

Rubber Seed Waste as an Alternative Milk

Edo setiawan

SMA Negeri Sumatera Selatan (Sampoerna Academy), edosetiawan36@gmail.com

1 Introduction

Indonesia is popular as a producer of rubber. Some areas are wellknown for its rubber trees. As an example, Sumatra has the largest plantation area reached 70% of the total area rubber plantation in Indonesia. In 2010, in South Sumatera the amount of rubber seed production is 515.965/ton. One tree of rubber can produce 1000 seeds or about 3.5 kg. From that amount, which is used for seeding only 10% of it, the rest is not utilized by the society (Parhusip, 2008). Meanwhile, there are many challenges to reach the health development. One of them is malnutrition. Milk as a one of the foods which is rich of the nutriron. However, not everyone can afford to buy the milk, since the price is high. Milk as a dairy products become more popular such as soy and corn milks. Soy and corn milks can be alternatives as they consist of good nutrition as in cow's milk. Another alternative material that can be utilized in the manufacture is milk from rubber seed.

2 Content

Milk is a natural food with a complete and balanced nutritional value, such as proteins, fats, carbohydrates, minerals, pigments, enzymes, and vitamins that have been consumed by many levels of society. On the other side, rubber seed has a great potential as an alternative milk because it contains about 34.9% protein and 9.14% lipid.

2.1 Purpose of Investigation

To know the ways to make the milk from rubber seed to increase the utility value of rubber seed. In addition, to know the nutritional contents in the rubber seed milk.

2.2 Method of Investigation

To produce rubber seed milk we need to do several steps : sorting the seeds, cleaning and soaking process of rubber seed that have a purpose to avoid the poison, next is boiling process, stripping of husk in the rubber seed, boiling the second stage, rubber seed smoothing, filtering and boiling process and the addition of sugar to the rubber seed milk with different concentration of sugar that are 10 grams, 20 grams, 30 grams and after that, we did organoleptic test with 50 respondents that have a enough ability to know the most acceptable milk.

3 Results

No.	The test	Result
1.	Cyanide Acid	(-) Negative
2.	Lipid	1.28%
3.	Protein	0.66%
4.	Total density	10.51%

Table 1 Nutrition content in rubber seed milk

The data above showed the nutrition in rubber seed milk with ratio 15 grams of sugar and 900 ml of water. In addition, from the data we can know if rubber seed milk is safe to be consumed by the society.

Organoleptic test with 50 respondents

This process of milk uses the same amount of rubber seed (15 grams) and 200 ml of water.

Sample	Color	Texture	Flavor	Taste	Impression
A	4.56	3.30	3.86	4.40	3.88
B	3.72	3.40	3.96	5.00	4.48
C	3.62	3.56	4.08	5.40	4.90
D	3.28	4.66	3.82	4.04	4.28

Table 2

Average value of organoleptic in rubber seed milk and milk controlled with different concentrations of sugar

Information :

Sample A : Rubber seed milk with 10 gr of sugar;

Sample B : Rubber seed milk with 20 gr of sugar;

Sample C : Rubber seed milk with 30 gr of sugar;

Sample D : Soy milk (controlled milk).

From the table above we can conclude that the most acceptable milk is sample C with the bright colors, neutral flavour, sweet taste and texture of a rather thick

4 Discussion

The conclusion from this experiment is the rubber seeds have a great potential as milks. The nutrition contents in rubber seed milk are 0.66% of protein, 1.28% of lipid with ratio 15 grams of sugar and 900 ml of water and it is safe to be consumed by the society. The methods are simple and even society can make the rubber seed milk by them self.

5 References

- [1] Giok L T, Samsudin, Husaini and Tarwotjo. 1967. *Nutritional Value of Rubber Seed Protein*. America: Journal of Clinical Nutrition 20:300-303.
- [2] South Sumatra Department of Agriculture. *The Data rubber seed production*. 2010.
- [3] Setyawardhani, Dwi Ardiana. 2011. *Utilize the Rubber Seed as a Raw Material to Make Edible Oil*. Surakarta: Sebelas Maret University.