

Training Procedures for Making Fruit Yoghurt to Housewives to Help Increase Husband's Income in Bandar Khalipah Village

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ABSTRACT

Yoghurt is one of the health drinks that tastes fresh and sour and is liked by many people, adults and children. Yoghurt made by fermentation using *Lactobacillus bulgaricus* and *Streptococcus thermophilus* bacteria inoculated in milk will produce a semi-solid consistency of milk and a slightly sweet-sour taste and can eliminate the sharp odor of goat's milk. The PkM implementation stage is like a training activity, namely this activity there are also several events which are held for 3 days, namely on 24-26 July 2019. The target audience is housewives and community leaders in Bandar Khalipah Village, which includes 50 people consisting of various housewives located at Jalan Angsana No. 3 Market XI Tembung. This PkM method will be carried out through training on the benefits of yogurt for health through media presentations, demos followed by questions and answers. The training materials include: introduction, yogurt bacterial culture, benefits of yogurt and methods of making yogurt. While the way of making yogurt is done by practicing together between the demonstrators and the audience. The method of making yogurt consists of preparation, pasteurization, bacterial preparation, mixing bacteria with milk, storage and storage. The participants of this activity program were very enthusiastic about listening to materials and practices on how to make yogurt so that they could practice it themselves at home. In addition, they also see business opportunities to improve family welfare both financially and healthily. With a positive response from partners, finally this community service can be useful for housewives so that it can improve family welfare.

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A. INTRODUCTION

The word yogurt comes from the Turkish word jugurt or yogurut which means sour milk. In its development, yogurt is used as an alternative food as a functional food to be able to meet the needs of people who want to have a healthy life but in easy ways. Functional food itself has the meaning of food which naturally or has gone through a process, contains a compound which according to scientific studies is considered to have a physiological function and is beneficial to health. (Sekarningrum, 2020).

Yoghurt is one of the health drinks that tastes fresh and sour and is liked by many people, adults and children. Its popularity is so high, that this semi-solid fermented milk product is known in various parts of the world, including Indonesia. In addition to its delicious taste, yogurt actually has very good benefits for the health of the body. This benefit was first introduced by Elie Metchnikoff, a Russian scientist who received the 1908 Nobel Prize in biology/medical physiology, who revealed that yogurt can prolong life. According to Metchnikoff, the high average lifespan of Bulgarian mountain tribesmen, namely 87 years, is related to their habit of consuming yogurt. Bacteria will enter and stay in the intestine, then give a positive influence on the balance of the intestinal microflora. The mechanism is by reducing the toxic effects of harmful bacteria in the intestine.

Findings about the benefits of yogurt are getting more and more, along with the amount of research on this one drink. There are those who use it as a substitute for milk, and there are also those who drink it when dieting. One of the most important, especially for toddlers, is the recommendation of health experts to drink yogurt when babies and toddlers get diarrhea. This can be explained by the discovery of antimicrobial peptides produced by bacteria such as *Lactobacillus* which act as natural antibacterials that attack harmful bacteria. These bacteria are able to break down milk sugar into lactic acid, this lactic acid is what causes yogurt to taste sour. The fermentation process causes the lactose content in yogurt to decrease, so it is safe for consumption (Syainah, E., et al. 2014).

As is well known, consuming yogurt will increase the number of beneficial bacteria in the gut. Unheated yogurt contains harmful bacteria in the gut. Which includes beneficial bacteria are *Bifidobacterium*, *Eubacterium* and *Lactobacillus*. As an illustration, it is estimated that there are 100-400 types of bacteria in the human gut that make up the intestinal flora. Yoghurt can be made using five kinds of milk ingredients, including: fresh cow's milk, vegetable skim milk, soy milk, UHT milk and goat's milk (Fatmawati, U., et al. 2013).

In addition, the activity of lactic acid bacteria during the fermentation of milk into yogurt was able to increase the nutritional content of yogurt. Specifically B1, B2, B3, B6, folic acid, pantothenic acid, and biotin. These vitamins and minerals play an important role in reproductive health and immunity. In addition, yogurt is also easily and quickly digested by the body. More than 90% of yogurt can be digested by the body within 1 hour after consumption. Meanwhile, at the same time only 30% is digested.

People need to know more about the benefits of this yogurt. Submission of this good knowledge to the community can be carried out through the Community Service program conducted by STKIP As-Syafi'iyah. In addition to delivering the health benefits of yogurt, this activity includes how to make yogurt. By providing knowledge of the benefits of yogurt and how to make it to the community, it is hoped that the community can improve their health status independently and increase economic income. In this PKM activity, the object of this activity will be members of housewives in Bandar Khalipah Village. The condition of the community profile there is very heterogeneous both in terms of economy, human resources, and welfare. The focus of this activity is trying to attract the middle and lower economic community to be able to empower themselves through improving their health and economy.

Based on the description above, the executor wants to conduct training for housewives in Bandar Khalipah Village. Precisely the title of the activity is Training on how to make fruit yogurt for housewives to help increase husbands' income in Bandar Khalipah Village. It is hoped that from this activity housewives can find out how to make fruit yogurt in order to provide health and can also increase husband's income.

B. LITERATURE REVIEW

Yogurt made by fermentation using *Lactobacillus bulgaricus* and *Streptococcus thermophilus* bacteria inoculated in milk will produce a semi-solid consistency of milk and a slightly sweet-sour taste (Paramitha, 2016) and can eliminate the sharp smell of goat's milk. Milk used for making yogurt must be free from ingredients that inhibit or prevent the growth of starter organisms such as antibiotics, preservatives, disinfectants, and bacteriophages (Obi, et al., 2016). Yogurt is a functional food (Suter, 2013) which contains probiotics, prebiotics, and synbiotics.

Lactobacillus bulgaricus and *Streptococcus thermophilus* bacteria as starter bacteria in making yogurt were used in a ratio of 1:1. The two bacteria decompose milk lactose into lactic acid with various components of aroma and taste. *Lactobacillus bulgaricus* plays a role in the formation of aroma, while *Streptococcus thermophilus* plays a role in the formation of the distinctive taste of yogurt. Yogurt can be made from fresh milk or dairy products with or without the addition of powdered or skimmed milk powder. The distinctive taste of yogurt arises from compounds produced by lactic acid bacteria in yogurt, namely: non-volatile acids (lactic, pyruvic, oxalic), volatile acids (formate, acetic, propionate), carbonyl compounds (acetaldehyde, acetone).) and other compounds such as amino acids.

Nutritional Content and Types of Yogurt

Yogurt is a fermented product that contains many nutrients. The fermentation process that occurs in yogurt will increase its nutritional content. The nutritional composition of yogurt is similar to that of milk. In fact, there are nutritional components that are higher in number than milk.

In general, yogurt is classified into two groups, namely based on fat content and fermented bacteria.

1. Based on Fat Content
High fat yogurt (4.5-10%), moderate fat content (3-4%), low fat content (1-3%) and very low fat yogurt (less than 1%).
2. Based on fermented bacteria
 - a. Pure yogurt
Derived from the fermentation process of *Lactobacillus bulgaricus* and *Streptococcus thermophilus* as starter bacteria for making yogurt.
 - b. Probiotic Yogurt
Yogurt containing starter bacteria and probiotics added in the fermentation process. Bacteria that are often added to probiotic yogurt are *Lactobacillus acidophilus*, *Lactobacillus casei* and *Bifidobacterium bacteria*.

Benefits of Yogurt

Some of the benefits of yogurt caused by lactic acid bacteria in yogurt are:

1. Overcoming Lactose Intolerant
Lactose intolerance is a condition in which the intestines cannot digest and absorb lactose completely. This happens because of the limited lactase enzyme in the digestive tract which functions in breaking down lactose. The presence of injuries due to viruses or digestive tract disorders in the lining of the intestine, especially in the cells that produce the lactase enzyme, will cause the production of the lactase enzyme to be very limited. Signs or symptoms of a person experiencing lactose intolerance after drinking milk are diarrhea, nausea, vomiting, and other symptoms of abdominal pain. Lactic acid bacteria in yogurt can decompose milk lactose into monosaccharides, namely glucose and galactose, so milk is easily digested and absorbed by the body. In addition, it can improve the immune system, prevent *Helicobacter pylori* infection, prevent osteoporosis, reduce constipation, increase nutrient absorption, and reduce blood cholesterol (Utaminigrum and Utaminigrum, 2012).
2. Balance the Digestive System
The bacteria in yogurt will maintain the balance of normal intestinal flora, so that it can improve and enhance digestive function. In addition, yoghurt also has antibiotic power that can prevent premature decay in the small intestine.
3. Lowers Cholesterol Levels
Lactic acid bacteria in yogurt can produce a number of organic acids such as propionic acid and orotic acid which play a role in reducing cholesterol levels. Propionic acid will inhibit cholesterol synthesis in the liver by suppressing enzyme activity 3-hydroxy-3-methyl glutaryl CoA reductase as one of the triggers of cholesterol synthesis. Then the cholesterol in the body will be converted by the lactic acid bacteria in yogurt into coprostanol, a sterol that cannot be absorbed by the intestines. Thus coprostanol and the rest of the cholesterol will be excreted along with the feces. Orotic acid compounds in yogurt will compete with cholesterol from food for the formation of cholesterol in the liver so that cholesterol production remains normal.
4. Prevents Cancer
The compounds contained in yogurt will stimulate the body's defense system, such as interferons and NK cells (natural killer cells) which will fight tumors and cancer. In addition, the probiotic elements in yogurt will suppress the growth and activity of small intestinal microbes that produce toxic compounds or short chain fatty acids. Yogurt will

also bind and remove carcinogenic compounds, produce antimutagenic compounds that will inhibit the appearance of cancer and produce butyrate compounds that will stimulate the destruction of abnormal cells that have the potential to become cancer cells.

5. Overcoming Fungal and Bacterial Infections

Lactic acid bacteria in yogurt will produce an antimicrobial compound called bacteriocin, which will fight pathogenic microbial infections in the body, such as infections due to the fungus *Candida albicans* and the bacterium *Helicobacter pylori*. Based on research that has been done, it is known that yogurt works synergistically when used together with ordinary antibiotics.

6. Rich in Calcium

One glass of yogurt contains about 450 mg of calcium on average. This mineral is very beneficial for colon health. People who have a high calcium diet, such as in Scandinavian countries, have a lower incidence of colorectal cancer than other countries.

7. Source of Protein

One glass of plain yogurt contains 10-14 grams of protein or about 20% of the daily protein requirement. The fermentation process makes the protein in yogurt easier to digest. The presence of easily digestible protein and lactic acid which increases mineral absorption, makes yogurt good for consumption by children with impaired absorption in the gastrointestinal tract.

C. METHOD

The target audience are housewives and community leaders in Bandar Khalipah Village, totaling 50 people consisting of various housewives located at Jalan Angsana No. 3 Market XI Tembung. Housewives are an activity unit in the community that has a strategic position as a medium for transforming knowledge and skills in the family environment. Housewives are a community that includes several hamlets in Bandar Khalipah Village belonging to the lower middle class economy. Community profiles in some of these hamlets are appropriate to gain additional knowledge and skills that are useful for improving the quality of life. These housewives are expected to be stakeholders who can disseminate information to other community members. The implementation stage is the core activity in the implementation of this PkM, such as proper training activities, this activity also has several arrangements for 3 days, namely on 24-26 July 2019.

This PkM activity method will be carried out through training activities on the benefits of yogurt for health through media presentations, demonstrations followed by questions and answers. The training materials include: introduction, review of yogurt bacteria, benefits of yogurt and methods of making yogurt. While the way of making yogurt is done by practicing together between the demonstrators and the audience. The first time a demonstration was conducted by the trainer, which was then followed by the audience guided by the trainer. The method of making yogurt consists of preparation, pasteurization, bacterial preparation, mixing bacteria with milk, incubation and storage.

D. RESULTS AND DISCUSSION

The majority of community service members are housewives who have free time to participate in activities related to increasing knowledge towards family welfare. One of them is the implementation program for the implementation of milk processing technology. The participants of this activity program were very enthusiastic about listening to materials and practices on how to make yogurt so that they could practice it themselves at home. In addition, they also see business opportunities to improve family welfare both financially and healthily.

On this occasion, TIM also showed yogurt products sold in the market. TIM also compares these products both in terms of selling price, taste, texture. This needs to be conveyed to housewives so that they are motivated to make yogurt at home.

In the question and answer session, housewives also asked about the variety of giving fresh fruit that could be added to make it taste more delicious and fresh. In addition, the mothers also asked about how

to get more profit if they wanted to sell. With a positive response from partners, finally this community service can be useful for housewives so that it can improve family welfare.

1. After obtaining permission from the relevant parties, as well as obtaining data who are willing to attend the socialization of this program, the time for the program's implementation is determined. This service is carried out at the house of one member of the housewives in Bandar Khalipah Village. The implementation time is adjusted to the free time of housewives in Bandar Khalipah Village so that it does not interfere with the activities of housewives. The stages of implementation are:
2. Phase I: Providing material on entrepreneurship and material on the use of consuming fruit yogurt. The provision of this material is carried out in a relaxed manner and uses a language that is not too official so that housewives in Bandar Khalipah Village do not feel bored and heavy in receiving the material.
3. Phase II: The practice of making fruit yogurt for housewives in Bandar Khalipah Village carried out by TIM and assisted by one of the housewives interspersed with questions and answers by housewives.
4. Stage III: Evaluating the extension activities so that the TIM knows the extent of the success of the implementation of the activities.
5. Stage IV: After the evaluation stage is carried out, this activity needs to be monitored so that we can find out to what extent this activity has been carried out and the sustainability of the activity. The activity stage table is listed below:

Table 3.1 Program Activities

Stage	Activity
I	Giving material about entrepreneurship and making yogurt
II	Practice making yogurt
III	Evaluation
IV	Monitoring

E. CONCLUSION

Based on the results of the implementation of Utilization of Milk for Making Fruit Yoghurt as an Effort to Increase the Income of Housewives in Bandar Khalipah Village, it can be concluded that there is an increase in knowledge and understanding of entrepreneurship and yogurt making and they can practice making yogurt. This activity can encourage housewives to produce for their families or for sale.

F. REFERENCES

- Fatmawati, U., Prasetyo, F.L., Supia, M., Utami, A.N. (2013). Karakteristik Yoghurt yang Terbuat dari Berbagai Jenis Susu dengan Penambahan Kultur Campuran *Lactobacillus bulgaricus* dan *Streptococcus thermophilus*. *Jurnal Bioedukasi*, 6, (2).
- Nurhidayanti, A. (2012). *Aneka Kreasi Ice Cream dan Yoghurt*. Dunia Kreasi: Jakarta Timur.
- Obi, C. N., Olugbue, V. U., & Mpamugo, C. P. (2016). Yoghurt Production from Powdered Milk using Mixed Lactic Acid Bacteria Starter Cultures. *Saudi Journal of Pathology and Microbiology*, 1, (2).
- Paramitha, C. V. (2016). Proses Produksi Dan Pengawasan Mutu Yoghurt Pada Cv. Cita Nasional Salatiga
- Pujiati. (2013). *Buku Petunjuk Praktikum Mikrobiologi*. Malang: Universitas Negeri Malang. Tidak Diterbitkan
- Sekarningrum, A.S dan Seveline. (2020). Pembuatan Yoghurt Sinbiotik Kacang Merah (*Phaseolus vulgaris* L.) dengan Penggunaan Bakteri Asam Laktat dengan Penambahan Prebiotik. *Jurnal Bioindustri*, 2, (2).
- Suter, I. K. (2013). Pangan Fungsional dan Prospek Pengembangannya. Seminar Sehari dengan tema "Pentingnya Makanan Alamiah (Natural Food) Untuk Kesehatan Jangka Panjang".

- Syainah, E., Novita, S., & Yanti R. (2014). Kajian Pembuatan Yoghurt dari Berbagai Jenis Susu dan Inkubasi yang Berbeda Terhadap Mutu dan Daya Terima. *Jurnal Skala Kesehatan*. 5, (1).
- Utaminigrum, F., & Utaminigrum, F. (2012). Pengaruh Pemberian Yoghurt Kedelai Hitam (Black Soyghurt) Terhadap Kadar Kolesterol LDL Serum Pada Tikus Dislipidemia. Diponegoro University