Conference Paper

Cultivation of Oyster Mushrooms and Making Fried Oyster Mushrooms to Promote Health Efforts of Patients with Tuberculosis

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Abstract

Tuberculosis (TB) is still the world's deadliest infectious killer. 10 new TB cases occured in the Cibiru area in 2017, all of whom were treated and cured. In 2018 there was an increase to 11 cases (Bandung City Health Profile, 2018). The purpose of this study is to help improve the soft skills and hard skills of health cadres and housewives in the Cibiru area in utilizing oyster mushroom cultivation by properly processing oyster mushrooms. Implementation methods based on the solutions to be developed and problems-solved methods. Oyster mushroom cultivation training is carried out twice for one month, with a focus on material on how to cultivate oyster mushrooms, counseling on processing crispy oyster mushrooms using Air Fryer and counseling on nutritional intake for TB patients, as well as guidance that is monitoring implementation. The results of these activities, it was found that the knowledge of health cadres and the community increased by more than 50%. The cultivation and processing of oyster mushrooms can increase economic income through the sale of processed oyster mushrooms using the Air Fryer method and get a profit of more than 10%.

Keywords: Jamur tiram; Air fryer; Tuberculosis

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1. Introduction

Cibiru District is one of the eastern parts of Bandung City with a land area of 652,930 hectares. Geographically, Cibiru Subdistrict has a flat / undulating shape of 50% of the total area. Judging from the point of land height, Cibiru District is at an altitude of 500 m above sea level. The maximum and minimum temperatures in Cibiru District range from 30o C-18o C. Cibiru District is divided into 4 (four) villages, one of which is Pasirbiru, which has a number of 12 RWs and 65 RTs. Kampung Mekarjati is one of the areas in the Pasirbiru village, namely RW 5. Cibiru District has a population of 61,683 people, consisting of 30,962 men and 30,721 women[1]. Mekarjati Village, Pasirbiru Village, Cibiru Subdistrict has tremendous potential. The potential is;

(a) The population of Cibiru District has a relatively good level of participation.

(b) Has a potential area to be developed as a productive green area (as a green open space and water absorption area).

(c) Cibiru Subdistrict area which is large enough and there is still land available to be developed for productive activities.

(d) Cibiru Subdistrict is located on the city limits and is the entrance to the city of eastern Bandung.

(e) Cibiru District is adjacent to the Jatinangor education area.

Even though it has good population and area potential, Mekarjati Village still has health and economic problems. Until now, there are still many people in Mekarjati Village who are listed as people with a weak economic level and low health status (high TB cases). This condition is influenced by economic factors, especially in big cities with a high number of daily needs, dense human settlements, limited employment opportunities, a large increase in population each year.

The results of surveys and research on household food security in West Java, Bandung City have AHFSI 65.04, which means that food security is at a low level[2]. Food security is defined as the availability of food in an adequate amount, distributed at affordable prices, and safe for consumption for every citizen to support their daily activities at all times or it can be interpreted as the existence, distribution and consumption of food. This illustrates the many weaknesses of economic resources in urban areas of West Java in general and in the Cibiru District, Pasirbiru Village, especially in fulfilling food.

Another very important fact is the increase in the incidence of direct infectious diseases, namely TB in the Cibiru District area from 2015 to 2018.

It is predicted that the number of TB patients (tuberculosis) will increase in Bandung Regency. This is shown based on data from the Bandung District Health Office, from 31 existing Districts, namely in 2015 there were 6,220 people affected by TB disease. Then in 2016 6,943 cases were found, there was an increase again in 2017 of 7,248 and decreased to 6,845 in 2018.

Then in 2017, in the Cibiru area it was found that the number was greater than before, namely from 115 suspects, 10 people were found to have positive TB disease who were then treated until they were completely cured. “The increase in this figure also occurred in 2018, namely from 124 suspects, eleven people were declared TB[1].

With the increase in the number of TB, especially in the Cibiru area where it is known that TB is a direct infectious disease[3], the local PUSKESMAS has implemented

all government programs for TB and added to the formation of TB cadres (KAHARTOS / KADER HOPE TO DISCOVER MEDICINES UNTIL HEALING) this is the first finding suspect TB (Find). Second, after it was found, it was to motivate the patient's family to want to take the patient to the Puskesmas (Treat until Healed). Meanwhile, the third is promotive action, namely by conducting extension activities.

2. Problem, Target And Outside

Based on this description in the analysis of the situation in Mekarjati Cibiru Village, the following partner problems were identified, namely:

1. Economic problems Kampung Mekarjati Cibiru is still a village with a middle to lower economic level, and food security which is considered a low level. This is due to lack of employment opportunities, population density.
2. Health Problems: Increased incidence of TB in the Cibiru area and Mekatjati Village, which is due to the continuing spread of TB and increasing population density.

Based on this description, the implementation of training in oyster mushroom cultivation and processing of Oyster Mushrooms into Krispi Oyster Mushroom Fryers from oyster mushroom cultivation in the area is very important. Oyster mushroom was chosen because it has various benefits, including as a food ingredient and as an ingredient in making drugs for various kinds of chronic diseases[4]. Oyster mushrooms are selected as food ingredients to be processed using modern technology, namely by frying them without using oil.

Air Fryer is a cooking tool with heat rotation technology which is a substitute for oil for frying food[5]. The temperature of the air circulation in the air fryer reaches 2000C so that it makes dishes crispy without using cooking oil. This oyster mushroom has a high vegetable protein content that does not contain cholesterol and can increase immunity, is easy to cultivate, is a food that has taste, and is easy to process [6]. The output that will be achieved is by providing training and coaching on improving the health status of sufferers TB through proper nutritional intake and preventing the spread of the disease, which has increased in number in Pasirbiru Village, Cibiru District.

3. Implementation Method

The implementation method used for problem-solving patterns will be developed in general based on the solutions to be implemented. The program implementation method

chart is prepared based on a problems solving based framework, which is as follows (Figure 1):

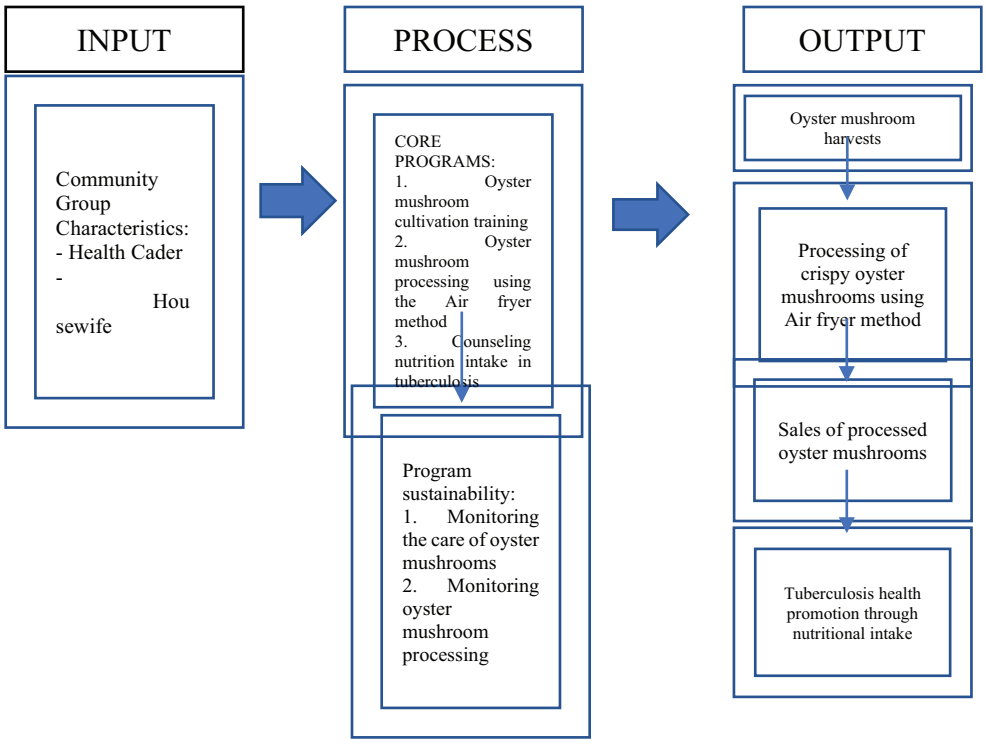

Figure 1: The method of implementing oyster mushroom cultivation and processing efforts to promote tuberculosis health

Before carrying out activities in the form of training and counseling on oyster mushrooms and pulmonary tuberculosis, a pre-test is conducted first. Then carried out training on oyster mushroom cultivation and counseling on how to process oyster mushrooms using the Air Fryer method and counseling on efforts to promote pulmonary TB health with a balanced nutritional intake. After the activity is carried out, it is continued with the implementation of activities accompanied by activity monitoring. After one month, the activity was continued with giving a post test. The process of training and processing and extension activities is carried out actively and interactively, which is proven to be effective in increasing the knowledge and skills of health cadres and housewives' groups in oyster mushroom cultivation and processing as well as knowledge about efforts to promote pulmonary TB health through proper nutritional intake.

This community service activity was carried out in the RW5 Mekarjati Cibiru Bandung area, which lasted for 5 months.

4. Discussion Result

The service activities are carried out according to the planned stages, starting from the training process for health cadres and housewives and coaching for the implementation of oyster mushroom cultivation (Figure 2), oyster mushroom cultivation (Figure 3) and promotion of pulmonary TB health promotion, and evaluation of activity results. Mushroom cultivation training is carried out twice a month, oyster mushroom processing is carried out from processing trials to achieve the expected processed results and promoting pulmonary TB health promotion.

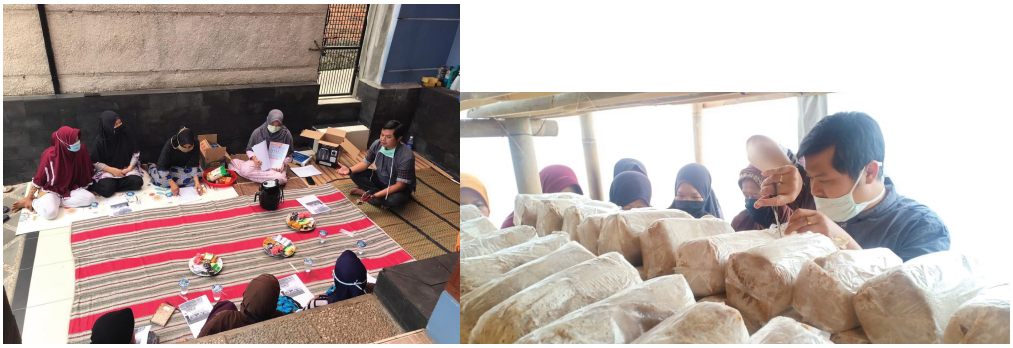

Figure 2: Oyster mushroom cultivation training

Figure 3: Processing of crispy oyster mushrooms using the Air Fryer method

During the activity there were several obstacles, among others;

1. The unavailability of sophisticated equipment in the nursery of oyster mushroom seeds such as autoclave, the special room in the inoculation stage in the form of LAF (Laminar Air Flow), the incubation medium at the incubation stage.

2. Limited Air Fryer equipment for the production of processed oyster mushrooms for more production processes.

3. Weather constraints that enter the dry season, so the air temperature can reach 240 C.
4. The COVID19 pandemic situation has created quite a large obstacle in the implementation of community service.
5. Oyster mushroom harvest time that has not been reached.
6. The processed oyster mushroom products are still not optimal in terms of product appearance.

This community service activity has the aim of increasing the economic status of the community in RW5 Mekarjati Cibiru Bandung through empowering women and cadres to cultivate oyster mushrooms and processing oyster mushroom cultivation products into silk selling products in the form of crispy oyster mushrooms through AIR FRYER processing techniques.

The benefits obtained from this activity are still ongoing, there are two benefits, namely economic benefits and social benefits. The benefit of this activity which has an impact on the economy is to improve the economic status of the Mekarjati community

Cibiru, but in current activities we cannot describe these benefits, because the mushroom cultivation process is still in the maintenance stage and has not yet reached the harvest. However, current community service activities have a social impact, namely increasing knowledge for housewives and health cadres in the Mekarjati Cibiru area.

This activity carried out several analyzes from three aspects, namely pre-test and post-test regarding oyster mushroom cultivation.

Oyster mushroom processing using Air Fryer and providing health education regarding pulmonary tuberculosis and health promotion efforts in the Mekarjati area. The results of the pre and post test analysis for the three items will be presented in tabular form, as follows;

Table 1: Results of the Wilcoxon Test Analysis on Oyster Mushroom Cultivation Knowledge

	n	Median (Minimum-Maksimum)	P
Knowledge before extension Oyster mushroom cultivation	23	30 (10 – 50)	0.000
Knowledge after extension Oyster mushroom cultivation	23	90 (80 – 100)	

Knowledge of the three aspects, namely oyster mushroom cultivation, oyster mushroom processing using air fryer and health promotive pulmonary tuberculosis were

Table 2: Results of the Wilcoxon Test Analysis on Oyster Mushroom Processing Knowledge

	n	Median (Minimum-Maksimum)	P
Knowledge before extension of Oyster Mushroom processing with Air Fryer	23	20 (20 – 50)	0.000
Knowledge after extension of Oyster Mushroom processing with Air Fryer	23	70 (70 – 80)	

Table 3: Results of the Wilcoxon Test Analysis of Tuberculosis Promotive Knowledge

	n	Median (Minimum-Maksimum)	P
Knowledge before promotion of tuberculosis	23	20 (0 – 40)	0.000
Knowledge after promotion of tuberculosis	23	100 (60 – 100)	

carried out by statistical tests. The statistical analysis of the calculation results is based on the median value of the three aspects both before being given the inauguration and after the extension and application of its activities.

The first aspect is statistical analysis before and after the oyster mushroom cultivation counseling. The median value before counseling was 30 with a minimum score of 10 and a median value after counseling of 90 with a minimum value of 80 and a maximum value of 100 (Table 1). Initially, many cadres and housewives did not know how to cultivate oyster mushrooms, because this was something new for them. However, after being given counseling on oyster mushroom cultivation through video and direct implementation, the participants had increased knowledge in the cultivation of this oyster mushroom. This can also be seen from the P value in this aspect of 0.000 which means that it is very meaningful in this activity so that there is an increase in knowledge in terms of oyster mushroom cultivation. Although in practice it is very limited due to the current pandemic conditions.

The second aspect of the assessment is knowledge about oyster mushroom processing using the Air Fryer. From the statistical results, the median value before counseling was 30 (10-50) and 70 (70-80) after counseling (Table 2). Seeing the median value after counseling, there was an increase. Initially, the participants in the activity did not know what the Air Fryer method is, because this food processing method is relatively new and uses the latest technology. Through direct explanations and demonstrations of the

use of the Air Fryer, the participants easily understood the methods and techniques for using the Air Fryer.

The third aspect that was carried out by statistical measurements was knowledge of pulmonary tuberculosis and its promotional efforts (Table 3). The results of statistical tests showed that the median value before extension was 20 (0-40) and the median value after counseling was 100 (60-100). There is a significant result from this activity that the participants really understand the preventive efforts of pulmonary tuberculosis through a balanced nutritional intake, namely high protein and high calories.

The statistical test of these three aspects is a change in social impact, especially for health cadres and mothers in the RW5 Mekarjati Cibiru area. The benefits obtained from this activity can be felt for the participants and the participants are very enthusiastic about continuing the implementation of oyster mushroom cultivation activities and how to process them.

5. Conclusions and Suggestions

From the results of the implementation of oyster mushroom cultivation and processing activities and promotion of pulmonary TB health, it was found that the knowledge and skills of health cadres and housewives in the Cibiru area were increased in an effort to improve the economy and health.

The benefits of this community service activity are increasing the hard skills of housewives groups to be able to carry out activities that aim to increase income and these activities can contribute to helping government programs promote health efforts, especially pulmonary tuberculosis. The next recommended activity is the processing of oyster mushrooms using other methods or other forms of products made from oyster mushrooms, to expand the marketing of processed products.

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