Analysis of Organoleptic and Chemical Quality of Dodol Ketan with the Addition of Carabanx Leptolepis Flour

by Rahim Husain

Submission date: 28-Jun-2023 01:50PM (UTC+0800)
Submission ID: 2123822145
File name: 1758-Article_Text-3299-1-10-20210324.pdf (276.5K)
Word count: 4144
Character count: 20635

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 2927 - 2937
Received 16 February 2021; Accepted 08 March 2021.

Analysis of Organoleptic and Chemical Quality of Dodol Ketan with the Addition of Carabanx Leptolepis Flour

Rahim Husain[1], Lis M. Yapanto[2], Gustin J. Pasilia[1],

[1]Department of Fisheries Product Technology, Faculty of Fisheries and Marine Sciences, Gorontalo State University, Jl. General Sudirman No. 06, Gorontalo City 96128, Gorontalo, Indonesia

[2]Departement of Aquatic Resources Management, Faculty of Fisheries and Marine Science, Gorontalo State University, Jl. General Sudirman No. 06, Gorontalo City 96128, Gorontalo, Indonesia

*Correspondence: lizrossler@ung.ac.id

ABSTRACT

This study aims to determine the analysis of the organoleptic and chemical quality of dodol added with yellow selar fish meal *(Caranx leptolepis)*. The study consisted of 2 stages, namely formulations (1) and (2) with concentrations of 10g, 20g, and 30g. using Kruskal Wallis to obtain hedonic organoleptic data, chemistry was obtained through a completely randomized design (CRD). The two results of the analysis were followed by Duncan's continued test if they were significantly different. Panelists preferred the dodol product with the addition of A (10 g) and B (20 g) selar fish meal compared to C (30 g). The results showed that the addition of selar fish meal to dodol had an effect on hedonic organoleptic characteristics except appearance and color. The addition of Selar fish meal also affects the chemical quality characteristics of the dodol. The *dodol* chemical test results have moisture content ranging from 8.

Keywords: Dodol, Selar Fish (Caranx leptolepis), Hedonic, Chemical Quality.

PRELIMINARY

Dodol is a traditional food that is quite popular in the community and has become a traditional souvenir product from certain regions in Indonesia (Rahmadi, 2002). Efforts to attract more consumers to dodol can be done by adding additional products to these processed products, namely by improving the nutritional value they contain. One of the ingredients that can be used as an additive in making dodol which has nutritional content is to utilize Selar kuning (Caranx leptolepis) fish meal which contains.fish protein by 18.8% (Directorate of Nutrition, Ministry of Health, 1989).

Fish meal is generally only used as feed for livestock, but fish meal can also be used for food because it has a high nutrient content so that it can increase the nutritional intake of people who consume it. Complex essential amino acid protein content, including the amino acids lysine and methionine. In addition, fish meal also contains minerals, as well as vitamin B complex, especially vitamin B 12 (Purnamasari et al, 2006). According to Orias (2008), apart from having a high mineral content, the calcium content in fish, especially in fish bones, forms a complex with

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 2927 - 2937
Received 16 February 2021; Accepted 08 March 2021.

phosphorus in the form of apatite or tricalcium phosphate. This form causes fish bone meal to be easily absorbed by the body, which is in the range of 60-70%.

Selar kuning (Caranx leptolepis) is an economically important marine pelagic fish. Selar fish is one of the seafood commodities that is prone to deterioration in quality. This is due to the high protein content of around 18-30%, water content of around 60% -84% and environmental conditions which are very suitable for the growth of rotting microbes. These environmental conditions are temperature, pH, oxygen, storage time and cleanliness conditions of infrastructure (Astawan, 2004).

Selar fish which is used as flour for the manufacture of sticky sticky dodol in this study is a small fish with a relatively low selling price.its use is still limited to general only as consumption fish such as fried so that it needs diversification of other fishery processed products such as fish meal. Fish meal is the destruction of cells and separation of granules from insoluble foreign objects, separating water and oil, reducing some of the water contained in wet flour, grinding coarse flour and sifting. Fish meal is a solid product which is produced by removing most of the water, some or all of the fat. Fish meal raw materials are generally less economical fish, a byproduct of selective fishing, fish glut (abundant fish) during the fishing season and the remains of fish processing factories such as fish canning and freezing factories and fish oil (Laili, 2010).

Based on the background description, the authors are interested in conducting research on the quality analysis of dodol added with yellow selar fish meal (Caranx leptolepis).

RESEARCH METHODS

Time and place

This research was conducted from September 2019 to August 2020. The process of making flour was carried out at the Fishery Product Quality Testing and Development Center (BPPMHP) Gorontalo province. Hedonic organoleptic testing was carried out by the Laboratory of Biotechnology and Fisheries Product Analysis, Fisheries Product Technology Department, Faculty of Fisheries and Marine Sciences, Gorontalo State University.

Tools and Materials

Tool

- The tools in making sticky sticky dodol are: standard scales, analytical scales, trays, blenders, filters, knives, pans, wooden stirrers, measuring cups. The tools for organoleptic testing were the hedonic score sheet and the hedonic quality score sheet. Chemical testing of the tools used are ovens, saucers, desiccators, thermometers, digital scales, gegap (clamp pliers), ashes or furnaces, timers (hours), hot pleats or electric heating, measuring cups, pipettes, filter paper, Erlenmeyer, petri dishes, stomacher, incubator and test tube.

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 2927 - 2937
Received 16 February 2021; Accepted 08 March 2021.

material

- The raw material needed in making sticky sticky dodol is 1 kg of glutinous rice flour. ± 2 kg of brown sugar, 200 grams of granulated sugar and as much selar fish meal as needed and chemicals for proximate analysis. distilled water, concentrated H2SO4, HgO, NaOH, Na2S2O3, indicators (a mixture of red metal and methylene blue), and HCl, petroleum ether.

Research procedure

This study aims to obtain the optimal concentration in the dodol formula by making the concentration of selar fish meal less, namely 10g, 20g, and 30g.

Testing Procedure

Tests carried out on dodol products with the addition of selar fish meal began with organoleptic testing, then chemical analysis which included moisture, ash, protein, fat and carbohydrate content.

RESULTS AND DISCUSSION

Organoleptic Hedonic Dodol Sticky Rice Flour with Addition of Selar Fish Flour.

Organoleptic test for hedonic dodol sticky rice with the addition of selar fish meal. Formula A (selar fish meal 10%), formula B (selar fish meal 20%) and formula C (selar fish meal 30%). The run was carried out by semi-trained panelists totaling 25 people.

Appearance

The histogram of the appearance of the hedonic test results can be seen in Figure 1

Figure 1.Histogram of the hedonic value of the dodol appearance with the addition of different selar fish meal.

The histogram in Figure 1 shows that the mean appearance value is 7.32-7.53 on the like criteria. The results of the kruskal walis test show that the selar fish meal has no significant effect on the appearance of the dodol produced.

The dodol appearance of the 3 treatments with the addition of fish meal resulted in the appearance of the same color, which was dark brown so it was liked by the panelists. This is because the main ingredients for making lunkhead use the same ingredients. In addition, the brown color of the dodol is caused by the presence of selar fish bone meal. In accordance with the research

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 2927 - 2937
Received 16 February 2021; Accepted 08 March 2021.

conducted by Khalishi (2011) that rengginang added with tembang fish meal will produce a browner color.

According to Thalib (2005) that appearance is a parameter that can be seen on a bagea cake visually which causes panelists to be attracted to and like the product. The appearance of a food product is the main draw factor before panelists like other sensory qualities such as taste, aroma, and texture. In general, consumers choose foods that have an attractive appearance (Thalib, 2005).

Color

The histogram of the color hedonic test results can be seen in Figure 2.

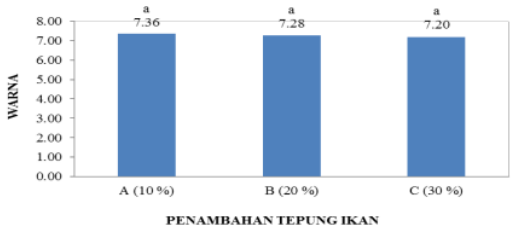

Figure 2. The histogram of the hedonic test results for the dodol color with the addition of different selar fish meal.

Figure 2 shows that the dodol color is in the interval 7,20-7,36 with the same acceptance scale, namely like. The results of the Kruskal-Wallis test showed that the different concentration of Selar fish meal treatment had no significant effect on the resulting dodol color. The color of the dodol with the addition of Selar fish meal produced a color that was not different, because all the colors of the dodol produced were the same, which was dark brown, so the panelists liked it. This is due to the presence of selar fish bone meal. In accordance with the research conducted by Maulida (2005) that the level of preference for the panelists on the color of the cake is influenced by the addition of tuna fish meal, where Ca particles will reduce the brightness level of the resulting product.

Aroma

The histogram of the hedonic aroma test results can be seen in Figure 3.

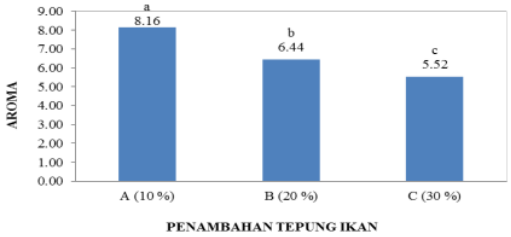

Figure 3.Hedonic test results for the hedonic dodol aroma with the addition of different selar fish flour.

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 2927 - 2937
Received 16 February 2021; Accepted 08 March 2021.

Figure 3 shows that the hedonic organoleptic value of the dodol aroma is in the interval 5.52 - 8.16 with the usual to very like acceptance scale. The highest dodol aroma value with very like criteria is found in formula A, namely 8.16 rounded 8 with a very like acceptance scale and the lowest value is in formula C with the usual criteria. As well as formula B with a rather favorable acceptance scale.

The Kruskal-Wallis test results showed that the concentration of selar fish meal had a significant effect on the aroma produced. The Duncan test results on aroma showed that formulas A, B and C were all significantly different.

Formula A is dodol with an aroma that is very popular with panelists because it smells good and doesn't smell like selar fish meal. This is due to the lack of added fish meal. formula B addresses and other additives as well as the cooking process so as to mask the aroma of the fish.

Formula B with the addition of selar fish meal is more than formula A has a little flavor, so it is somewhat favored by the panelists. Meanwhile, the formula C with the usual criteria by the panelists was because the addition of more fish meal than pormula A and B resulted in a less fragrant aroma and fish aroma. It is suspected that the panelists are still unfamiliar with the smell of fish that is too dominant in lunkhead. This is consistent with research conducted by Bunta (2013), which states that the aroma of bagea cakes with the addition of high concentrations of tuna fishmeal reduces the level of preference for panelists to bagea cakes.

Taste

The histogram of the taste hedonic test results can be seen in Figure 4.

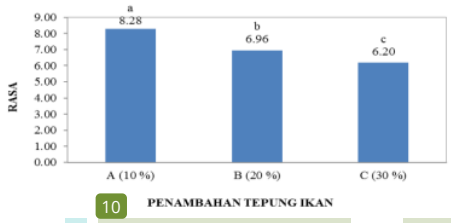

Figure 4.The histogram of the hedonic test results for the taste of dodol with the addition of different selar fish flour.

Figure 4 shows that the hedonic organoleptic value of dodol taste is in the interval 6.20 - 8.28 with a somewhat like to very like acceptance scale. The highest value is in formula A with the acceptance value is very like and the lowest value is in formula C with the acceptance value is rather like.

The results of the Kruskal-Wallis test showed that the different concentration of Selar fish meal had a significant effect on the resulting taste. The results of the Duncan test on taste showed that formulas A, B and C were all significantly different.

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 2927 - 2937
Received 16 February 2021; Accepted 08 March 2021.

Formula A dodol is dodol with a taste that is very popular with panelists because it tastes sweet, and doesn't taste like the fish flour. This is due to the use of rice flour more than selar fish meal, apart from the use of other ingredients also masks the taste of the fish. Formula B (20%) with the addition of more fish meal than formula A (10%) resulted in a taste favored by the panelists. Meanwhile, the formula C (30%) was favored by the panelists because the addition of more fish meal resulted in a strong fish taste. This is in accordance with the research conducted by Bunta (2013) that the higher the concentration level of tuna fishbone meal, the lower the panelists' preference for the taste of the food products being selected because of the dominating fish taste.

Texture

The histogram of the hedonic texture test results can be seen in Figure 5.

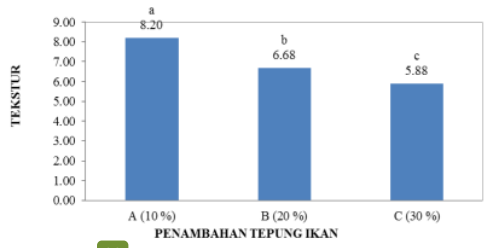

Figure 5.The histogram of the hedonic test results for the dodol texture with the addition of different selar fish flour.

Figure 5 shows that the hedonic organoleptic value of the dodol texture is in the interval 5.88 - 8.20 with a somewhat like to very like acceptance scale. The highest score is in formula A with the selari of acceptance is very like and the lowest value is in formula C with the selari of acceptance is rather like.

The results of the Kruskal-Wallis test showed that the different concentrations of rice flour and fish meal with a significant effect on the resulting texture. The Duncan test results on texture showed that formulas A, B and C were all significantly different.

Formula A, *dodol* with a texture that is very popular with panelists because the texture of dodol is soft and chewy. This is because it uses more rice flour than selar fish meal. Formula B with the addition of more fish meal than formula A, which is 20%, produces a texture that the panelists like, namely soft and slightly chewy. Meanwhile, the panelists preferred formula C because the addition of more fish meal resulted in a less chewy (rather hard) texture.

Maulida's research (2005) states that the addition of 20% tuna fish bone meal has a very low hedonic selari on texture parameters than 10% concentration, because the more fish bone meal is added, the harder the resulting product is, this is related to

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 2927 - 2937
Received 16 February 2021; Accepted 08 March 2021.

the large calcium and phosphorus content in tuna fish bone meal so that the texture of the resulting product will also change according to the number of additional fish bone meal concentrations.

Chemical Quality Characteristics

Water content

The histogram of water content analysis results on lunkhead of each treatment can be seen in Figure 6.

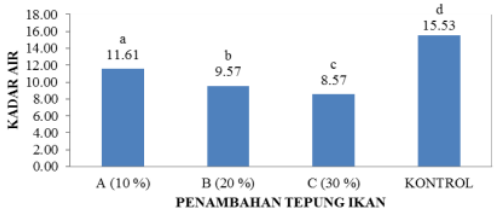

Figure 6.The histogram of the dodol water content test results.

Figure 6 shows the water content of dodol in the range 8.57% -15.53%. The highest water content value was found in the control formula (without the addition of selar fish meal) which was 15.53%. While the lowest water content is found in formula C (addition of 30% selar fish meal), namely 8.57%. The water content of formula A dodol is 11.61% and formula B is 9.57%.

Based on the analysis of variance (ANOVA), the addition of selar fish meal has a significant effect on the water content of dodol. The Duncan test results showed that the water content of formulas A, B, C and control were all significantly different.

According to Kusnandar (2011) that water in food can be between cells, trapped in cells, or bound to a compound found in food. The degree of water attachment will affect the role of water in chemical reactions and microbial growth. The presence of water in food is expressed in the form of water content.

Ash content

The histogram of the results of the analysis of the ash content in dodol can be seen in Figure 7.

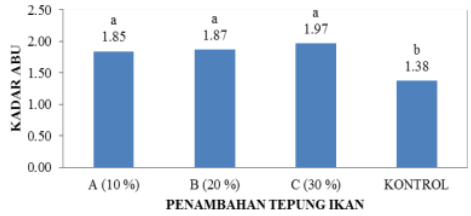

Figure 7. The histogram of the dodol ash content test results

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 2927 - 2937
Received 16 February 2021; Accepted 08 March 2021.

Figure 7 shows that the dodol ash content is in the range of 1.38% -1.97%. The highest value of ash content is found in formula C (addition of 30% selar fish meal), namely 1.97%. Meanwhile, the lowest ash content was found in the control formula (without adding fish meal), namely 1.38%. The brownie ash content of formula A is 1.85% and formula B is 1.87%.

Based on the analysis of variance (ANOVA), the addition of selar fish meal significantly affected the ash content of dodol. The Duncan test results showed that the ash content of formulas A, B, C was not significantly different, but significantly different from the control.

The more selar fish meal used, the higher the ash content of dodol, this is presumably because the fish contains 0.93% ash (Nurnadia et al., 2011). Winarno (2002) states that ash is what remains when a sample is completely burned in an ashing furnace. The residual ash from the ash content analysis shows the amount of inorganic substances in the product, while those that evaporate indicate the content of organic substances. Usually these components consist of calcium, potassium, sodium, iron, manganese, magnesium and iodine.

Fat level

The histogram of the results of the analysis of fat content in dodol can be seen in Figure 8.

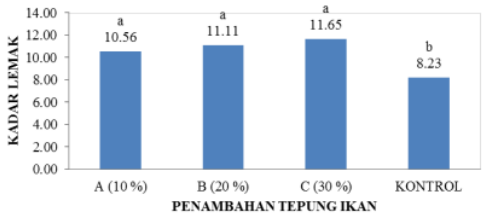

Figure 8.The histogram of the dodol fat content test results

Figure 8 shows that the dodol fat content is in the range of 8.23% -11.65%. The highest fat content value is found in formula C (30% selar fish meal) which is 11.65%. While the lowest fat content was found in the control formula (without fish meal), namely 8.23%. The fat content of formula A dodol is 10.65% and formula B is 11.11%.

Based on the analysis of variance (ANOVA), the addition of selar fish meal has a significant effect on dodol fat content. The Duncan test results showed that the fat content of formulas A, B, C was not significantly different, but significantly different from the control. Naturally, selar fish meal contains 2.12% less fat (Nurnadia et al., 2011). However, the high fat content in dodol can be caused by the more fish meal used. This is consistent with the research conducted by Khalishi (2011) that rengginang which is added with tembang fish meal produces high levels of fat. The high fat content in dodol is thought to come from other ingredients that make up dodol, such as coconut milk.

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 2927 - 2937
Received 16 February 2021; Accepted 08 March 2021.

Protein Content

The histogram results of the analysis of protein content in dodol can be illustrated in Figure 9.

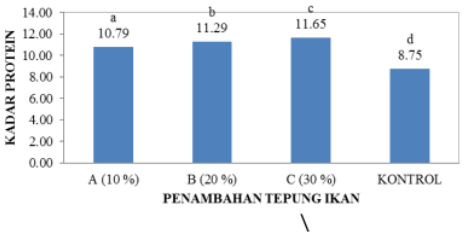

Figure 9.The histogram of the dodol protein content test results

Figure 9 shows dodol protein levels in the range of 8.75% -11.65%. The highest protein content value is found in formula C (30% selar fish meal) which is 11.65%. While the lowest protein content was found in the control formula (without selar fish meal), namely 8.75%. The protein content of formula A dodol is 10.79% and formula B is 11.29%.

Based on the results of Analysis of Variance (ANOVA), the addition of selar fish meal has a significant effect on dodol protein content. The Duncan test results showed that the protein content of formulas A, B, C and control were all significantly different.

The more use of Selar fish meal on dodol, the higher the value of the dodol protein content. This is presumably because the fish contains high protein, namely 19.98% (Nurnadia et al., 2011). The increase in protein content was different from the control without the addition of fish meal, so that the control had low protein content. This is consistent with research conducted by Apriliana (2010), which states that the increase in protein content of ice cream cones is caused by additional protein content derived from catfish meal (Pangasius hypopthalmus) in the dough. Nurul et al (2009) stated that protein content increases along with the increasing amount of fish meal added.

Carbohydrate

The results of the analysis of carbohydrate levels in dodol can be illustrated in Figure 10.

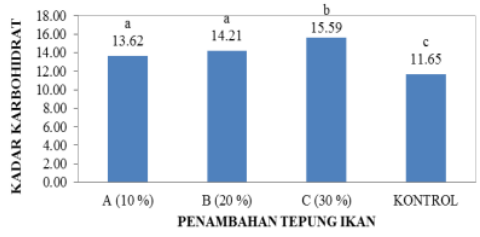

Figure 10.Histogram of test results for dodol carbohydrate levels

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 2927 - 2937
Received 16 February 2021; Accepted 08 March 2021.

Figure 10 shows that dodol carbohydrates are in the range of 11.65% -15.59%. The highest carbohydrate value is found in formula C (30% selar fish meal) which is 15.59%. Meanwhile, the lowest carbohydrate was found in the control formula (without fish meal) which was 11.65%. Formula A dodol carbohydrates are 13.62% and formula B is 14.21%.

Based on the analysis of variance (ANOVA), the addition of selar fish meal has a significant effect on the carbohydrate content of dodol. The Duncan test results showed that the carbohydrate content of formula A and B was not significantly different, but significantly different from formula C and control.

The carbohydrate content in dodol with the addition of selar fish meal increased, but the carbohydrate content control formula was low. Carbohydrates are the main source of calories for almost all people in the world. Although the number of calories produced by 1 gram of carbohydrates is only 4 kcal, carbohydrates are a source of calories that are cheap and easy to obtain. Carbohydrates also have an important role in determining the characteristics of food ingredients, such as color, texture, etc. (Indrasti, 2004).

Conclusion

Based on the research results it can be concluded that the addition of selar fish meal to dodol has an effect on the hedonic organoleptic characteristics except appearance and color. The addition of Selar fish meal also affects the chemical quality characteristics of the dodol. The chemical test results of dodol have moisture content ranging from 8.57% - 15.53%, ash content 1.38% - 1.97%, fat content 8.23% - 11.65%, protein content 8.75% -11.65% and 11.65% -15.59% carbohydrates.

BIBLIOGRAPHY

1. Aprilliana, IS. 2010. Fortifification of Patin Fish Meal in Making Ice Cream Cones [Thesis]. Faculty of Fisheries and Marine Science. Bogor Agricultural Institute.
2. Astawan, M., and Avina, T, 2003. Effect of Type and Soaking Solution and Drying Method on Physical, Chemical and Functional Properties of Gelatin from Cones. Journal of Technology and Food Industry Vol XIV (1): 7-13.
3. Astawan, M. 2004. Delicious and Nutritious Fish. Three Musketeers. Surakarta.
4. Indrasti, D. 2004. Utilization of Belitung taro flour (Xanthosoma sagittifolium) in making cookies. Essay. Bogor Agricultural Institute. Bogor.
5. Kusnandar, F., DR Adawiyah., and M. Fitria. 2010. Estimation of the shelf life of biscuit products using the acceleration method based on the critical moisture content approach. Journal of Technology and Food Industry, XXI (2): 117-122.
6. Laili, RR. 2010. Report on internship at PT. Mafood Industries Pekalonagan Central Java (Fish Flour Making Process). Sebelas Maret University Faculty of Agriculture. Surakarta.
7. Maulida, N. 2005. Utilization of Madidihan Fish Bone Flour (Thunnus albacores) as a supplement in making biscuits (crackers). Essay. Faculty of Fisheries and Marine Sciences, IPB. Bogor
8. Nurul H., Boni I., Noryati I. 2009. The effect of different ratios of Dory fi sh to tapioca

flour on the linear expansion, oil absorption, color and hardness of fiber crackers. *Journal of Inter Food Research* 16: 159-165.

9. Purnamasari, E., BI Gunawan., & AN Asikin. 2006. Potential and Utilization of Fish Meal Product *Raw Materials*. EPP. 3 (2): 1-7.
10. Rahmadi, Ady. 2002. Effect of Traditional Processing Methods and Modification of Bengkulu Method on Quality of Seaweed Dodol Products During Storage. Essay. *Faculty of Fisheries and Marine Science*. *IPB*.
11. Winarno, FG. 2002. Food Chemistry and Nutrition. Gramedia. Jakarta.
12. Yapanto, L.M., and Musa, Farid Th. (2018). Distribution of Seafood Production in Bajo Sector of Gorontalo Province Indonesia. In *International Journal of Innovative Science and Research Technology* (Vol. 3).

Analysis of Organoleptic and Chemical Quality of Dodol Ketan with the Addition of Carabanx Leptolepis Flour

ORIGINALITY REPORT

11%	5%	8%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	O Paramita, S Fathonah, Rosidah, T Agustina, M Larasati. "The effect of different processes of flour making on the proximate composition of taro (Colocasia esculenta (l.) flour and taro flour cookies", IOP Conference Series: Earth and Environmental Science, 2021 Publication	2%
2	Rahayu Suseno, Bangun Naomi Marcelina, Silvi Leila Rahmi. "The Effect of Various Types of Natural Sweeteners in Agar with Rice Bran Addition on Organoleptic and Physicochemical Characteristics", Indonesian Food Science & Technology Journal, 2019 Publication	1%
3	Y Koniyo, C Lumenta, A H Olii, R O S E Mantiri, N Pasisingi. " Nutrition of local wild edible fern ( ) leaves ", IOP Conference Series: Earth and Environmental Science, 2021 Publication	1%

4	Fatmawati ., Kartini ., Siti Aisa. "Acceptance and Nutritional Value of Cookies Substituted with Tuna Fish Meal Madidihang (Thunnus Albacares)", KnE Life Sciences, 2019 Publication	1 %
5	garuda.kemdikbud.go.id Internet Source	1 %
6	erepository.uwks.ac.id Internet Source	1 %
7	media.neliti.com Internet Source	1 %
8	Syamdidi Syamdidi, Diah Ikasari, Hasta Octavini. "Determination and Optimization of Flour for Producing Crispy Baby Tilapia using Plackett Burman Design and Central Composite Design Method", Squalen Bulletin of Marine and Fisheries Postharvest and Biotechnology, 2017 Publication	<1 %
9	jurnal.fp.unila.ac.id Internet Source	<1 %
10	R Rindiani, P Kumalasari. "Steamed cake with okra flour substitution as an alternative to snack for a fibre source", IOP Conference Series: Earth and Environmental Science, 2021 Publication	<1 %

11	Submitted to Ajou University Graduate School Student Paper	<1 %
12	ojs.uho.ac.id Internet Source	<1 %
13	N W Hasan, T P Putri, Zainal. "Preparation of cookies from banana flour, soy flour, and Moringa leaf flour as an emergency food product", IOP Conference Series: Earth and Environmental Science, 2020 Publication	<1 %
14	T P Murti, A H Purnomo, N Dharmayanti, R B S Salampessy. "Application of refined carrageenan (RC) in the non-gluten crispy fish seaweed product processing", IOP Conference Series: Earth and Environmental Science, 2019 Publication	<1 %
15	www.jurnal.unsyiah.ac.id Internet Source	<1 %
16	M. Faisal, U. Ahmad, D. Wulandani. "Determination of Mung Bean Seed Viability Change in Vacuum Packaging during Storage in Different Temperatures", IOP Conference Series: Materials Science and Engineering, 2019 Publication	<1 %
17	"Advances in Physical Ergonomics & Human Factors", Springer Science and Business	<1 %

Media LLC, 2019
Publication

18	D Sandri, E Lestari. "Chemical Characteristics of Motaf Sweet bread with Addition of Temulawak Starch", IOP Conference Series: Materials Science and Engineering, 2021 Publication	<1 %
19	Z Fahiera, M Nurminah, T Karo-Karo. "Physicochemical and sensory characteristics of egg roll from composite flour (mocaf, breadfruit flour, orange sweet potato flour, breadfruit starch, and orange sweet potato starch)", IOP Conference Series: Earth and Environmental Science, 2021 Publication	<1 %
20	pascasarjana.uit.ac.id Internet Source	<1 %
21	www.foodandnutritionjournal.org Internet Source	<1 %
22	www.globalscientificjournal.com Internet Source	<1 %

Exclude quotes	On	Exclude matches	Off
Exclude bibliography	On		