

Accompanying the making of yoghurt for Selagalih Families Ciomas Rahayu Village, Bogor Regency

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Abstract

Ciomas Rahayu Village, Bogor Regency is an area with populated densely. Knowledge of the benefits and making of Yoghurt for moms of family welfare coaching is very important. Because Yoghurt has been shown to improve the body's immune system and overcome lactose intolerance. The purpose of this program was provide counseling and accompanying about the making of yoghurt for the family as well as explanation of the benefits of yoghurt if consumed. Activity method was practice in making yoghurt from basic ingredients of milk and were given starter to be fermented by moms of family welfare coaching Ciomas Rahayu Village Bogor Regency on 30 people cadres. Milk was fermented in a bottle is done for 2 x 24 hours at a temperature of 37°C-42°C. Fermentation results were added sugar expected can make the family business knowledge. Evaluation of Yoghurt production results done that moms can make yoghurt well so that result satisfactory. To do business need existence of cooperation with other party funding. Outcome of this activity was the increasing understanding and skill of partner of Ciomas Rahayu Village, Bogor Regency in making Yoghurt and increasing family business skill.

Keywords: Family welfare coaching, Yoghurt, Milk

1. Introduction

Yoghurt is a food product that utilizes microorganisms to produce certain components so that the characteristic texture, taste, color and aroma are obtained. Yoghurt is produced using the culture of *Lactobacillus delbrueckii* subsp. *bulgaricus* and *Streptococcus thermophilus*. Besides lactobacilli and other bifidobacteria are also sometimes added during or after yoghurt breeding, at least at a concentration of 1×10^6 CFU mL⁻¹. Prebiotics as "undigested food that beneficially affects the host by selectively stimulating the growth and or activity of one or a limited number of bacteria in the large intestine" (Aswal et al., 2012). Yoghurt is very useful because of its beneficial probiotic content, yoghurt is often associated with probiotics which have positive effects on the health of the immune system, cardiovascular or metabolic health (Astrup A, 2014; El-Abadi et al. 2014; Gijsbers et al. 2016) prevent intestinal cancer and function as milk substitute for people with lactose intolerance. High-quality clinical evidence is not enough to prove that consuming yoghurt can reduce the risk of disease or improve health (Ricketts et al. 2011). Fernandez et al. (2017) states that yoghurt consumption in children may also be related to healthy lifestyle and dietary behavior. Besides being rich in nutrition, yogurt is an excellent substitute for snacks and can help children and adolescents develop healthy behaviors that promote energy balance. The lactic acid produced is able to metabolize cholesterol derived from food into a form

of sterols that cannot be absorbed by the intestine. Jones et al. (2012) showed that consumption of BSH-active *L. reuteri* NCIMB 30242 yoghurt is efficacious and safe for reducing LDL-C, TC, apoB-100 and non-HDL-C in hypercholesterolaemic subjects. Another benefit of yoghurt is preventing hypertension and coronary heart disease. Bacteria from yoghurt can live in the intestine and symbiosis with other microflora, resulting in various diseases due to infection or microbial poisoning can be avoided due to inhibited growth of pathogenic microbes. Makino et al. (2010) showed that consumption of yoghurt fermented with *L. bulgaricus* OLL1073R-1 increased the activity of natural killer cells and reduced the risk of developing common cold in the elderly. Because of these benefits, it was necessary to learn how to make good yoghurt and right so that the resulting yoghurt was safe for consumption and had a taste that consumers like. The aim of community service introduced ways and process for making yoghurt involving microorganisms for family in Selagalih, Ciomas Rahayu Sub-District, Bogor Regency.

2.Methods

Community service activities were used the guidance method, and the practice of making directly Yoghurt. The activity were carried out on 30 family in Selagalih, Ciomas Rahayu Village, Bogor Regency. Utilization of Yoghurt for health was done through lectures and discussions.

A. Preparation of Equipment and Materials

The tools used in the process of making Yoghurt must be sterilized first by boiling or rinsing it using boiled water such as a mixer, yoghurt fermentation container (glass bottle) and plastic bottles that will be used for packaging. The incubation box was made of cardboard illuminated with lights so the temperature was 37°C-45°C until the desired pH was reached (Weerathilake et al., 2014). Usually within 1-2 x24 hours, the acidity for yogurt had been reached. Total lactic acid bacteria ranged from 3.7 x 10⁷ to 2.6 x 10⁸ CFU mL⁻¹ in accordance with SNI standards (2009). Corrieu and Beal (2016) stated that two thermophilic lactic acid bacteria, namely *S. thermophilus* and *L. delbrueckii* subsp. *bulgaricus*, which triggers yoghurt in fermentation, is considered safe.

B. Yoghurt Fermentation Process

One L of pasteurized cow's milk were put into a sterilized glass bottle. Add Biokul starter ± 10 ml (two tablespoons), then made homogeneous. Incubated in boxes which were given a temperature of 37°C-45°C for 1-2 days. Then kept the Yoghurt bottle in the refrigerator at ± 4°C and ready for consumption by adding sugar with strawberry, blueberry, raspberry and chocolate flavors.

C. Yogurt for family business

The finished yogurt were put into a 125 ml plastic bottle, add sugar with a taste adjusted to taste as much as ± 15 ml, then homogenize and be stored in the refrigerator ready for consumption. The economic value of this product for the purchase of milk, biokul, sugar, plastic bottles, labels and adhesives is IDR 5676.5 / 125 mL with a selling price of IDR 8,150, -so for salary and profit of IDR 2473.5/125mL.

D. Evaluation of Program Implementation

The evaluation of science and technology this program was carried out 3 days after the practice of making yoghurt, including checking the fermentation results by family in making yoghurt (sterility), mixing ready-made yoghurt with sweetened sugar, and whether making yoghurt was supported by community as a family business.

3.Results and Discussion

3.1 Counseling for Yoghurt Making

Counseling was done by explaining the use of yoghurt for health, explaining how it was made and how the process of yoghurt formation. In counseling, there were questions and answers about various kinds of ingredients that can be used to replace milk and add flavor from the resulting yoghurt. The atmosphere of giving material at the meeting looked like in Figure 1

3.2 Practices for Making Yoghurt Through Fermentation

The practice of making yoghurt was done by 6 groups, each group consisting of 5 people. The making of yoghurt was done in a bottle like Figure 2a. The sterile bottle contained homogeneous milk and starter ready stored in an incubator (Figure 2b) of 37°C-45°C for 2 x 24 hours or more (Parnell-Clunies et al. 1986). Wieda and Bambang's research results (2017) obtained a population of starter yoghurt culture (*S. thermophilus* and *L. bulgaricus*) and probiotic bacteria *L. acidophilus* were in the population range of $9 \log_{10}$ CFU / mL, with an average pH value of 4 and a total titrated acid of 1.743%.

The longer fermented the quality of the yoghurt was thicker, there was a change in texture and taste, namely the texture became thick, this texture change occurred because of a decrease in pH so made yoghurt become thick or semi-solid and the taste turns to acid.



Figure 1.(a) Provision of Counseling Material for Yoghurt Making, (b) Discussion on Yoghurt Making Counseling Materials.

After 2x24 hours the incubator was moved into the refrigerator at 4°C, ready for consumption. If the fermentation time was not too long at the desired acidity level and the texture was not thick (watery) it was easy to drink which usually called drinks yoghurt (Hidayat, 2013). This texture changed according to Sfakianakis and Tzia (2014) due to a decrease in pH during yoghurt fermentation which made yoghurt thick or semi-dense and the taste turned sour.

Elliott (2017) states that yoghurt provides almost every nutrient that the body needs. This is mainly because yoghurt is high in calcium, B vitamins and trace minerals all of which can improve immune health and prevent certain diseases. In Figure 3a, The family were mixing yoghurt ingredients.



a



b

Figure 2. Yoghurt fermentation process (a) Sterile Bottle Contained a Milk Mixture and Yoghurt Starter ready fermented in an incubator of 37°C-45°C for 2x24 hours, (b) Artificial incubator made from cardboard with a temperature of 37°C-45°C



Figure 3. (a) The family when mixing yoghurt with flavoring sugar, (b) Yogurt with MIBI Brand (MIPA BIOLOGI) were ready marketed.



Figure 4. Family were promoting yoghurt product. Yoghurt with flavoring sugar (rasberry, strawberry, blueberry, chocolate flavor) \pm 5% in a small bottle of 125 ml size ready for sale. To be more interesting yoghurt in the packaging was labeled as in Figure 3b. Then promoted in Figure 4.

3.3 Program Implementation Evaluation

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 The results of the evaluation showed that the results of fermentation carried out by family in making Yoghurt were good and right, this indicated the absence contamination on yoghurt. From the structure looked thick (not thin), a fresh sour taste and sourodor was not rancid odor. The taste of yoghurt depended on the sugar or mixture provided. Sugar or sweetener used by family varies, there were strawberry, blueberry, chocolate flavors. At this time, the general public has not utilized the skills of making yoghurt as one of the family businesses, the problem is that there was no capital to do this business.

4. Conclusion

The results of science and technology for the community activities was concluded that the family in Selagalih Ciomas Rahayu Sub-District, Bogor District could find out how the processed of making yoghurt that involves microorganisms. The need for the involvement of the village to developed the skills of making yoghurt and made for business.

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