Nutrition Value Purple Sweet Potato Ice cream as a Snack For Children School

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Abstract

Ice cream is one type of snack that is liked by people of all ages. Ice cream can be made with a variety of flavors with the addition of food ingredients to increase its nutritional value. One of the local foods that have a sweet taste and attractive color so it can be added in making ice cream is purple sweet potato. The purpose of this research to analyze the nutrition value (energy, protein, fat and carbohydrate) of sweet purple potatos ice cream . For this experiment, two formulation were used : Formulation 1 (F1), 20:80 ratio of purple sweet potato to milk and formulation 2 (F2) 30:70 ratio of purple sweet potato to milk.Proximate analysis of the ice cream was conducted. The result show that the F1 sweet potato ice cream had a total energy content of 172,34 kcal/100g, protein content of 15,50 g/100 g, fat content of 6,79 g/100g and carbohydrate content 12,31 g/100g whereas the sweet potato ice cream F2 had a total energy content of 154,44 kcal/100 g, protein content 15,97 g/100g, fat content 6,05 g/100 g an carbohydrate content 9,11 g/100 g. The data collected from the acceptance test with 25 panelists showed there was no differences the texture, taste and aroma for both formulated ice cream but there was differences the colour for both formualated ice cream.

Abstract

Es krim merupakan salah satu jenis jajanan yang disukai oleh ssemua usia. Es krim dapat dibuat dengan berbagai rasa dengan penambahan bahan makanan untuk meningkatkan nilai gizinya. Salah satu makanan lokal yang memiliki rasa manis dan warna yang menarik sehingga dapat ditambahkan dalam pembuatan es krim adalah ubi jalar ungu. Tujuan penelitian ini untuk menganalisis nilai gizi (energi, protein, lemak dan karbohidrat) es krim ubi ungu.penelitian ini menggunakan dua formulasi yaitu Formula 1 (F1), rasio ubi jalar ungu terhadap susu 20:80 dan formula 2 (F2) rasio ubi jalar ungu terhadap susu 30:70. Analisis proksimat es krim dilakukan. Hasil penelitian menunjukkan bahwa es krim ubi jalar F1 memiliki kadar energi total 172,34 kkal/100g, kadar protein 15,50 g/100 g, kadar lemak 6,79 g/100g dan kadar karbohidrat 12,31 g/100g sedangkan es krim ubi

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jalar F2 memiliki kandungan energi total 154,44 kkal/100 g, kandungan protein 15,97 g/100g, kandungan lemak 6,05 g/100 g dan kandungan karbohidrat 9,11 g/100 g. Data yang diperoleh dari uji daya terima dengan 25 panelis menunjukkan tidak ada perbedaan tekstur, rasa dan aroma untuk kedua formula es krim tetapi terdapat perbedaan warna untuk kedua formula es krim.

Introduction

Snack play an important role in providing energy and other nutrients for school children. Consumption snacks is expected to contribute energy and other nutrients that are useful for children's growth. Snack have a good taste, are easy to get, attractive appearance and affordable prices so that many elementary school children like to buy these snacks. However, this is not supported by the quality of the snacks, both in terms of the composition of the ingredients used as well as their safety and cleanliness which can endanger children's health (Nurbiyati and Wibowo, 2014).

The importance of the quality of snacks for children school as supporting their growth and quality of learning. Good snack foods are snacks whose nutrients are in accordance with the needs of school children, have natural basic ingredients, natural dyes to make them attractive to children, and do not have preservatives (Food and Drug Administration of Indonesia, 2014) The recommended snacks according to the school children's snack food guidelines are in the form of snacks or snacks, one of which is donuts, in the form of drinks, namely ice cream (Kristianto, 2013).

Ice cream is a popular frozen food at children and adults. Consumption of ice cream in Indonesia is 0.5 liters per person per year, and expected to increase along with the increase in the number of ice cream items in the market (Umela S, 2016). Now many have to produce ice cream with innovative components and have health benefits. Ice cream can be prepared in a variety of flavors, and food elements can be added to increase its nutritional content. One of them is with local food ingredients, namely purple sweet potato (Susilawati, 2014)

Purple sweet potato is one of the varieties of tubers grow in Indonesia. The abundant purple sweet potato make it easy to obtain, especially in the Bandungan, Semarang Regency. Purple sweet potato contains anthocyanin pigment which is higher than other types of sweet potato (Ginting, 2011). Purple sweet potato contains anthocyanins, the anthocyanin content ranges from 51.50 mg/100 g to 174.70 mg/100 g. The high anthocyanin content will improve the functional properties of ice cream. Purple sweet potatoes also contain chemical compounds such as vitamin C, beta carotene, thiamin, niacin, riboflavin, and minerals (Iriyanti,2012). This study aims to determine the nutritional value of purple sweet potato ice cream which can be used as a snack or snack for school children

Method

Nutrition Analysis

Ice cream were developed from two formulations whereby formulation (F1), Formulation 1 (F1), 20:80 ratio of purple sweet potato to milk and formulation 2 (F2) 30:70 ratio of purple sweet potato to milk. The nutrition analysis test was conducted at the chemistry laboratory, faculty of science and mathematics, Satya Wacana Christian University Salatiga Including the fat analysis (AOAC Method No. 900.02), protein analysis (AOAC Method No 934.01), Carbohydrate analysis (AOAC Method No 960.52) and Fibre Analysis (AOAC Method No 991.43)

Sensory analysis
A total twenty-fie panelists, consisting of the primary school children at SD Negeri 2 Candirejo, were invited to conduct the sensory analysis. Panelists were asked to evaluate the flavor, aroma, texture and colouring using a 5-point hedonic scale (1=dislike extremely – 5 = like extremely) for each attribute.

Statistic analysis
All statistic analysis was performed using SPSS 16 computer program for windows. Mann Whitney test was used to determine the significant difference.

Results and Discussion
The Hedonic test results on ice cream based on mann Wihtney Statistical test showed that there were no statistical significant difference in texture, taste, colour and aroma in formula 1 and formula 2. Based on the hedonic test, the two formula of ice cream formulation are like by panelists.

Table 1. Sensory Evaluation of Sweet Purple Ice Cream

Perlakuan	Tekstur	Taste	Colour	Flavour
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Formula 1	4,81±0,39	4,47±0,44	4,59±0,69	4,85±0,45
Formula 2	4,85±0,45	4,85±0,36	4,96±0,19	4,78±0,50
Result	**p= 0,49**	**p=0,31**	**p=0,01***	**p=0,46**

Purple sweet potato ice cream has a sweet taste, the tasted influenced by addition of sugar which and the sweet taste of sweet purple potato. Children really like sweet tastes compared to other flavors (Hasanah et al, 2014). The results of the Mann-Whitney statistical test showed that the panelists' acceptance of the taste was not significantly different (p>0.05) and the average value of the preference level was at level 4, which means that the taste of purple sweet potato ice cream on both formulation can be equally accepted.

Food colour plays a major role in the appearance of food because it is the first stimulus to one's sense of sight. The results of statistical tests showed that there was a difference in panelists' acceptance of colour between F1 and F2 (p>0.05). If you look at the average value of the level of preference, it can be seen that the color acceptance of F2 purple sweet potato ice cream is more preferable than F1, this can be because the F2 purple sweet potato ice cream has a brighter and more beautiful color.

Purple sweet potato ice ice cream have a strongly aroma and influenced by the addition of purple sweet potato. Distinctive and attractive aroma can make food more desirable. The results of statistical tests showed that there was no difference in aroma acceptance in purple sweet potato ice cream F1 and F2 (p>0.05). The average value of the level of preference is at level 4, which means that the aroma of purple sweet potato ice cream both F1 and F2 can be accepted.

Figure 1. Purple Swet Potato Ice Cream

The nutritional value Formulation of purple sweet potato ice cream more higher than the nutritional value of comercial product ice cream. Ice cream is one of favorite food by childrenand school children. Ice cream can be given for children with eating dificult, ice cream can be circumvented by giving small amounts of food but having high calories, high protein and fat to maintain and even increase nutritional status. The energy content in purple sweet potato ice cream both F1 and F2 is twice as high as commercial ice cream, therefore when we refer to the 10-15% school children's snack needs for school children's needs, which is 1650 kcal this ice cream can be given only 50 grams (Recommended Dietary Allowance, 2019).

Table 2. Nutrition Value of Purple Sweet Potato

Nutrient	Formula 1	Formula 2
Protein	15,50 g	15,97 g
Fat	6,79 g	6,05 g
Carbohydrate	12,31g	9,11g
Energy	172,34 kcal	154,44 kcal

Conclusion and Suggestions

According to the taste, flavuor and texture, the acceptance of formula 1 is no different from formula 2, but there was different of colour sweet potato ice cream between formula 1 and formula 2. The result of nutritional value showed that formulation of purple sweet potato ice cream more higher than the nutritional value of comercial product ice cream. Energy content of sweet purple potato ice cream can be contributed 10-15 % energy need/day based on recommended dietary allowance (RDA) for children.

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