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Utilization of Cocoa Bean Husk Extract (*Theobroma cacao* L) on The Product Chocolate Cookies

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Abstract

Cocoa bean husk is one of the byproducts of cocoa, which is only utilized as animal feed and low economic value. The economic value of cocoa bean husks can be enhanced by extracting the husk using methanol into a powder and applied to a product into cookies. Cookies are types of biscuit which are made from soft dough, high in fat and relatively crisp. The purpose of this study is to know the amount of powder that is added and its impact on the cookies product. The analysis was done for the sensory test. In the organoleptic test, the color and odor which were preferred by the panelists was treatment A0 (control), whereas the taste and texture were treatment A1 (addition of 5% powder).

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Keyword
Cocoa bean husk,
Powder,
Cookies.

1. Introduction

Cocoa is one of the plantation commodity that plays an important role in development in Indonesia because it gives big enough contribution to society's earnings. On the other hand, commodity cocoa haves a larger one's market prospect in comparison with other plantation commodities (1,2).

Cocoa can give various benefits in so many areas like the food industry and pharmacy. At processing, cocoa has obtained some results from the other side that is pulp (husk), juice, and seed skin. Flesh and skin are obtained when cocoa processed becomes dry seed cocoa. Whereas seed skin is obtained when seed cocoa will be processed become brown products.

Seed Skin cocoa is one of result from other side cocoa that only used for woof livestock and manure because measure up to irritant that can be eliminated by using a method of extraction. The availability of seed skin cocoa also compares straight with seed cocoa until it must way to improve its added value in order to more useful. One of them is a process waste of seed skin cocoa becomes indirect material in the food industry.

Cookies are one of biscuit type that made of soft dough, content high fat and relative careful if break and longitudinal section its cutting have the texture of solid. Product cookies at this time have experienced a variation of a raw material mixture or change it with new materials that bent on to improve value nutrition and give variants that more variated.

This research is to apply cocoa bean husk powder into product cookies. Although it can be applied to many products, the utilization of cocoa bean husk powder has been very limited. In consequence, the researcher interests to examine about apply cocoa bean husk powder into product cookies.

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2. Materials and Methods

2.1. Tool and Materials

Types of equipment used by among others are analytic weighing-machine, a tool for fry without oil, seed parer cocoa, winnow funnel, cup glass, winnow funnel, volume pipette, chinaware cup, grinder, desiccator, oven, kiln, mixer, the container of the washbasin.

Materials as used in research this is the seed skin cocoa lindak, methanol, aluminum foil, cloth filters, label paper, plastic, paper filters, whole-wheat, sand sugar, egg, bicarbonate sodium, margarine, tissue roll, chloroform, aquadest:

2.2. Procedure of Research

This research consists of repairs cocoa bean husk powder and the making of cocoa bean husk powder then analyzed content water, level of ash and level of fat at cocoa bean husk powder that produced by taking the best treatment from researcher previously Andi Intan Putri (2011) then used in the main research to find out the best amount of cocoa bean husk powder in making cacao cookies (3).

2.2.1. Seed Skin Cocoa

1. Fruit cocoa lindak that already has been fermentation is dried for three day
2. After dried conducted fry without oil at temperature 1200C for 10 minute
3. Later, fruit cocoa is made cool during ± 5 minutes afterward into seed paper. Afterward got seed and seed skin are disjointed; seed skin is ready to use as sample powder making.

2.2.2. Making Of Seed Skin Powder Cocoa

1. Sample 100 grams are packed into cup glass 500 MLS then enhanced solvent in accordance with the treatment of 400 MLS
2. Extracted during ± 1 hour
3. Hushed during ± 30 minute in order to sample are referred as really have been existed fluid after extraction
4. Sample later put into the oven.
5. After run dry, the sample is attenuated by using a grinder.
6. After fine sieved in order not to existed dirt at sample
7. Obtained powder

2.2.3. Process of Cookies

1. Materials prepare then deliberated
2. Materials Mixing by using mixer till the formed dough
3. Dough is printed
4. Dough put into the oven later; the dough is grilled for 25 minutes with temperature 150^{o}C.

2.2.4. Treatment of research

Treatment as used in research this is the addition of cocoa bean husk powder into product brown cookies, that is as follows :

A0 : Control
A1 : 5% cocoa bean husk powder and 95% materials compactness
A2 : 7,5% cocoa bean husk powder and 92.5 % materials compactness
A3 : 10% cocoa bean husk powder and 90% materials compactness

2.2.5. Analysis of Procedure

Test parameters in this study include organoleptic (color, aroma, taste, and texture).

3. Results and Discussion

3.1. Level of Cocoa

Fat has an effect as a shortening on baked goods such as biscuits, cakes, and the bread that serves to make food more delicious. Fat can repair physical structures like development, mildness, texture, and aroma (4). Fat analysis at cookies cacao that produced by can be seen in Figure 1 :

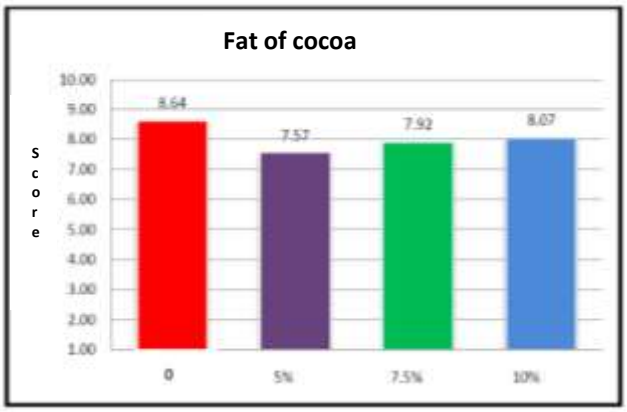

Figure 1. The influence of addition cocoa bean husk powder to the level of fat cookies cacao.

From Figure 2, analysis of the resulting level of fat cookies cacao produced indicates that level of fat at control treatment has a value of the level of superordinate fat that is 8.64% whereas at the treatment of powder of addition 5% have value level of fat lower that is 7.57%. This is due because found on fat amount powder that obtained from seed cocoa is more compared to fat at the powder obtained from the skin. This condition, in accordance with opinion Minifie (1984) (5), that seed skin cocoa haves fat of content 3.4% and seed cocoa 54.7%. Analysis Result investigation types for the level of water show that treatments at cookies cacao do not differ reality at level 1% to value level of fat produced.

3.2. Organoleptic Test

In general, a person's main consideration in buying or consuming food or drink is the quality or organoleptic characteristics such as taste, color, aroma, and texture. Only certain people who buy or consume food or drink with the primary consideration of chemical quality (value nutrition) (6).

3.2.1. Colour

Quality of food materials, in general, depend on taste factors, color, texture, and value nutrition. Colour Factor is parameter early that in subjective and visual must be considered because it can cause acceptance or product deduction. Colour also can be used as a freshness indicator or maturity. Good or not good mixing way or processing way can be marked with the existence of uniformed color and flatten (7). Test Result organoleptic from facet flavor can be seen in Figure 2 :

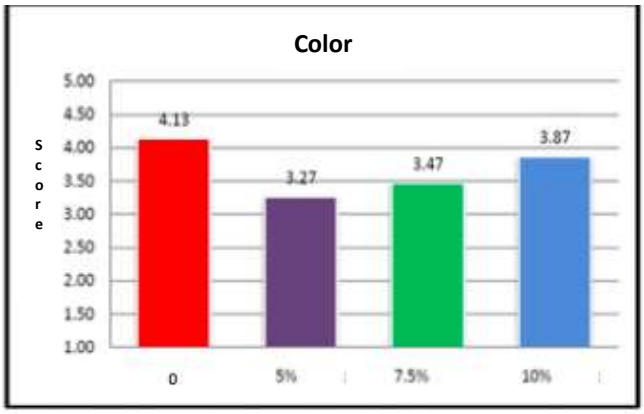

Figure 2. The influence of addition cocoa bean husk powder to color cookies cacao.

Test Result organoleptic to color cookies cacao that produced by indicating that gyration of color acceptance score ranges from 3.27 till 4.13 that mean range from rather like and like. The value of the very top color score exists on control treatment that is 4.13 (like) whereas value lower that took a fancy to by panelist existed on the treatment of powder addition 5% that is 3.27 (rather like).

The base of the research result indicates that the color that took a fancy to by panelist is old brown. This is due because control treatment uses brown powder usual upon which addition in making cookies, whereas other treatment uses cocoa bean husk powder where more and more cocoa bean husk powder that enhances growing condensed brown produced. This condition, in accordance with opinion Farida (2008) (8), that the addition of cacao powder in making cookies will give the influence to color produced.

3.2.2. Aroma

Real Taste of food materials consists of three components that are aromas (aroma), flavor, and mouth excitement. Food Aroma frequently determines food-stuff delicacy is referred. The aroma is a gas molecule that breathed by the nose, so it can be determined food materials are referred to delicious (7). Test Result organoleptic to aroma cookies cacao can be seen in Figure 3.

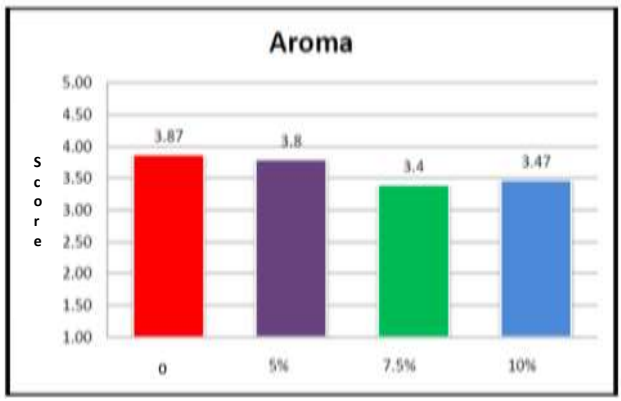

Figure 3. The influence of addition cocoa bean husk powder to aroma cookies cacao.

Test Result organoleptic to aroma cookies cacao that produced indicate that gyration of aroma acceptance score ranges from 3.40 till 3.87 that mean range from rather like and like. The value of the very top aroma score exists on control treatment that is 3.84 (like)

whereas value lower that took a fancy to by panelist existed on the treatment of powder addition 7.5% that is 3.40 (rather like).

Aroma at cookies cacao that produced influenced by materials that used. Aroma at one particular food materials or product influenced by indirect material that used like taste lasing. Temporary at cookies cacao that taken a fancy to by panelist using no powder that comes cocoa bean husk powder but use a powder that indigenous to seed cocoa. This condition, in accordance with opinion Afrianti (2008), that taste lasing is an indirect material substance that enhanced into food that can strengthen aroma and flavor.

3.2.3. Flavor

The flavor is an important factor in determining the decision for consumers to accept or refuse food. Though its value parameter good, if the flavor is not delicious or unwelcome, then the product will be refused. There are four types of flavor elementary that recognized that it is sweet, salty, acid, and bitter. Whereas flavor other is solidarity from flavor elementary (6).

Food Taste is one of the food-stuff determinants. Food that has flavor delicious and interesting will be taken a fancy to by the consumer. Test Result organoleptic to flavor cookies cacao can be seen in Figure 4.

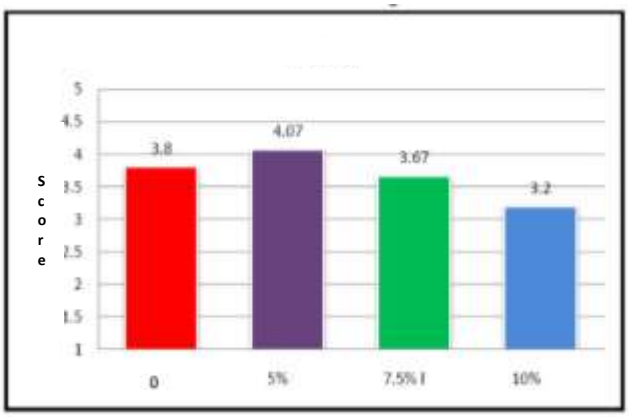

Figure 4. The influence of addition cocoa bean husk powder to flavor cookies cacao.

Test Result organoleptic to flavor cookies cacao that produced indicate that gyration of acceptance score flavors ranges from 3.2 till 4.07 that mean range from rather like and like. Score value flavors the very top exist on the treatment of powder addition 5% that is 4.07 (like). Whereas value lower that took a fancy to by panelist existed on the treatment of powder addition 10% that is 3.2 (rather like)

The base research result indicates that flavor treatment A1 prefers by panelists. This is due by powder amount that enhanced least compared to other treatments until not generate flavor bitter if consumption. Felt bitter this produced when the fermenting process takes place causative existence of change at color, flavor, and flavor. This condition, in accordance with opinion, that during ferment, happened color forming and flavor and partial degradation cause component flavors bitter and brace (9).

3.2.4. Texture

Texture Situation is characteristic of physical from important food materials. This condition has related by flavor when munch materials are referred (10). Test Result organoleptic to texture cookies cacao can be seen in Figure 5.

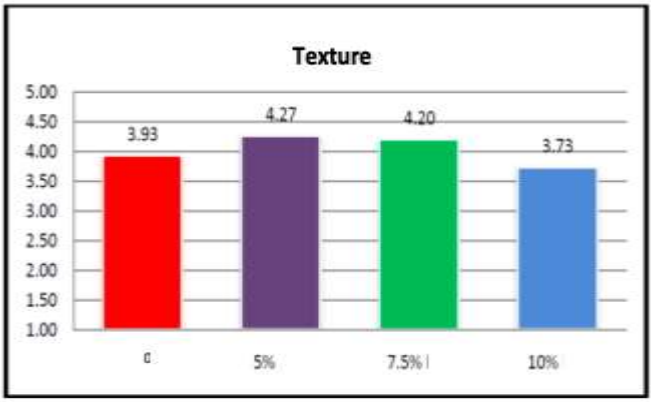

Figure 5. The influence of addition cocoa bean husk powder to texture cookies cacao.

Test Result organoleptic to texture cookies cacao that produced indicate that gyration of acceptance score flavors ranges from 3.73 till 4.27, that means range from rather like and like. Score value flavors the very top exist on the treatment of powder addition 5% that is 4.24 (like). Whereas value lower that took a fancy to by panelist existed on the treatment of powder addition 10% that is 3.73 (rather like)

The base research result indicates that the texture of powder addition treatment 5% prefer by panelists. This is due to the level of water owned by at addition treatment 5% a few until giving texture careful are such as those who wanted by the panelist. This condition, in accordance with opinion Farida (2008) (8), that tied to someone's apron string of careful cookies by amount level of water that existed in cookies referred.

4. Conclusions

1. The best addition of cocoa bean husk powder formulation produced in the manufacture of pastries based on the basic chemical testing of cocoa (water content, ash content and fat content) is in the treatment of cocoa bean husk addition of 5%.
2. Organoleptic test results of the best treatment are the treatment of adding 5% cocoa bean shell powder.

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