Global Scientific JOURNALS

GSJ: Volume 7, Issue 9, September 2019, Online: ISSN 2320-9186
www.globalscientificjournal.com

Name and surname: Sariningsih

Name of Institution: Padjadjaran University

Address of Institution: Fisheries Department, Faculty of Fisheries and Marine Science, Universitas Padjadjaran, Jl. Raya Bandung-Sumedang Km. 21, Jatinangor, Kab. Sumedang, Jawa Barat, 45363, Indonesia

COPYRIGHT TRANSFER AGREEMENT

I, Sariningsih certify that I have participated sufficiently in the conception and designing of this work entitled "Chemical composition of milkfish mackerel flavoring powder" and the analysis of the data, as well as writing of this manuscript, to take public responsibility for it.

I believe that the manuscript represents valid work. I have reviewed the final version of the manuscript and approve it for publication. The manuscript is not published elsewhere, in any language, and it is not under simultaneous consideration by any other journals. All the authors agree that the contents of the manuscript are confidential and will not be copyrighted, submitted, or published elsewhere (including the internet), in any language. Furthermore, I attest that I shall produce the data upon which the manuscript is based for examination by the editors or their assignees if requested.

Chemical composition of milkfish mackerel flavoring powder

Junianto[1,]*, Sariningsih2, Evi Liviawaty2, Emma Rochima2

[1]Major Fisheries, Fisheries and Marine Sciences Faculty, Padjadjaran University, Jatinangor 45 363, West Java, Indonesia

[2]Fisheries and Marine Sciences Faculty, Padjadjaran University, Jatinangor 45 363, West Java, Indonesia

* E-mail address:Sariningsih476@gmail.com

ABSTRACT

This research Determine the most preferred chemical analysis of milkfish mackerel flavoring powder, the which is 15%. The solution is Carried out at the Food Technology Laboratory, Faculty of Engineering, University of Pasundan, Bandung. The method is analysis of ash, water, protein, fat and carbohydrate levels .and a solubility of 4%. Proximate analysis was 8:05% ash content, moisture content 2:28%, 13:53% protein content, total fat content 0:25% and 72.58% carbohydrate content.

I. INTRODUCTION

In modern life today makes changes in people's lifestyles, Including changes in food consumption patterns that are more like fast food types. This has spurred the food industry to make-ready-to-eat food products, such as canned food, instant food, etc. the which have recently been sold in traditional markets and supermarkets. One example of a processed food product is flavoring powder (instant broth).

Broth is not foreign to the people in Indonesia Because broth is a type of savory flavor of the which contains Certain extracts and with the addition of other food ingredients or without other added ingredients that are permitted. Broth is intentionally added to processed food products daily to enrich the taste of a food so that the value of receiving food can be better [5].

Usually the broth on the market today contains large amounts of Monosodium Glutamate (MSG). MSG is a sodium salt of glutamic acid roomates is a flavor compound and has been Widely consumed throughout the world as a flavor enhancer, Because The addition of MSG will the make food taste tastier [6]. Although the use of MSG is permissible, but if it's excessive It is also not good for health [9]

Addition of maltodxtrin flour as much as 15% is most preferred by the panelists. addition of maltodextrin flour to boiled milk processed liquid waste can improve the chemical content of flavoring powder so that it can meet the SNI predetermined standards. Based on some of the problems outlined above, research needs to be done on the chemical composition of boiled milk flavoring powder.

2. MATERIAL AND METHODS

2.1 Materials and Tools

Tools used: namely basin, stirrer, knife, cutting board, Scales, measuring cups, blenders, basin, stirrer, stove, skillet, and spray dryer. Material used: Red onion, garlic, pepper, turmeric, and maltodextrin flour

2.2 Methods Parameters

The making of flavored milk powder mackrarel fish is done with a formulation from [1] with a modification of the addition of 15% maltodextrin flour from the other additives, 63 grams. Chemical analysis is Carried out through testing proximate Including water content, ash content, protein content, and fat content with the AOAC method [5].

2.3 Data Analysis

chemical Analysis

Chemical analysis was first developed in Germany by Weende Experiment Station Hennerberg and Stokmann. This analysis is Often Also known as WEENDE analysis. Proximate analysis to classify components in the feed material based on the chemical composition and functions items, namely: water (moisture), ash (ash), crude protein (crude protein), crude lipid (ether extract), and extract ingredients without nitrogen (nitrogen free extract)[9]states that the analysis can be proximate analysis macronutrient.

Method proximate analysis covering the ash content by the method of ashing dried (dryashing) According to AOAC 2005, Kada water with the oven method According to[2], The fat content by using soxhlet According to AOAC 2005, levels of the protein with kjeldahl method According to AOAC 2005 and carbohydrates with by different methods.

A. The water content

Analysis of water content is done using the oven method (AOAC, 2005). Principally by evaporation of free water molecules present in the sample.

The sample is weighed to Obtain a constant weight assuming all the water contained in the sample had evaporated. The amount of water evaporated represents the the difference between the weights before and after drying. Posedur testing the water content in the following manner:

1. The first phase was conducted to analyze the water content is drying dish in the oven for 30 minutes at a temperature of 100-102ºC and weighed.
2. 5 g sample is weighed and then put in a dish and dried in an oven at temperatures of 100-105ºC for 6 hours.
3. The samples were cooled in a desiccator for 30 minutes and weighed. This stage is repeated until constant weight is Achieved. Determination of moisture content is calculated by the following formula.

$$\text{The water content} = \frac{(B1-B2)}{B} \text{ X } 100\%$$

information:

B = Weight of sample (g)

B1 = (Weight of sample + cup) before being dried

B2 = (Weight of sample + cup) after drying

B. Fat levels

The analysis was conducted using the fat content sokhlet (AOAC, 2005).

The testing procedure the fat content in the following manner:

1. Fat pumpkin to use the oven for 30 minutes at a temperature of 100-105ºC. Pumpkin fat is cooled in a desiccator to remove moisture and weighed. The sample is weighed as much as 2 g.
2. *Choloform* 150 ml is inserted into the circuit Soxhlet extractor Soxhlet and installed Correctly
3. extraction is Carried out at 60 ° C for 6 hours
4. evaporating the mixture of fat and chloroform in a round bottom flask to dry 5. Round-bottom flask containing fat is inserted into the oven temperature of 105ºC for 30 minutes.
6. Weight round bottom flask containing fat (C g) Diti, bang to constant weight.
7. Test result of data calculated fat content. The presentation of the fat content can be calculated with the following formula:

$$\text{Total fat\%} = \frac{(C-A)}{B} \text{ X } 100\%$$

information:

A = Weight empty round bottom ash (g)

B = Weight of sample (g)

C = Weight round bottom flask and the extracted fat (g)

C. protein levels

Analysis of protein content Carried by kjeldahl method[2], The principle is the oxidation of carbonaceous materials and the conversion of nitrogen to ammonia by sulfuric acid, then the excess ammonia reacts with acids to form ammonium sulfate. Ammonium sulfate is formed elaborated and made alkaline with NaOH solution.

Evaporated ammonia will be bound with boric acid. Nitrogen contained in the solution is quantified by titration using a standard solution of acid. The calculation procedures protein content is as follows:

1. The sample is weighed as much as 0.1 0.5 g, put in kjeldahl 100 mL flask, added with fruit 1/4 tablet, then didekstruksi until the solution Becomes clear green and SO2 missing.
2. The solution was allowed to cool and transferred to a 50 mL flask and diluted with distilled water up to the mark tera, put in a distillation apparatus, was added to 5-10 ml of NaOH 30-33% and do distillation.
3. distillation accommodated in a solution of 10 ml of 3% boric acid and a few drops of indicator (green bromcresol solution of 0.1% and 29 0.1% solution of methyl red in 95% alcohol separately and mixed between 10 ml bromcresol green with 2 mL of methyl red) and then titrated with a 0:02 N HCl solution until the solution changes color to pink.
4. Determination of protein content calculated protein content of the presentation can be calculated with the following formula.

$$\text{Protein\%} = \frac{(\text{VA}-\text{VB})\text{HCL X NHCL X } 14{,}007 \text{ X} 6{,}25\text{X}100\%}{\text{W x } 100}$$

information:

VA : ML HCl to titrate sample

VB : ML HCl to titrate blank
N: HCl normality standards used 14 007: Nitrogen atom's weight of 6:25: protein conversion factors for fish
W : Weight of sample (g) The protein content is Expressed in g / 100 g sample

D. Abu Content Analysis

Analysis of ash content is done using the oven method[2], The principle is the combustion of organic materials are decomposed into water and carbon dioxide, but unburnt inorganic substances. Reviews These inorganic substances called ash. Bowls that will be used first oven for 30 minutes at a temperature of 100-105ºC. Grail is cooled in a desiccator to remove moisture and weighed. The sample is weighed as much as 2 g in a cup that is dried and then burned in the flame of the burner until no smoke and Followed by Incineration in furnaces 550- 600ºC until ashing temperature perfect. Samples are already diabukan cooled in a desiccator and weighed. Stage combustion in the furnace is repeated until constant weight is Obtained. Determination of ash content is calculated by the following formula:

$$\text{Levels of Abu\%} = \frac{B2-B1}{Berat\ sampel} \times 100\%$$

information :

B = Weight of sample (g)

B1 = (Weight of sample + cup) before being dried

B2 = (Weight of sample + cup) after drying

E. carbohydrate Content

Determination of carbohydrate content was calculated using by difference (Suparjo 2010) with the following formula:

Carbohydrates (%) = 100% - (moisture + levels ash + protein + fat content)%

3.RESULT

Proximate Analysis Results

Proximate analysis was Carried out on one sample of flavoring powder with the addition of 15% maltodextrin flour which was the most preferred treatment by panelists. Proximate testing is done to Determine the amount of chemical content in a food product

Table 10. Proximate Analysis of Seasonings ppenyedaprasa Pindang Bandeng

Parameter	unit	Maltodextrin Flour Addition Treatment 15%	01-4281 1996
Ash content	%	8:05	-
Water content	%	2:28	Max.4.0
protein content	%	13.53	Min. 6
Fat levels	%	0:25	Min. 2
carbohydrate levels	%	72.58	-

Description: [7]

3.1 Ash content

The ash content is the inorganic substance waste products of burning an organic material. Ash content value is associated with a mineral content of foodstuffs (Sudarmadji et al 1996). Common minerals contained in pagan materials such as: calcium, phosphorus, magnesium, manganese, cobalt, iron, copper, chlorine, potassium, iodine and fluorine.

The observation of the proximate analysis of ash content in treatment 15% had a value of 8.05%. SNI 01-4281-1996 ash content not specified requirements for flavoring powder. The ash content affects the shelf life of food because of the ash content has mineral components which affect the physical damage due to mineral material can function as a growth inhibitor mikroorganise so that the shelf life of the product becomes longer (Mighty 2013).

3.2 Water content

The water content indicates the absolute amount of water contained in foodstuffs as food components (Park and Bell 2004). Water is an important component in the food that give effect to the durability of a product during the storage process.

Results of the proximate analysis of water content in treatment 15% had a value of 2.28%. Results of caramelized milk flavoring powder obtained has not exceeded the limit of water content have been determined SNI 01 -4281 -1996 ie max 4.0. This suggests that the drying of powdered flavoring meet SNI.

The water content that exceeds the maximum limit due to several factors one of which is the drying temperature. The drying temperature plays a role in the evaporation of water contained in the material. So if the drying temperature the higher the evaporated water will be more and more and the water content of the product would be lower (Kumala et al 2013).

3.3 Protein content

Proteins are macromolecules composed of units - units of the amino acid other acids via peptide bonds. No proteins are water soluble but some are insoluble. Protein influential as a binding material - a material so that the texture becomes homogeneous, smooth and dry (Winarno 2002).

The results of proximate analysis of the protein content of caramelized milk powder flavoring on maltodextrin flour treatment additional 15% had a value of 13.53%, meaning that powdered flavorings meet SNI 01-4281-1996 that is at least 6.

Wheat maltodextrin is derived from carbohydrate type material which is a type of polysaccharide, so that the greater the concentration of filler material will progressively thicker coating walls made of carbohydrate (Son 2014). The protein content in foodstuffs determining the quality of the food. Protein is one of the macronutrients that has an important role in the formation of biomolecules.

Fat 3.4 level

Fat is an essential nutrient for maintaining the health of the human body and as a source of energy efektifk. Damage fat in foodstuffs occur during processing and storage. Damage resulting fat smelly food and has a bad taste, so the quality and nutritional value can be decreased (Herman et al 2013).

Fat virtually present in all foodstuffs with different content (Winarno 2008). The results of proximate analysis of the fat content of caramelized milk powder flavoring on treatment 15% had a value of 0.25%, while according to SNI 01-4281-1996 least 2 and not yet meet the standards.

According Aniar (2008) flavoring powder fat content will decrease with the addition of a good number of excipients are starch maltodextrin. The more filler added to the fat content will decrease. The fat contained in food

3.5 Carbohydrate levels

Carbohydrates are the main source of calories and plays an important role in the body. Carbohydrates useful to prevent the breakdown of proteins in the body are excessive. Carbohydrates have an important role in determining the characteristics of the foodstuff and can affect flavor, color, and texture of the product and process improvement in food can increase the availability of carbohydrates (Sulistiyono 2014).

Results of the proximate analysis of carbohydrate content of caramelized milk powder flavoring on treatment 15% had a value of 72.58% and carbohydrate levels are not listed carbohydrate content

requirements for flavoring powder. Compared Arnesih research (2018) powder flavoring of liquid waste with filler cob boiled wheat flour has a value of carbohydrate content of 30.90%, which means a good Pengi material is starch maltodextrin.

The content of filler maltodextrin is derived from material consisting of polysaccharides to produce a high carbohydrate content, so that the greater the concentration of filler material will progressively thicker coating walls made of carbohydrate and the more the addition of flour matodextrin the starch content more (Son 2014).

Conclusion

Based on the results of the study it can be concluded that the concentration of the right of flour flour material to produce the characteristics of the fluoride powder of caramelized milk liquid waste with the most preferred material for paneling maltodextrin flour is 15% (w / v) , The concentration of maltodextrin flour 15% Proximate Analysis in the form of 8:05% ash content, moisture content of 2:28%, protein content of 13:53%, total fat content of 12:25% and a large se karbohidarat level of 72.58%

Reference

[1] Arnesih et al, 2018. Characteristics of Flavor Powder of Liquid Waste Mackarel Tuna With Wheat Flour Filler.Global Scientific Joural. 6 (7): 276 -281.

[2]AOAC Official Methods of Analysis 2005, the Association of Official Analytical Chemists.

[3]Borgstorm, G. 1989. Fish as Food. Volume II, nutrition, sanitation and utilization. Academic Press New York San Francisco. London. [

[4]Goula, AM and Adamopoulos, KG, 2005. Stability of lycopene during the spray drying of tomato pulp. LWTFood Science and Technology 38: 479-487.

[5] Haard, NF 1992. Control of chemical composition and food quality attributes of cultured of fish. Food Research International 25 (4): 289-307.

[6] Haghi, AK & H. Ghanadzadeh. A study ofthermal drying process. *Indian Journal of Chemical Technology*, 12: 654-663 (2005).

[7]Heath, H. 1986. Flavor Chemistry and Technology. Westport, The AVI Publ. Co. Inc. Connecticut.

[8] Kanpairo, et.al. 2012. The Composition And Properties Of Tuna Tuna Flavor Powder Produced From precooking Juice. International Food Research Journal. 9 (3): 893-899.

[9] Lailiyah, and V. Indrawati. 2014. Effect of Number of maltodextrin and Duration of Drying on the organoleptic properties of Powdered Soy Milk Yogurt. EJournal food, 3 (1): 65-78.

[10]Meyer, LH 1978. Food Chemistry. The AVI Publ. Inc. Conecticut.

[11]Nadhia Octaviyanti et al 2017.Chemical and Organoleptical Quality of Chicken Broth Powder with the Addition of Green Spinach Extract. *International Food Research Journal 6 (2): 2017*

[12] Rangkuti, RH, Suwarso, E., Anjelisa, P. 2012. Effect of monosodium glutamate (MSG) on the formation of micronucleus of red blood cells in mice. Journal of Pharmaceutics and Pharmalogy, 1 (1), 29-36

[13] SNI (Indonesian National Standard) 01-4273-1996. 1996. Chicken Seasoning. National Standardization Agency. Jakarta.

[14]Sathivel, S., Bechtel, PJ, Babbitt, J., Prinyawiwatkul, W. Neguledcu, II and Reppond, KD 2004. Properties of protein powders from Arrowtooth Flounder (Atheresthes stomias) and Herring (Clupea harengus) byproducts. Journal of Agricultural Food Chemistry 52: 5040 -5046.

[15]Singh, K. & P. Aeluwalia. Studies on the effect of monosodium glutamate (MSG) administration on some antioxidant enzymes in the arterial tissue of adult male mice.*Journal of Nutrition Science and Vitaminology* 49: 145-148 (2003).

[16] United State Department of Agriculture.2014.National Nutrient Database for Standard reference.The National Agricultural Library