

The Effect of Adding Carrot Puree on Organoleptic and Chemical Properties of Dodol

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Abstract

Dodol is a processed food made from a mixture of glutinous rice flour, sugar, sand, and coconut milk which is boiled until it becomes thick, oily, and not sticky. Carrots are not only rich in fiber and beta carotene, but also have a distinctive color that can be used as a natural dye in lunkhead. Often the food production in circulation uses artificial coloring, but with the addition of carrots, it is possible to reduce the use of chemical dyes and add nutritional value to food, especially in processed carrots. Objectives (1) To determine the effect of adding 100 gr, 125 gr, 150 gr carrot puree on the organoleptic and chemical properties of dodol. This study was experimental, with a non-factorial completely randomized design (CRD) with 3 treatments and 3 repetitions. This research was conducted to see the effect of adding carrot puree to the organoleptic and chemical properties of lunkhead. The results showed that the addition of 100 gr, 125 gr, 150 gr carrot puree on the organoleptic and chemical properties of lunkhead. significantly affected the taste and color of dodol (p value < 0.05) and the results of the carbohydrate test, ash content, water content significantly affected the effect of adding carrot puree to the organoleptic and chemical properties of dodol (p value < 0.05). The results of the acceptability analysis of dodol with the addition of carrot puree were found to have a significant effect on the color of dodol and the taste of dodol. No significant effect on the aroma of dodol and the texture of dodol. Based on the results of the chemical test, the highest average carbohydrate value was found in the third treatment with the addition of 150 g of carrot puree.

Keywords: carrot puree, chemical test, dodol, organoleptic test.

Introduction

Indonesian people have high levels of consumption of snack foods. The eating food must meet the nutritional and safe value, namely when using the food grade food grade additory must be in accordance with the SNI with the determined concentration so that it does not endanger the health of the body. According to BPS data, in 2002 the level of snack consumption in Indonesia was only 9.7%, while for 2012 the consumption rate increased to reach 11.65% (the Central Bureau of Statistics, 2012). Based on Law No. 18 of 2002 concerning food, it needs efforts to prevent food from chemicals so that it is safe for consumption. Therefore, it is because it is necessary to do processing about healthy snack foods that do not contain materials that endanger health if consumed by humans.

Dodol is a fairly popular traditional food that has been known since ancient times that was treated in a traditional way. Currently Dodol is better known as its home region such as

Dodol Garut, Holy Dodol or Holy Jenang, Beramai from West Sumatra, Dodol Durian or Lempog from Sumatra and Kalimantan. Dodol Includes half-wet processed products that are solid and supple, similar products made traditionally called the jenang with more soft and oily texture (Suprapti, 2005: 19). At present the dodol has been marketed wider, especially in tourism places with attractive packaging.

Dodol is a food processed made from a mixture of sticky rice flour, granulated sugar, and coconut coconut milk, which simply boil to be thick, oily, and not sticky. When cooled Dodol will be solid, chewy and can be sliced. The type of dodol is very diverse depending on the diversity of additional mixtures and also how to make it (Haryadi, 2006). According to Haryadi (2006), sticky rice flour is the main component in the process of making dodol. At the time of heating with the existence of enough water, the starch is contained in flour absorbing water and forming a thick pasta, and on the cold Pati form a chewy mass, resilient and clay The sticky rice flour is also one of the factors that greatly affect the taste, color, texture, and chemical properties of dodol (Satuhu & Sunarmani, 2002).

According to the Indonesian National Standards (SNI) number 01-2986-1192, Dodol is a food product made from sticky rice flour, coconut coconut milk, and sugar with or without the addition of food and other food additives that are permitted. Dodol has a soft texture, has elastic properties, can be directly eaten, does not require cooling and also quite dry so that it can be stable during storage (Astawan and Wahyuni, 1991 in Aniswatul Khamidah and Eliartati).

Dodol is grouped into 2 namely dodol made from flour, including rice flour, sticky rice flour, and dodol made from fruits (Satuhu, 2004: 1). Dodol is made from fruit, for example pineapple, soursop, mango and many others. Usually the flour-based dodol needs to add an essence as an additional ingredient for flavoring, while the fruit-based dodol does not need it. Dodol fruit made of mature meat is destroyed, then cooked with the addition of sugar and other food ingredients, such as coconut milk, sticky rice flour, tapioca flour, hunger flour, food coloring material, or preservatives.

Lately the community has a tendency when buying food just paying attention to the taste, but not with nutrient. Therefore, dodol products with the addition of Puree Carrots can be used as one of the efforts to improve dodol products by improving the nutritional content. The addition of these materials is expected to increase the nutritional content of dodol. Dodol can not only be made with sticky rice flour, but dodol can be made by selecting local materials, one of which is to use carrots, carrots can be combined with sticky rice flour to increase the lack of GIZ content Dodol is usually eaten as daily snacks or snacks in big days.

Carrots are a healthy type of vegetables for the human body so that more need to be cultivated for welfare and meet human needs. Besides being good and favored by many people as material to make various kinds of dishes, drinks and carrots can also be used as cosmetic ingredients and are efficacious as healing drugs of various diseases, because in carrot tubers contain beta carotene compounds that can cause immunity to Carrots are very well known but many who do not know the womb in carrots other than vitamin A for eye health, besides the carrots also contain beta carotene pigments. The beta content of the carotene is a pigment of the orange giver in fruits and vegetables (Trianto et al., 2014). Wortel besides rich in fiber and beta carotene, also has a typical color that can be used as a natural dye in dodol. Often food production circulating using artificial dyes but with the addition of carrots has a chance to reduce the use of coloring chemicals and add nutritional value to food, especially in processed carrots.

The author wants to examine the effect of the addition of carrot puree to organoleptic properties and chemical properties in dodol because their utilization is still lacking so that it can produce a new product varied, attractive in appearance and taste, with the aim of increasing people's favorites using local materials for processed products. This research aims to find out the effect of adding 100 gr carrots puree, 125 gr carrots puree, and 150 gr carrots puree to taste, color, aroma, and texture on dodol. And also to determine the chemical properties (carbohydrate test, ash content, moisture content) of dodol.

Methods

This research is an experimental study conducted with a non-factorial Completely Randomized Design (CRD) design with 3 treatments and 3 repetitions each so as to obtain 9 experimental results to see the effect of adding carrot puree to the organoleptic and chemical properties of lunthead. This research was carried out on May 27, 2021. The organoleptic test was carried out at the Food Technology Laboratory, Department of Nutrition, Health Polytechnic of Aceh and the analysis of chemical properties at the Research and Industrial Standardization Institute in Banda Aceh.

Result

Organoleptic test

Color

Based on table 1 shows that the color produced in the dodol treatment with the addition of 100 g of brown carrot puree, the dodol treatment with the addition of 125 g of carrot puree was dark brown, and the dodol treatment with the addition of 150 g of dark brown carrot puree. The average value of the color test produced on dodol in the treatment of adding 100 g of carrot puree, which the average value given by the panelists was (3.80) rather like. In the dodol treatment with the addition of carrot puree as much as 125 grams, the average value obtained was (4.09) likes and in the dodol treatment with the addition of carrot puree as much as 150 grams, the average value given by the panelists was (3.76) somewhat do not like. So it can be concluded that the panelists gave a score of rather like the color of dodol with the addition of carrot puree. Panelists prefer the dodol treatment with the addition of carrot puree as much as 125 g compared to other treatments because there is a distorted impression of the treatment with the addition of 100 gr carrot puree and 150 gr carrot puree.

Table 1. Organoleptic Test Results On Dodol

| Treatment | Average preference for dodol | | | |
|-----------------------------------|------------------------------|-------|-------|---------|
| | Color | Taste | Aroma | Texture |
| Addition of 100 g of carrot puree | 3, 80 | 3, 40 | 3, 67 | 3, 77 |
| Addition of 125 g of carrot puree | 4, 09 | 3, 94 | 3, 81 | 3, 91 |
| Addition of 150 g of carrot puree | 3, 76 | 3, 76 | 3, 71 | 3, 85 |

Taste

Based on table 1 shows the taste favored by the panelists, dodol with the addition of 125 gr of carrot puree, the taste of dodol is sweet and still feels a little carrot. The average value of the organoleptic test obtained did not differ much between the 3 treatments with the average value ranging from 3.40 to 3.94. In the dodol treatment with the addition of 100 g of carrot puree, the

panelists gave a somewhat favorable response (3.40), the dodol treatment with the addition of 125 g of carrot puree, the panelists gave a somewhat favorable response (3.94) and in the dodol treatment with the addition of 150 g of carrot puree. panelists gave a somewhat favorable response (3,76).

Aroma

Based on table 1 shows that the average results of the organoleptic test did not differ much between the 3 treatments. The average value ranges from 3.67 to 3.81, namely the panelists rather like it. And from 3 treatments with 3 repetitions, it is known that the highest value was found in the dodol treatment with the addition of carrot puree as much as 125 g with a value given by the panelists of 3.81. In the dodol treatment with the addition of 100 g of carrot puree, the panelists gave a somewhat favorable response (3.67), the dodol treatment with the addition of 125 g carrot puree gave a somewhat favorable response (3.81), and the dodol treatment with the addition of 150 g carrot puree, the panelists gave a response. rather like (3,71). So it can be concluded that the panelists rather like the aroma of diamonds with the addition of 125 g of carrot puree and.

Texture

Based on table 1 shows the average value of the organoleptic test obtained was not significantly different between the 3 treatments. The average value ranged from 3.77 to 3.91. In the 3 treatments, the panelists gave a somewhat favorable response to the dodol texture with the addition of carrot puree.

Nutritional Values

In this study of making dodol chemical test were carried out, namely carbohydrate test, water content test, and ash content test

Carbohydrate

Table 2 shows that the carbohydrate content of dodol with the addition of 100 g of carrot puree is 33.22%, the dodol treatment with the addition of 125 g of carrot puree is 38.04%, and dodol with the addition of 150 g of carrot puree, which is 41.72 %. The highest amount of carbohydrates in the dodol treatment was in the dodol treatment with carrot puree as much as 150 grams, which was 41.72%. Meanwhile, the lowest total carbohydrate content was found in the dodol treatment with carrot puree as much as 100 grams, which was 33.22%.

Table 2. Nutritional Values of dodol

| Test Parameters | Treatment | | |
|-----------------|-----------|---------|--------|
| | D1 | D2 | D3 |
| Carbohydrate | 33, 22 % | 22,38 % | 0,44 % |
| Water content | 38,04 % | 15,60 % | 0,53 % |
| Ash content | 41,72 % | 15,13 % | 0,59 % |

Water content

Table 2 shows that the water content in the dodol treatment with the addition of 100 gr carrot puree is 22.38%, the dodol treatment with the addition of 125 gr carrot puree is 15.60%, and the dodol treatment with the 150 gr carrot puree addition is 15.13%. The highest amount of

water content in the dodol treatment with the addition of carrot puree was in the dodol treatment with the addition of 100 gr carrot puree, which was 22.38%. While the lowest amount of water content was found in the dodol treatment with the addition of 150 gr carrot puree, which was 15.13%.

Ash Content

The highest amount of ash content in the dodol treatment with the addition of carrot puree was in the dodol treatment with the addition of 150 gr carrot puree, which was 0.59%. While the lowest amount of ash content was found in the dodol treatment with the addition of 100 gr carrot puree, which was 0.44%.

Discussion

Color

ANOVA analysis showed that dodol with the addition of carrot puree had a significant effect on the color of dodol. The results of the analysis of variance of dodol with the addition of carrot puree with a calculated F value of 3,042 with a significant level (P value) of $0.05 < P < 0.05$, so it can be concluded that the dodol treatment with the addition of carrot puree had a significant effect on the color of the dodol produced.

The difference in the color of the resulting dodol is due to the amount of addition of carrot puree. Carrots are not only rich in fiber and beta carotene, but also have a distinctive color that can be used as a natural dye in lunkhead. Often the food production in circulation uses artificial coloring, but with the addition of carrots, it is possible to reduce the use of chemical dyes and add nutritional value to food, especially in processed carrots.

The color that the panelists preferred was the dodol treatment with the addition of 150 gr of carrot puree, because the panelists assumed that the dodol color with the addition of 150 gr of carrot puree was more attractive and in accordance with the original color than the dodol color with the addition of 100 gr of carrot puree and the lunkhead with the addition of carrot puree 125 gr.

Taste

The taste of dodol was liked by the panelists, this happened because dodol has a distinctive taste, which is sweet and legit (Yunita Reni. Nur'aini Hesti, 2018). According to (Soeparno, 1985) the acceptance of a food is determined by the stimuli that arise from food through the senses of sight, smell, and taste. Based on the results of the analysis of variance on the taste of dodol with the addition of carrot puree with a calculated F value of 2,735 with a significant level (P value) of $0.041 < P < 0.05$, it can be concluded that the dodol treatment with the addition of carrot puree had a significant effect on the taste of the resulting dodol.

Aroma

Based on the results of analysis of variance showed that the dodol treatment with the addition of carrot puree had no significant effect on the aroma with F count 0.514 with a significant level (P value) $0.600 > 0.05$ so it can be concluded that the dodol treatment with the addition of carrot puree had no significant effect on the smell of dodol generated. According to Soeparno (1985), the receptivity to a food is determined by the stimuli that arise from food through the senses of sight, smell, and taste in food, which can be recognized and distinguished

by the taste buds located on the papillae, namely the red-orange stain on the tongue. Aroma is an important factor in determining the level of consumer acceptance of an ingredient, the aroma determines the delicacy of a food ingredient, usually one can judge whether or not a food is delicious (Astawan, 2006). Panelists generally like the dodol aroma in the dodol treatment with the addition of carrot puree as much as 125 grams because the aroma is more attractive, so the panelists want to taste it.

Texture

In the dodol treatment with the addition of 100 g of carrot puree, the panelists gave a favorable response (3.77), the dodol treatment with the addition of 125 g of carrot puree, the panelists gave a somewhat favorable response (3.91) and in the dodol treatment with the addition of 150 g of carrot puree. panelists gave a somewhat favorable response (3.85). So it can be concluded that the panelists liked the texture of dodol with the addition of carrot puree as much as 125 g.

Based on the results of analysis of variance showed that the dodol treatment with the addition of carrot puree had no significant effect on the texture of the dodol with an F count of 0.311 with a significant level (P value) of $0.73 > 0.05$ so it can be concluded that the treatment with the addition of carrot puree had no significant effect on the resulting dodol texture.

Nutritional Values

Carbohydrates

Carbohydrates are the main components of foodstuffs that have important functional properties in the food processing process (Luthfiyanti, et al, 2011). Carbohydrates have an important role in determining the characteristics of food ingredients, such as taste, color, texture and others. Carbohydrates are the main source of calories, although the number of calories produced by 1 gram of carbohydrates is only 4 Cal (kcal) when compared to protein and fat. While in the body, carbohydrates are useful for breaking down excessive body protein and helping fat and protein metabolism (Ekafitri & Faradilla, 2011).

Water content

The water content in foodstuffs greatly affects the quality and shelf life of the food. Based on SNI 01-2986-1992, dodol products are required to have a maximum moisture content of 20%. So that the water content produced from the three treatments, D1 has a water content of 22.38% so the D1 treatment does not meet the existing SNI. Table 2 shows that the ash content of the dodol treatment with the addition of 100 gr carrot puree is 0.44%, the dodol treatment with the addition of 125 gr carrot puree is 0.53%, and the dodol treatment with the addition of 150 gr carrot puree is 0.59%.

Ash Content

Ash is an inorganic substance left over from the combustion of an organic material. The ash content and composition depend on the type of material and the method of ashing. Ash content has something to do with the minerals of a material. Determination of ash content is by oxidizing all organic substances at a high temperature, which is around 550°C then weighing the

substances left after the combustion process (SNI 01-2891-1992, 1992) (Ekafitri & Faradilla, 2011)

Conclusion

The conclusions obtained from the research entitled the effect of adding carrot puree to the organoleptic and chemical properties of dodol. The results of the acceptability analysis of dodol with the addition of carrot puree were found to have a significant effect on the color and the taste of dodol. The results of the acceptability analysis of dodol with the addition of carrot puree had no significant effect on the aroma and the texture of dodol. Based on the results of the chemical test, the highest average carbohydrate value was found in the third treatment with the addition of carrot puree as much as 150 gr, the average value of the highest water content was in the first treatment with the addition of 100 gr carrot puree. On average, the highest ash content was found in the third treatment with the addition of 150 gr of carrot puree.

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