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**POTENTIAL SERUM OF LACTIC ACID BACTERIA IN
HORTICULTURAL COMMUNITY SERVICE ENTREPRENEURS
LKSA WIDHYA ASIH, BLIMBINGSARI VILLAGE TOURISM
AREA, JEMBRANA BALI**

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ABSTRACT

This paper explores the service to the horticultural community of LKSA Widhya Asih Blimbingsari located in the developing Blimbingsari Digital Tourism Village area, in the State district of Bali. Tells about the development of the community service program for empowering pre-adolescents and LKSA staff Widhy Asih Blimbingsari through the manufacture of fermented products and their derivatives based on rice washing water waste by the Dhyana Pura University team. This project has stimulated the home industry entrepreneurship movement among staff and pre-teens in the LKSA Widhya Asih Blimbingsari community. Using a logical framework in analyzing the steps in an effort to empower existing human resources through kitchen waste, horticulture and fermentation products from rice washing water waste, potentially supporting Blimbingsari tourism, this paper discusses the gap between the problems faced by LKSA Widhya Asih in terms of kitchen waste. with the prolonged Covid-19 pandemic condition, as a long-term desired anticipation, then describes the activities taken followed by the outputs produced and the results achieved from the implementation of the program, and notes some real impacts that have occurred in the LKSA Widhya Asih Blimbingsari community since its inception program.

Keywords: LKSA Widhya Asih, Blimbingsari, Waste, Rice Laundry, Serum

1. Introduction

The current Covid-19 condition has greatly affected the lives of the children of LKSA Widhya Asih Blimbingsari, so that some donors stopped their activities to continue their efforts to donate something to LKSA which is a community service partner. This condition greatly affects the food and clothing needs of children under five and pre-adolescent LKSA. Target partners are partners who are not economically productive, which of course requires additional income, skills, assistance and motivation to be able to meet the needs of clothing and food and the survival of foster children under the age of five and pre-adolescent LKSA Widhya Asih Blimbingsari Foundation.

The target partner is the Widhya Asih Child Welfare Institution (LKSA), located in Blimbingsari Village, Melaya District, Jembrana Regency. The location of LKSA Blimbingsari as a partner is about 150 km from Denpasar city and it takes 2 hours 41 minutes. LKSA Blimbingsari was established in 1977,

accommodating street children and children from poor parents with various background cases ranging from ages 5 to 15 years, totaling 82 people, chaired by Ni Luh Warningsih, S.Pd, secretary; Nenden Auriyany, SE, treasurer; Ni Nyoman Triati. Having 2 kitchen workers, namely Dewa Ayu Padi and Wayan Ester, who routinely process food ingredients into a menu every day, providing all school needs, is the responsibility of the Widhya Asih-Blimbingsari Foundation.

The purpose of this Community Partnership Service is to provide education, entrepreneurial skills in improving the nutrition, health and welfare of partners while at the same time helping the socio-economic contribution of the Jembrana local government, especially Blimbingsari. Based on the situation of LKSA Blimbingsari, it can be explained that several problems that are priority and require solutions are: 1) the kitchen staff is not optimal in terms of utilizing rice laundry waste and vegetables as ingredients that have the potential to be used as products that have high selling power, have economic value and potential entrepreneurs in the Blimbingsari Tourism area. As a solution, the Dhyana Pura University team and the Bali State Polytechnic provided solutions in the form of knowledge, training, assistance in the field of waste management and providing materials such as fresh milk, plastic bottles, tissue, scissors, and aluminum foil to support the service process. Second, the ability of LKSA Widhya Asih Blimbingsari staff is not optimal in terms of tricking rice waste into lactic acid bacteria serum which has the potential to be a product that is traded. As a solution, the PKM team provides knowledge, training and assistance on how to make lactic acid bacteria serum. Thirdly, the ability of LKSA Widhya Asih Blimbingsari staff is not optimal in terms of empowering lactic acid bacteria serum into processed products that are nutritious and have the potential as waste product processing products that have marketability and will contribute to Tourism Villages and especially LKSA Widhya Asih Blimbingsari. As a solution, the PKM team provides education, training and assistance in making products online and offline by showing a real demonstration of how to make home cheese from rice washing waste. The targeted outputs are knowledge and skills improvement, entrepreneurship, horticulture, nutrition, health and welfare, serum and home cheese products and fermented derivative products from lactic acid bacteria serum.

2. Literature Review

Lactic acid bacteria are a group of bacteria that produce lactic acid as a metabolic product. LAB is a gram-positive bacterium in the form of cocci, non-sporadic rods and microaerophilic. Lactic acid bacteria are generally found in the intestines and mouth of humans, vegetables and rice washing water waste. These organisms are heterotrophic and generally require complex nutrition during growth and development. The pH of foodstuffs can drop to below 4 to inhibit other microorganisms including pathogenic microbes, so that the product can last longerold (Rahmiati , 2017)

The highest nutritional content of rice is found in the skin. When washing rice, usually the first washing water will be cloudy. The cloudy color indicates that the outer layer of rice has also been eroded. During rice washing, about 80% vitamin B1, 70% vitamin B3, 90% vitamin B6, 50% manganese (Mn), 50% phosphorus (P), 60% iron (Fe), 100% fiber and essential fatty acids are dissolved by water (Alip, 2010 in Rahmadsyah, 2016).

LKSA Widhya Asih Badung is one of 6 branches of LKSA Widhya Asih spread throughout Bali. Each is located in Badung, Melaya, Blimbingsari, Singaraja, Bangli, and Amlapura. Accompanied by 6 assistants, LKSA Widhya Asih Badung fostered 42 children, consisting of 5 elementary school children, 13 junior high school students, 24 senior high school students, and 7 college students. Children who have studied in tertiary institutions no longer live in the LKSA, but are still part and responsibility of the LKSA. Located on Jalan Raya Cica, Abianbase, LKSA (Chrisma, P, D, et al, 2020)

3. Research Method

This paper is descriptive, (Diana, 2020) notes the development of the empowerment of LKSA Widhya Asih Blimbingsari staff in the community partnership service program through training on the utilization of rice washing water waste into various products that are useful for improving plant nutrition, fulfilling balanced nutrition, animal food nutrition, in community service. horticultural partnership in order to fulfill balanced

nutrition at LKSA Widhya Asih Blimbingsari. The method used to achieve the goal is interviews in the form of pre-test and post-test to explore the knowledge of members and the design used for RAA (rural rapid appraisal) and PRA (participant rapid appraisal). Learning by doing is used to measure the skill level when providing knowledge on the use of rice washing water waste, making BAL serum, JAKABA, sour cream and cheese. The methods that have been presented in this PKM can be carried out on an ongoing basis.

4. Results and Discussion

Reason

Through an analysis of the initial situation, the team found that one of the advantages of LKSA Widhya Asih Blimbingsari is its strategic location in the middle of the Blimbingsari Tourism Village and has the potential for a multiplier effect for the Gilimanuk, Singaraja and State regions. ongoing and successful then the possibility of achieving the contribution of the surrounding area increases. Therefore, University of Dhyana Pura views the importance of community development at LKSA Widhya Asih Blimbingsari for the surrounding area.

Although some fermented products, the utilization of kitchen waste has been carried out well, such as making ecoenzymes from kitchen waste from vegetable and fruit residues. And the ecoenzymes that have been made are still limited to meeting the needs of plants around LKSA Widhya Asih as liquid fertilizer that is consumable and making fertilizer from ecoenzymes takes a relatively long time of about 3 months of fermentation. However, knowledge, skills are still needed to shorten the fermentation period and innovation in the form of new products as additional ingredients for intake or plant nutrition around LKSA Widhya Asih to support the nutritional needs of pre-adolescent children so that nutritional needs can achieve balanced nutrition. This situation is what the Dhyana Pura University team is trying to change through a community empowerment program.

There has been a paradigm shift in the use of organic fertilizers, the traditional use of waste and its fermentation products in the community. Simultaneously with the implementation of this project, there was a paradigm shift in the Balinese community towards rice washing waste and its fermented products, which was welcomed. Recently, Balinese people are increasingly aware of the benefits of this kitchen waste and have begun to use the fermentation method to produce environmentally friendly products with the benefits of organic fertilizers and their processed products, and are increasingly using ecoenzymes to complement chemical fertilizers. and by-products obtained. This paved the way for the team, and helped determine the focus because this is something that has environmental health benefits, nutrition as well as economic value.

Statement of Problem and Purpose

Based on the reasons mentioned above, the Undhira team formulated the problem formulation and overall objectives for this community development project. The main problem that must be overcome is that LKSA Widhya Asih Blimbingsari rice washing water waste has the potential as a serum for making liquid organic fertilizers, cheese, sour milk that has not been utilized and can be used to increase the production of horticulture, food products by developing entrepreneurial activities, health, nutrition and economy; preteen, LKSA Widhya Asih staff less involved in rural economic development It was further determined that the aim of this project is to empower LKSA Widhya Asih Blimbingsari through the development of products from rice washing water waste that have potential in horticultural entrepreneurship efforts.

Resources

The leader of LKSA Widhy Asih Blimbingsari, Ni Luh Warsi, was very supportive from the start of the project. In the 2017-2019 cycle, the team has collaborated with KuPeKa (visiting care for love), namely alumni who group themselves consciously and care to partner with established LKSA Groups in West Bali and donate dozens of fruit plants such as avocados, guava, jackfruit, guava water because this project is in the vacant land use stage. Then in the second cycle of 2019-2020, which was stopped due to the covid-19 pandemic, finally in 2021 the project partnered with LKSA Widhya Asih Blimbingsari to continue the intake of nutrients for the growth of fruit plants which are currently in the vegetative period to increase

food and nutrition coverage. The benefit of the collaboration with the KuPeKa group is that there is a synergy in the procurement of raw materials or germplasm and so far they have had strong social ties with Blimbingsari LKSA partners. And partners already have experience cultivating horticultural plants in empty yards and making natural fertilizers from vegetable and fruit waste from the kitchen into coenzymes. There are 81 pre-adolescent members and 12 staff registered, with the pandemic a meeting was held with the staff to maximize the dedication that it would be more effective to train the main PICs (“core cadres”) and then they would train the others in their respective pre-adolescent groups. Thus, a multiplier effect is performed.

Activities

This activity can be divided into three stages. In the first stage, the activities revolved around curing rice washing water waste, instilling awareness among the pre-adolescent community and LKSA Widhya Asih Blimbingsari staff about the benefits and practicalities. Utilization of rice washing water waste is based on traditional ancestral traditions from generation to generation, coupled with scientific approaches and understanding. The second stage includes making the forerunner of serum LAB (lactic acid bacteria) by anaerobically fermenting rice washing water for 2 days, as well as recognizing and knowing the benefits of growing perennial lucky mushrooms (JAKABA) as a result of fermenting leri water if carried out for more than 2 days. potential to improve dry soil structure. The third step is to ferment for 5 days the fermented leri water mixed with whole milk to get a new product in the form of serum LAB (lactic acid bacteria), cheese and how to apply serum into derivative products such as liquid fertilizer, sour milk and yakult.

The results of community partnership service regarding the lack of maximum kitchen staff in terms of utilizing rice and vegetable washing waste as materials that have the potential to be used as products that have high selling power, have economic value and entrepreneurial potential in the Blimbingsari Tourism area. As a solution, the Dhyana Pura University team and the Bali State Polytechnic provided solutions in the form of knowledge, training, assistance in the field of waste management and providing materials such as fresh milk, plastic bottles, tissue, scissors, aluminum foil to support the service process, getting a positive response and feeling that The knowledge provided is very supportive and practical because the main ingredients are in the surrounding environment and are very easy to obtain. The dangers and other benefits are greatly affected, such as: there is no accumulation of liquid waste that does not look beautiful, giving a creative impression to get raw materials for making new products. As shown in Figure 1. Preadolescent children happily enjoy the results of the education provided by the Dhyana Pura University team, they take part in online training in an orderly manner and watch online education from the team. The results of PKM from the 1st problem provide the benefit of using a lot of rice washing waste every day as the forerunner of lactic acid bacteria serum products. Other perceived benefits are: getting fertile land from waste products that are applied to surrounding plants, and instant liquid fertilizer products that have been overgrown by JAKABA (eternal lucky mushrooms) which are useful for fertilizing the arid soil in LKSA Blimbingsari.



Figure 1. Educational activities for making Bal serum
(Source: Wiradnyani, 2021)

The results of the 2nd community partnership service were less than the maximum ability of the LKSA Whidy Asih Blimbingsari staff in terms of tricking rice waste into lactic acid bacteria serum which has the potential to be a product that is traded. As a solution, the PKM team provides knowledge, training and assistance on how to make lactic acid bacteria serum. The staff and pre-adolescent children received positive activities and were able to see tangible results from the way the team conducted demonstrations and mentoring, as shown in Figure 2. You can see the results of the serum will be obtained through online training and education, then PKM participants imitate what the PKM team directs, as a result of learning by doing with the help of several videos that the team has made and links whose content has been shown on youtube. The results of PKM on this 2nd problem are that participants are able to increase their knowledge and skills in making serum and apply lactic acid bacteria (LAB) serum into the daily menu served, get liquid fertilizer that has the potential to be sold at high prices, get seeds or starters as serum. home cheese production in a short time, serum for liquid fertilizer parent, serum for long term fertilizer manufacture.



Figure 2. Results of the training process for making serum BAL
(Source: Wiradnyani, 2021)

The results of PKM from the 3rd problem are less than the maximum ability of LKSA Widhy Asih Blimbingsari staff in terms of empowering lactic acid bacteria serum into processed products that are nutritious and have the potential as waste product processing products that have marketability and will contribute to Tourism Villages and especially LKSA Whidy Asih Blimbingsari. As a solution, the PKM team provides education, training and assistance in making products online and offline by showing a real demonstration of how to make home cheese from rice washing waste. The mandatory output that is targeted to be achieved is increasing entrepreneurial skills because from the cheese-making process there are by-products produced, namely sour milk (sour cream), home-made cheese to balance nutrition and health, serum lactic acid bacteria. Figure 3. Showing the process of making BAL serum and cheese online and offline



Figure 3. The process of making Cheese, Serum BAL, Sour cream
(Source: Wiradnyani, 2021)

When given offline education by the affirmation and evaluation team, the skills and knowledge and motivation of the LKSA Blimbing sari staff increased by 10% from the previous (90%) to produce cheese, BAL serum, or sour cream even though there were still errors in the production of stored BAL serum. for a long time, they provide less sugar than the rule so that the fermentation process continues and the lactic acid bacteria do not become inactive. In the graph of giving training by direct demonstration, almost 100% of the participants can make BAL serum, sour cream, cheese and JAKABA perfectly.

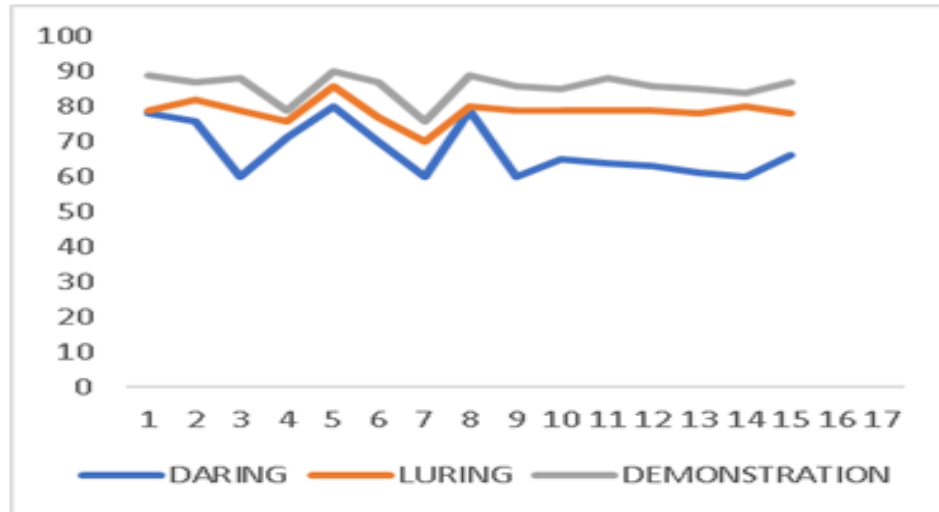


Figure 4. Graph of skill improvement and education on the use of rice washing water waste (Source: Wiradnyani, 2021)

Knowledge, training, assistance in the field of waste management on the problem of not being optimal for kitchen staff in terms of utilizing rice washing waste, training has been carried out independently by LKSA Whidy Asih Blimbingsari staff, accompanied online, offline, demonstrations have increased skills, knowledge in a measurable way, as shown in Figure 4. The graph shows that education that is carried out only online through videos of making serum, cheese, sour cream, JAKABA shows 80% ability to absorb the material presented and has not been able to make BAL serum products, Cheese, Sour Cream, JAKABA maximally, there were several embryos that were damaged because the surface of the media was tightly closed so that the fermentation was not completely successful.

Outputs

The staff of LKSA Widhya Asih Blimbingsari have been able to manipulate serum lactic acid bacteria into processed products that are nutritious and have the potential to be processed waste products that have marketability and will contribute to Tourism Villages and especially LKSA Whidya Asih Blimbingsari. As a solution, the PKM team provides education, training and assistance in making products online and offline by showing a real demonstration of how to make home cheese from rice washing waste. The targeted mandatory outputs are increasing skills in producing home cheese, BAL serum, applying serum tillers for additional products such as liquid fertilizer, sour milk and yakult which are useful for the coverage of nutrition, health and welfare of LKSA Widhya Asih Blimbingsari. This is as shown in Figure 5. The fermented product of rice washing water waste and its derivative products

The lactic acid bacteria serum program in order to achieve balanced nutrition has the potential to give birth to new entrepreneurs in the horticultural community service LKSA Widhya Asih Blimbingsari, the Blimbingsari Village tourist area is not only able to empower preteens and their staff but has been able to produce not only ready-to-use products and marketed for the village, but also has also sparked interest in germplasm activists, horticultural farmers, and the development of green entrepreneurs based on rice washing water waste in Blimbingsari village.



Figure 5. Fermented products of rice washing water waste and its derivative products
(Source: Wiradnyani, 2021)

While the direct economic impact still needs to be investigated further, the empirical impact on education, training, and mentoring carried out by Dhyana Pura University in the village is already visible. The staff are empowered to be more active in following the latest waste treatment developments and develop their own business and home entrepreneurship business ideas related to fertilizer products, food, including healthy drinks for the needs of pre-teens in the Blimbingsari LKSA and others. This project has also laid the necessary foundation for the Blimbingsari Tourism Village to become a digital tourism village destination, in addition to increasing the knowledge of the population in terms of digital and marketing as well as improving their economic situation by producing products based on kitchen waste so that this is an early anticipation when a surge occurs. tourists who will come to Blimbingsari Village

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