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Instant Powdered *Eucheuma cottoni* as Beverages Rich in Diatery Fiber

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Abstract

Fibrous drink is popular nowadays. Seaweed is rich in polysaccharides with relatively high content of dietary fiber. Currently most of the food ready for consumption is sold as fruit drinks, but seaweed community is still a rare source. One of the diversified products such as seaweed fiber drink in powder form can be a promising source. We report the seaweed beverage powder products of Eucheuma cottonii. The chemical analysis showed that seaweed powder instant drinks contain: water content 13.82%, ash content 0.67%, crude fiber: 1,47% and carbohydrate 83.90%. Average guest panelist on the smell of seaweed drinks ranged between 4.4-5.1. Taste assessment of the average panelist seaweed flavored drinks ranged from 5.33 to 5.63. *Eucheuma cottonii* seaweed powder can be used as an alternative source of fiber natural drinks and are useful for health.

Keywords: *Eucheuma Cottoni*, Powder Drinks Fibrous

1. Introduction

Seaweed is rich in polysaccharides with relatively high content of dietary fiber and useful as antioxidant, anti-mutagenic, anti-coagulants and anti-tumor source[1]. Also it is the best source of natural iodine[2]. The fiber diatery is to satisfy and facilitate the body's metabolic processes, so it is best eaten by obese. Its carbohydrate content is difficult to digest, so it provides 'feel full longer' without fear of obesity[3].

Polyphenols are a large groups of natural compounds widely distributed in variety of plants. They are known to have antioxidant properties with potential health benefits. Green tea and cocoa are the two most widely consumed beverages in the world. Various researches suggest that green tea and cocoa was found to prevent cardiovascular diseases, cancers and kidney stones. Cocoa has higher amount of polyphenols than that of green tea. Hence cocoa froths with antioxidants than green tea and its consumption can improve general health[4] and then according[5], Amla (Emblica officinalis) is an important crop indigenous to Indian subcontinent which is used in alternative medicine, health foods and herbal products. It is also found to be a rich source of ascorbic acid and other bioactive substances as compared to any other fruits. Amla being rich in antioxidants should be minimally processed to retain its bioactive components.

Medicinal plants are of great importance to the health of individuals and communities. The medicinal value of these plants lies in some chemical substances that produce a definite physiological action on the human body and these chemical substances are called phytochemicals. These are non-nutritive chemicals that have protective or disease preventive property[4].

According to Nursanto[6], processed seaweed are available in a dry form after going through the process of drying or processed into food ready for consumption, such as: lunkhead, sweets and drinks. Instant drink powder of sharing products such as ginger, turmeric, coffee, and so on, has been found. With a sweet instant powder made models, then 1) the quality of the product can be maintained, 2) is not easily contaminated, 3) are not eas-

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ily infected with the disease, and 4) the product without preservatives. In terms of usage, very easy to make instant powder drink just enough water added to hot or cold, it is the attraction of the public to consume. Through a particular processing, instant drink powder will not affect the benefits contained in the material, so it is good for the health of the body[7]. Given the importance of the role of dietary fiber to help run the body for people with obesity and facilitate digestion, the use of seaweed as a source of fiber in a slimming drink is one alternative that is done in an effort to meet the body's need for fiber[8]. Diversification of products such as seaweed fiber drink in powder form which previously had undergone a process of drying and flouring can be made into instant powder seaweed.

2. Material and Methods

2.1 Tools and Materials

Raw materials used in the manufacture of powder seaweed (*Eucheuma cottonii*) is collected from Hamlet Wael and Kotania West Seram Regency; while the additional materials being sugar and flavor enhancer (Essence) from the local market. The tools used in the manufacture of seaweed powder were such as: blenders, knives, strainers, basin, mixer, griddle, stove, sieve, plastic, sealer, spoons and scales.

2.2 Procedures in Making Seaweed Powder Drinks

Making Seaweed powder (using the principle of crystallization) with stages: 1) Wash and smoothing: Seaweeds are cleaned and then soaked until fluffy[10]. After expanding, seaweed was smoothed by using a blender to be pureed; 2) Cooking/crystallization: Cooking or crystallization is the process of providing heat to the material (seaweed extract and juice to taste) until crystals formed. Fire used was a small fire (temperatures below 100°C) and with constant stirring. Stirring is intended to be mixed evenly with seaweed essens and to avoid caramelization. The use of high heat will affect the quality of the product, causing caramelization and the loss of some substances in seaweed. Crystal forms have been obtained later destroyed and then filtered, so that the instant seaweed powder obtained is smooth and uniform; 3) Drying and Enrichment: The powder has been dried and sieved to obtain instant seaweed really soft.

2.3 Test Parameters

Analysis performed includes: chemical analysis (water content, ash content, carbohydrate content and crude fiber content) and sensory analysis (The sensory acceptability of products was determined using nine point hedonic rating scale by untrained judges. The parameters evaluated include appearance, colour, taste, flavour).

2.4 Analysis of Data

The data analysis in this research is to use descriptive method.

3. Results and Discussion

3.1 Preparation of Instant Drink Powder Seaweed *Eucheuma cottonii*

Dried seaweed that has been cleaned and is done cooking/crystallization, drying and sieving that will produce the desired seaweed powder. The purpose of drying is to reduce the water content of the material that is more durable and easier for the appointment because of the volume and the weight becomes smaller. Making instant beverage through the two main phases, namely, cooking (crystallization) and drying results in good powders. Then the seaweed powder treated with sugar at a ratio of 2:1. Instant beverage products processed seaweed as shown in Figure 1. (Photo: product documentation processed seaweed beverage produced).

Figure 1. Instant beverage seaweed Eucheuma cottonii.

Instant drink powder seaweed can be packed in a practical and attractive way as per consumer interest. Instant beverage products tested were made by dissolving 3 grams of instant powder in 100 ml of water. In the presentation, it can be directly mixed with the boiling water, stirred and ready to drink. Standart National Indonesia

(SNI: 01-4320-1996)[9] permits traditional beverage powder product or granule form which is made from a mixture of spices and sugar with or without the addition of other ingredients or food additives.

3.2 Chemical Analysis of Powder Drinks *Eucheuma cottonii* Seaweed

Chemical analysis aims to look at the magnitude of the nutritional value of the content, especially the content of dietary fiber (dietary fiber) of instant beverage powder.

3.2.1 Water Content

Based on the standards set by Standart National Indonesia (SNI) 19969, the value of water content for traditional powdered drink is at a maximum of 3%. Water content of the seaweed flour effects on the shelf life. The higher the water content of seaweed flour more prone for attacked by microbes during storage. According to Standart National Indonesia (SNI: 01-2801-1995) for gelatinous powder products, quality requirements of a maximum water content is of 17%. From the results of the content analysis shows that the water content of seaweed powder instant drinks are from 13.53 to 14.10%. Thus the water content is in compliance with the requirements set by the Standart National Indonesia (SNI).

3.2.2 Ash Content

The ash content is a parameter to indicate the value of the content of inorganic materials (minerals) which is in a material or product. The higher the value the more the ash content of inorganic ingredients in the product. Inorganic ingredients contained in the product includes: calcium, potassium, phosphorus, iron, magnesium, and others. The resulting ash content is of 0.66 to 0.68%.

According Winarno[11], seaweed is rich in minerals, trace elements contributing to ash content.

3.2.3 Crude Fiber

Crude fiber content in foods can be used as an index of the fiber content of food[11]. Seaweed is rich in dietary fiber[12]. Fiber content generated on seaweed powder 1.47%. Minerals contained therein are also high.

Insoluble fiber is very beneficial for our body, because help smooth bowel movement thus reducing constipation and diarrhea. Insoluble fiber also helps eliminate toxins (poisons) from the large intestine, and reduces the risk of colon cancer because insoluble fiber helps maintain pH (acidity) of the intestine[8].

3.2.4 Carbohydrate Content

The carbohydrate content contained in seaweed powder is in the range of 83.83 to 83.96%.

3.3 Test Hedonic

Hedonic test is an important factor to measure food and beverage products. The results of the sensory test to drink seaweed as follows:

3.3.1 Colour

In general, consumers before considering other parameters such as taste and nutritional value, color becomes the first appeal[13]. Results of guest panelist on the average color of the seaweed drinks was ranging from 5.25 to 5.58 (kind of like to like).

3.3.2 Odor

Odor of the drink can determine the freshness of the drink. Odor is more influenced by the senses of smell. Average guest panelist on the smell of seaweed drinks ranged between 4.4-5.1 (normal to slightly prefer).

3.3.3 Taste

Taste is an important factor on which to base a decision taken by the consumer to the product. Results of the assessment of the average panelist seaweed flavored drinks ranging from 5.33 to 5.63 (rather like to like).

4. Conclusion

Eucheuma cottonii seaweed powder can be used as an alternative source of fiber natural drinks. .

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