BREAD DREGS COCONUT: UTILIZATION OF COCONUT DREGS AS PREVENTION OF CORONARY HEART DISEASE

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Abstract—CHD is one of the most common degenerative disease and inevitably affecting millions of global elder, adult or even youth. Based on WHO data, the current status of CHD is the leading cause the world death and followed by stroke and lower respirator infections. This is assumed that on 2020 the prevalence will increase twice as cancer’s. One major cause of CHD is poor eating habit, such as prefer to eat junk food which contains high cholesterol. Hence, new variation of healthy food is needed to substitute junk food. Furthermore we provide alternative bread with main ingredients from coconut dregs which contain high dietary fiber to reduce cholesterol. Bread was selected for this study because of the on-the-go type, easy to eat, and very universal in age or location range. Based on hedonic test that was participated by random people, bread dregs coconut has a good acceptance based on 6 indicators with 9-point hedonic scale. Furthermore, the cost of ingredients is affordable so the consumption of bread dregs coconut should be implemented as a national program to reduce prevalence of CHD. Additionally, it could support micro-economic industries to utilize the dregs, since Indonesia is the largest producer of coconut in the world.

Index Terms—CHD, Coconut Dregs, Fiber, Cholesterol, Bread.

I. INTRODUCTION

Coronary Heart Disease (CHD) is a disorder of cardiac function caused by the heart muscle lack of blood due to the narrowing of the coronary blood vessels. Clinically, this disease is characterized by chest pain or uncomfortable feeling even asphyxia appears when the body pushed to do hard work, for instance lift heavy-weight, climb, walk fast or run [1]. Coronary Heart Disease (CHD) or cardiovascular disease now is one of the leading causes of death both in developed and developing countries, including Indonesia. It is estimated that worldwide, CHD in 2020 will become the first killer commonest which indicate 36% of all deaths, this rate is two times higher than the death rate from cancer. In Indonesia reported CHD (which are grouped into diseases of the circulatory system) is a major cause and also the first cause from all death as well, with adduced number reach 26.4% which is four times higher than the number of death caused by cancer (6%) [2]. In 2001, WHO noted that approximately 17 million people died of the disease and reported that approximately 32 million people have heart attacks and strokes each year.2

Consumption of foods that contain high in fat and cholesterol is one of the cause of coronary heart disease. For teenagers and youth, fast food such as hamburger, fried chicken, french fries, and others are food that commonly consumed for their easiness to obtain and consume [3]. It is generally admitted and clinically proved that food with high dietary fiber could reduce the availability of cholesterol. Dietary fiber has the ability to bind with bile acids and prevents its re-absorption in the liver thus, inhibit cholesterol synthesis [4]. Coconut pulp known as food with high levels of dietary and could be processed as many variety of foods, for instance coconut flour [5]. According to FAO statistic on 2009, Indonesia is the largest coconut producer which cover 34.9 % of world production [6].The utilization of coconut flour as a functional food will not only solve the problem of chronic diseases now prevailing in almost all countries but also encourage the local industry and farmers to produce value-added or healthful products from coconut.

Based on the background, by using coconut flour that we already processed into a food product with high dietary fiber, low fat, and low carbohydrate namely "Bread Dregs Coconut: Utilization of Coconut Dregs as Prevention of Coronary Heart Disease"

II. METHODOLOGY

Before start the cooking process, prepare coconut dregs flour that is one of basic ingredients for coconut dregs bread. The flour that used in this study was produced from coconut residue after extorting coconut milk. Production of coconut dregs flour is simple, after wash the coconut dregs for 4-5 times, dry the coconut dregs under the sunlight for 2 days or oven for 40 minutes with 70°C for the temperature, then smoothed back with mini mixer and sifted.

1. Process

The process to make coconut dregs bread is similar to make bread in common and takes almost two hours.

The ingredients could server 6 portions, which are:

a. 250 gram of strong wheat/bread flour
b. 125 gram of coconut dregs flour
c. 15 gram of fresh yeast
d. 100 gram of sugar
e. 1 tablespoon of salt
f. 2 tablespoon of olive oil
g. 3 tablespoon of nonfat dairy milk
h. 1 egg
i. 200 ml of water
The cooking process of coconut dregs bread is as follows:

a. Pile the flour in a large bowl, make a well in the center, add the yeast, sugar, salt, dry milk and mix well.
b. Slowly, bring in the flour to the center until it is stodgy.
c. Press and push the dough together with eggs and olive oil, then pour half of the water.
d. Fold, slap, and roll the dough around while pour the remaining water, until the dough is silky and elastic.
e. Flour the top of dough, put in the large bowl, cover tightly with cling film and allow it to prove for about 30 minutes until doubled in size.
f. Bake for 20-30 minutes in 200°C until cooked and golden brown.

2. Organoleptic Test

After the coconut dregs bread is ready, we perform organoleptic test to measure the acceptance of coconut dregs bread. This test uses hedonic test (acceptance test), based on shape, color, size, texture, smell and taste scoring of coconut dregs bread. This test was adopted by its origin format, known as 9-point hedonic scale derived by Peryam & Gorardot, 1952 [7]. This test provide bipolar scale with 4 magnitude on each negative and positive beside the center. The scales of scoring are: like extremely, like very much, like moderately, like slightly, neither like nor dislike, dislike slightly, dislike moderately, dislike very much, and dislike extremely.

III. RESULTS

The bread is basically functional food which substitute 33% of wheat flour for making bread. The effect of this substitution is changing the content of carbohydrate and dietary fiber percentage, the latter increase 5.98 % (of daily needs based on 2000 kcal) with the substitution of 20% of wheat flour [8]. According to Trinidad et al., 2006 the dietary fiber on coconut flour was 60.0 ± 1.0 g/100 g sample which are 56% insoluble and 4% soluble[8], which is in accordance with Fauzan(2013), the higher substitution the higher dietary fiber will be, as shown at the table [9].

<table>
<thead>
<tr>
<th>Formulation</th>
<th>Dietary fiber (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% wheat flour</td>
<td>1.52 ± 0.44</td>
</tr>
<tr>
<td>90% wheat flour and 10% coconut dregs flour</td>
<td>3.62 ± 0.75</td>
</tr>
<tr>
<td>80% wheat flour and 20% coconut dregs flour</td>
<td>5.98 ± 0.89</td>
</tr>
</tbody>
</table>

The bread could consume as snack or main dish for its nutritious contains that summarized as belows:

<table>
<thead>
<tr>
<th>Nutrients</th>
<th>Contain (g)</th>
<th>Heart Diet: 2004 kcal</th>
<th>Dietary Intake</th>
<th>% of DI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>2004</td>
<td>323</td>
<td>16.1</td>
<td></td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>317</td>
<td>47</td>
<td>14.8</td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>72</td>
<td>9.7</td>
<td>13.4</td>
<td></td>
</tr>
<tr>
<td>Fat</td>
<td>53</td>
<td>3.78</td>
<td>7.13</td>
<td></td>
</tr>
<tr>
<td>Fiber</td>
<td>28</td>
<td>16</td>
<td>57</td>
<td></td>
</tr>
</tbody>
</table>

Note: This calculation based on DaftarBahanMakananPenukar (RSCM, 2012).
Hedonic test was tested randomly for 50 students from several universities from Depok, West Java with age 18-23 years old.

The cost for making bread dregs coconut is very affordable. The cost for ingredients above approximately Rp. 10.000,- ($ 0.8), which could be estimated that only cost Rp. 1.700,-($ 0.13) per portion.

CONCLUSIONS

Based on the results, the conclusions that could be gained are:
1. Bread dregs coconut is one of food variation with highly contained dietary fiber for CHD people.
2. Be observed from hedonic test, could be known that bread dregs coconut has big chance to accept by people, based on the taste, texture, shape, colour, size, and smell.
3. The cost of bread dregs coconut ingredients is very affordable and can be obtained even for low income society.

RECOMMENDATION

Bread dregs coconut could be the food for CHD patient in hospital, furthermore this idea could be...
implemented for local and then national level as nutritious snack or main dish. Additionally it could encourage micro industries and farmer to produce health bread dregs coconut to increase their income.

REFERENCES