Volume 19 Issue 21
Originally issued as L1

Global Journal of Medical Research: L
Nutrition & Food Science
Volume 19 Issue 1 Version 1.0 Year 2019
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

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GJMR-L Classification: NLMC Code: QU 145.5

COMPARISONOFNUTRITIONALQUALITYANDORGANOLEPTICOFDADIHMINANGKABAUTRADITIONALYOGURTOFCOWMILKANDSOYMILKASFUNCTIONALFOODPROBIOTICS

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Comparison of Nutritional Quality and Organoleptic of Dadih (Minangkabau Traditional Yogurt) of Cow Milk and Soy Milk as Functional Food Probiotics

Oktariyani Dasril [α], Gusliani Eka Putri [σ] & Syamsul Amar B [ρ]

Abstract- **Functional food was defined as foods that are nutritious and also have a positive influence on health. One of the functional foods which was a typical traditional food of Minangkabau was Dadih. Dadih was a nutritious food for the health of the human body. One of the properties of Dadih was to reduce blood cholesterol because it contains Lactic Acid Bacteria (LAB) which are potential as probiotics. Dadih can be made from cow's milk or soy milk but must be added with skim milk so that the total solid is equal to buffalo milk Dadih. The purpose of this research was to determine protein content, fat, yield, organoleptic properties of Dadih. This research was an experimental study with two treatments and two replications and analyzed using a 5% T-test. The results obtained from this study were significant differences in protein, fat, and color between cow milk Dadih and soybean. Whereas from the organoleptic test results showed 60% of panelists like pure soybean Dadih compared with cow milk.**

Keywords: functional food, dadih, cow's milk, soybean milk, organoleptic.

I. Introduction

In an effort to fulfill the demands of society needs for nutritional value the government has planned a diversification program for food products, especially on traditional food, which has the opportunity to be recommended as a functional food. [1]

Functional foods were defined as foods that are not only nutritious but also have a positive impact on health, because they contain certain components or substances that have felicitous physiological activity. [2]

Functional food can be in the form of maximum and minimum originating from animal and vegetable. Although the concept of functional food has only become popular in recent years, many types of traditional food actually fulfill the requirements to be called functional food. Examples of sand ginger rice drinks, ginger, turmeric-acid, sherbet, Dadih, tempeh, tape and others. [3]

Dadih is one of the traditional foods favored by the people of West Sumatera, because besides being useful as a traditional food (Cultura Food) it also functions as a source of society nutrition. Among rural societies, Dadihs are often consumed or as side dishes for rice. [4]

Dadih was quite beneficial for the health of the human body. One of the benefits of Dadih is to reduce blood cholesterol. Some studies show that Dadih contains Lactic Acid Bacteria (LAB) which are potential as probiotics.[5]

Dadih making was very simple, the freshly milked buffalo milk is put into a bamboo tube and covered with banana leaves. The buffalo milk is left or fermented naturally at room temperature for 1-2 days to form clots.[6]

Dadih making from cow's milk and soy milk was relatively cheaper because cheap raw materials are obtained. While the raw material for making Dadih from buffalo milk only exists in a number of places such as Bukitinggi, Sijunjung, Solok but only managed by certain communities. [7]

II. Research Methods and Materials

The tools that used for making Dadih are: electric scales, measuring instruments, thermometers, pans, spoons, blenders, filters, bamboo tubes, incubators. Whilst the tools that used to test the analysis are: micro Kjeldahl, beaker, measuring cup, measuring pipette, test tube, burette, conductor, electric scales, dictalio apparatus, scales, stirring rods, sucker pipettes, erlenmeyer tube, litmus paper, oven.

The ingredients used for making Dadih are fresh cow'smilk, soybeans and skim milk. Fresh cow's milk is purchased at the Faculty of Animal Husbandry Andalas University as much as 2 kg. While as much as 1 kg of soybeans and 100 grams of skim milk. The starter used is buffalo milk Dadih purchased in Bukittinggi.

Material to be used was tested levels of protein and fat are acid H_2SO_4 (sulfuric acid) Na_2SO_4 (sodium Tio sulfate), Hg (mercury), Sodium Sulfide, potassium sulfate, Granules ink, Boric acid, an indicator methyl red, methyl blue , HCl, Aquades, fenolftalein. [8]

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a) The Process of Making Soy Milk

The ingredients used for makingSoy Milk is 1kg soybean which has been sorted soaked in water for a day or approximately 12 hours. Then drain and simmer for 30 minutes. Soybean peel is separated by squeezing it with water several times. Soybeans milled in a blender. The slurry obtained is added to boiling water so that the total amount of water reaches 10 times the weight of dry soybeans. Watery porridge is filtered with gauze and the titrate is raw soy milk.

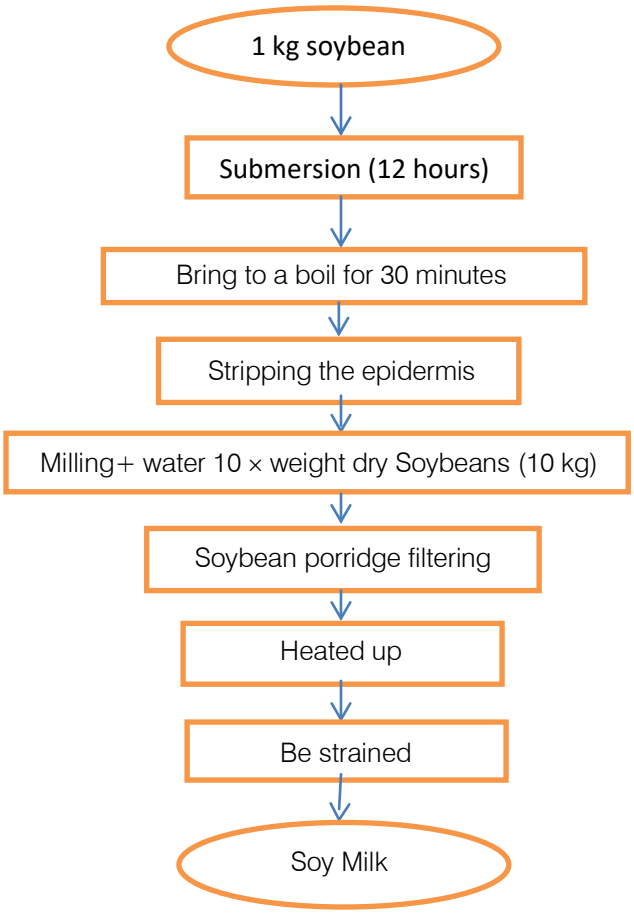


Image 1: Scheme For Making Soy Milk [11]

b) The Process of Making Soy Milk/ Cow's Milk Dadih

Pure soy milk is heated to a temperature of 70^{0}C for 20 minutes. Then it is cooled to 30^{0}C. Added skim milk as much as 10% of pure soy milk, then added stater as much as 4% taken from buffalo milk Dadih. Pour into bamboo and cover with banana leaves. Then incubate at 30^{0}C for 48 hours. During the addition of skim milk and the stater is carried out stirring.

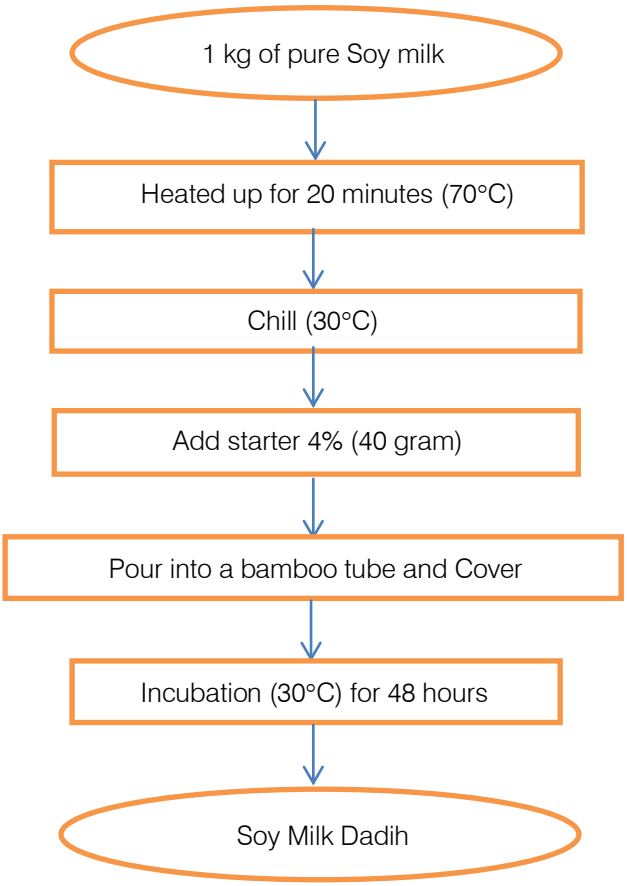


Image 2: Scheme for Making Soy Milk or Cow's Milk Dadih[11]

c) The Process of Making Cow's Milk Dadih

Cow's milk is heated to a temperature of 70^{0}C for 20 minutes. Then it is cooled to 30^{0}C. Added 10% skim milk from cow's milk, then 4% added stater. Pour into bamboo tubes and cover with banana leaves. Then incubate at 30^{0}C for 48 hours. During the addition of skim milk and the stater is carried out stirring.

d) The Form of Serving Dadihs

Dadih was consumed directly with riceafter being given slices of red onion and red chili, ormixed in cold drinks with chipssticky rice, coconut milk, and brown sugar. Dadih is also consumedfor breakfast, varied with ampiang (rice crackers) and coconut sugar. Dadih was consumed as a side dishfood, snack food, complementary traditional ceremonies, andas traditional medicine.

e) Data Processing Method

The design used in the study was an experiment with two treatments and two repetitions. The treatment was taken based on preliminary research that had been carried whereby the use of 4% starter and 10% skim milk produced good Dadih with its density.[8]

The data obtained were analyzed by the SPSS program with a T-test statistical test at the level of 5%.

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The organoleptic test results were analyzed based on preference levels using a mode score for color, aroma, and texture. Whereas for products that can be accepted, it is taken from the overall percentage of panelists' preference.

III. Results and Discussion

A total of 250 grams of raw soybeans processed into soy milk obtained 1.9 liters of soy milk with two filters using household coconut milk filters.

Table 1 shows the differences in the physical properties of cow's milk Dadih and soy milk Dadih seen in terms of color, taste, aroma and texture. While the results of the yield of cow's milk Dadih are lighter compared to soy milk Dadih. This is because fermented cow's milk is compared to soy milk.[9]

Table 1: Physical Character of Cow's Milk Dadih and Soybean Milk Dadih

Physical Character	Cow's Milk Dadih	Soybean Milk Dadih
Color	Yellowish white	Less white
Taste	Sour	Unpleasant and acidic
Aroma	Specific sour milk	Specific
Texture	Rather solid/ semi-solid	Less solid/thick liquid

Table 2 shows the average protein levels of cow's milk Dadih and soy milk Dadih. The protein from cow's milk Dadih is of high quality because animal-derived proteins can provide essential amino acids. Whereas soy milk Dadih is of low quality. This is because soybeans have a limiting amino acid (methionine). Protein levels in cow's milk Dadih and soy milk Dadih have been accepted in indutralization because SNI requires that the protein contained in it at least 3.5% protein is described as the most reactive component among the components of food.[10,11]

Table 2: Differences in the Average Value of Protein in Cow's Milk Dadih and Soybean Milk Dadih

Variable	Mean	SD	P value	n
• Proteinsin cow's milk Dadih	9,79	0,29	0,004	2
• Proteinsin soybean milk Dadih	4,65	0,22		

Table 3 shows the average fat content of cow's milk Dadih and soy milk Dadih. Fat is a food substance that is important for maintaining the health of the human body. Fats derived from animal and vegetable. Animal fat contains a lot of sterols while vegetable fats contain phytosterol and contain more unsaturated fatty acids. [9]

Table 3: Differences In The Average Value of Fats in Cow's Milk Dadih and Soybean Milk Dadih

Variable	Mean	SD	P value	N
• Fats in cow's milk Dadih	7,03	0,04	0,003	2
• Fats in soybean milk Dadih	2,91	0,10		

Table 4 shows the difference in the average of organoleptic cow's milk Dadihs and soy milk terms of aroma, flavour, texture and colour.

Table 4: Differences In The Average Value Of Organoleptic Test On Cow's Milk Dadih And Soybean Milk Dadih

Variable	Mean	SD	P value	n
• The aroma of cow's milk Dadih	2,50	0,82	0,797	30
• The aroma of soy milk Dadih	2,55	0,67		
• Taste of cow's milk Dadih	2,0	0,63	0,424	30
• Taste of soy milk Dadih	2,1	0,64		
• Texture of cow's milk Dadih	2,4	0,56	0,142	30
• Texture of soy milk Dadih	2,6	0,64		
• Color of cow's milk Dadih	2,7	0,79	0,047	30
• Color of soy milk Dadih	3,1	0,85		

The aroma of cow's milk Dadih and soy milk Dadih is almost the same which is distinctive smelling. This is caused by mixing the aroma of milk with bamboo and the role of Laktobacillus bacteria in the fermentation process to decompose lactose. [12]

The taste of Dadih is less favored by the general public because Dadihs are usually consumed by certain people who are used to consuming it since childhood. The taste of cow's milk Dadih and soy milk Dadih almost matches the taste of buffalo milk Dadih. [12]

The color of cow's milk Dadih and soy milk Dadih are very different. This is because cow milk contains colloidal fat grains, calcium caseinate and calcium phosphate and carotene and riboflavin. Whereas soy milk has a low limestone content of only 18.5% of cow's milk. This is what causes the color of cow's milk Dadih and soy milk Dadih to be different.[13]

The organoleptic test results conducted by 30 panelists on cow's milk Dadih and soy milk Dadih showed that the total number of panelists received was 18 people (60%) favoring pure soy milk Dadih.

IV. Conclusion

Making Dadih milk and soy milk by pasteurization before fermentation is useful to kill the contaminating organisms contained therein. Cow's milk freezes to become Dadih faster than soy milk because

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cow's milk containing casein quickly provides better and more uniform consistency in the final product. The organoleptic test results between pure cow's milk Dadih and pure soy milk Dadih showed that 60% of panelists liked pure soy milk Dadih.

Acknowledgment

The researcher would like to thank the Head and food technology laboratory staff of the health polytechnic and agricultural laboratory in Andalas University Padang, and all the panelists who have assisted in conducting this research. The authors would like thanks to Sekolah Tingi Ilmu Kesehatan Syedza Saintika support this conference.

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