Pb), the sample is added to the unreacted NH3 solution (negative Pb), and the sample is added to the water being dissolved (Negative Pb)
Cu Test; Samples added with NaOH solution do not form blue deposits (negative Cu), Samples added with KI solution do not cause brown deposits (negative Cu);

Total Plate Number Test (ALT)

Based on the ALT calculation results, there were 34,000 colonies / gram, it is still far below the maximum SNI standard of 1,000,000 colonies / gram.

Favorite Test

Based on the results obtained that 8.8% of respondents gave a value of 5 (stated very good), 35.3% gave a value of 4 (stated good), 47% gave a value of 3 (declared sufficient), 5.9% gave a value of 2 (stated less), and the remaining 3% give a value of 1 (stated very less).

It was found that Sagebuk products have high protein value (92.1%) which is very good for children's growth. This product also has a high vitamin A content (1603.2 µg) derived from added carrots. With this the purpose of vitamin A fortification is fulfilled. Both of these substances are not found in artificial flavoring (MSG).

Based on the tests conducted, it was found that the sample meets SNI requirements for heavy metal contamination, water content, and Total Plate Count (ALT). So it is safe if consumed by the community and does not cause negative impacts.

CONCLUSION

Sagebuk can be used as an alternative flavoring derived from natural ingredients, Sagebuk has a high protein and vitamin A value, Sagebuk meets SNI 01-3709-1995 standards including organoleptic, water content, and heavy metal contamination.

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