

NATA DA LONTAR: PROCESSED FRUIT LONTAR STEADY THE ECONOMY OF PKK MOTHER IN TIANYAR VILLAGE

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ABSTRACT

East Tianyar Village is located in Kubu Subdistrict, Karangasem Regency, Bali Province. With an area of approximately 20.35 km², Tianyar Village or East Tianyar based on data from the Central Statistics Agency in 2017 is 11,836 people. East Tianyar Village is approximately 40 km from downtown Amlapura and approximately 54 km from the Central Campus of Ganesha Education University, Singaraja. The topographical condition of East Tianyar Village is dry, sandy, and rocky due to the cover of the volcanic material of Mount Agung, which erupted in 1963 (Suarsana et al., 2017). This condition makes the ejection vegetation easy to find in East Tianyar Village. According to Pellokila in Asrial (2008), almost all parts of the lontar plant can be used for various purposes such as building materials, household furniture, and art / cultural items. Some of the lontar plant roles utilized are fruits, stems, and leaves. Therefore, product development from the lontar tree can be done, especially diversification of processed products of lontar fruit into high-value village superior products. This activity aims to increase partners' income, namely Ms. PKK in West Tianyar Village. The method used is extension and practice of processing the diversification of products made from the stuffing of lontar fruit. The results obtained are that partners can produce nata da lontar independently. Partners know about processing lontar fruit that can be utilized to make nata da lontar, increase revenue, and the existence of marketing its products.

Keywords: nata da lontar, East Tianyar, Lontar

INTRODUCTION

Kubu Subdistrict, Karangasem Regency, is the center of the siwalan tree, known as Bali's lontar tree. One of the villages in Kubu Subdistrict that has the potential of lontar is Tianyar Village. Tianyar Village or East Tianyar Village is about 40 km from Amlapura City, the capital of Karangasem. Most of the population is livelihood as farmers, and ejection crops can be found on almost every farmer's land.

The topographic conditions of Tianyar Village or East Tianyar Village are dry land that makes ejection trees able to live well. Therefore, the villagers depended on their lives from harvesting ejection trees to meet their needs. The Lontar tree (*Borassus flabellifer*) is one of the multifunctional plants. All parts of the lontar plant can be utilized in various products so that this tree is also referred to as the tree of life. They start from fruits, flowers, and leaves that can be processed into various crafts. Ejection trees are also producers of ejection fruit. This fruit is a fruit with a distinctive and fresh taste.

According to the narration of I Nyoman Rena as the people of Tianyar Village on November 9, 2021, this lontar fruit can be consumed directly or used as stuffing from drinks. It can also be used as a health drink. Unfortunately, the use of lontar fruit in health drinks has begun to rarely even stop. People use it more into tuak Nira drinks only. This happens because sugar production requires more costs to process it into harvest.

Mitra also acknowledged that this problem increased during the Covid-19 pandemic. The fading economy makes people process Nira lontar into tuak Nira drinks only for more efficient reasons. Wayan also said that sugar previously had not competed with similar products from outside the village. This happens because the packaging is not yet attractive and is still very simple. Thus, the existence of this ejection potential had not been comparable to the human resource potential in East Tianyar Village. In short, the issues raised in East Tianyar Village were as follows.

Table 1. Problems in East Tianyar Village

No	Business	The root of the problem
1	Not yet the maximum result of the lontar fruit	The low human resources of East Tianyar Village has great potential in the development of existing resources, especially processed lontar fruit. Currently, the lontar part is only used as a woven lid (Inka), tuak Nira drink, and upakara facilities.
2	Lontar processed products	The ability to develop creativity in packaging and the low ability to use science and technology makes the production of lontar fruit is not good. Coupled with the Covid-19 pandemic that impacts the lack of production costs and production of erratic process fruit making lontar fruit only processed or consumed privately.

Based on the description of the partner's problems above, the solution agreed with partners is to empower PKK mothers of Tianyar Village in diversifying processed products of lontar fruit. The resulting product in lontar fruit is made into nata as a filling of health drinks or healthy snacks. The packaging contains aesthetic product labels by reusing webbing from ejections for various attractive shapes (Setiawan Sabana, 2007). That way, the diversification of processed fruit lontar can be realized into the superior products of high-value villages.

Nata is a food fermented by the bacterium *Acetobacter xylinum*. This food is solid, sturdy, strong, white, transparent, and chewy textured with a taste similar to kolang-kaling. This product is widely used as a mixture of ice cream, fruit cocktails, syrups, and other snacks. According to Astawan (2004), the term nata comes from Spanish, translated into Latin as natare, floating - floating. Nata is the result of fermented ingredients with the help of the microbe *Acetobacter xylinum*. The sugar in nata is

converted into acetic acid and cellulose threads. Over time a solid mass will be formed and reach a thickness of several centimeters. Nata can also be considered bacterial cellulose that is solid, white, transparent, sweet, chewy textured, and generally consumed as a snack. According to Pambayun (2002), nata can be cultivated from coconut water and various ingredients containing sugar, 13 proteins, and minerals, such as fruit juice, soy juice, and even sugar water. Therefore the name nata can vary according to the ingredients used, such as nata de soya (from soy juice), nata de mango (from mango juice), nata de pina (from pineapple juice), nata de coco (from coconut water).

Nata de coco is a food derived from the fermentation of coconut water with the help of acetobacter xylinum bacteria. Nata can be used as a dessert and is rich in fiber. The formation of nata requires nitrogen nutrients. It is necessary to know the type of nitrogen source and the exact composition in its fermentation. The research was conducted in two stages: looking for nitrogen sources and the right composition. Lipi research results showed that urea gave the best results in producing nata de coco with a yield of 87.36%, a thickness of 8.6 mm, with a composition of 5 g in 600 ml of coconut water. This research is expected to provide information on the right nitrogen source and composition to obtain the best results nata de coco.

METHOD

Pkk mothers of East Tianyar Village will be trained to make nata da lontar from lontar fruit with a smaller size and attractive shape and trained how to package attractive lontar fruit processed products into the packaging.

1. Preparation Stage

The preparation phase is carried out within one month, focused online. The activities were carried out to determine the place to be targeted, request permission, and coordinate with the village head and PKK East Tianyar Village. Preparation of the schedule of activities, preparation of implementation manual, application preparation (zoom meeting or google meet) and checking the stability of connections during online activities, and the preparation of tools in sugar making and packaging manufacturing.

2. Implementation Stage

The implementation stage is offline, starting with socialization at East Tianyar Village Hall. Then teach how to pack nata da lontar and make packaging environmentally friendly and easy to carry. Finally, the application with the training of PKK mothers and the empowerment of the manufacture of nira lontar sugar through diversification of processed nira and utilization of lontar leaves, packaging, and marketing with the production, packaging, and marketing activities of Nira and lontar leaves.

The implementation stage is carried out ten times in 10 weeks. As for the activities carried out in the stage of torture as follows:

- a. the device to be used online can function because the activities are carried out online, then the application to be used for PKK mothers must be able to function.
- b. Preparing ingredients from lontar fruit and also molding tools and processed packaging of lontar fruit
We are preparing materials and tools to support activities running well and optimally. The tools used are delivered: Furnace, Firewood, large frying pan, spatula from coconut shells, clay Wascom, silicone molds, knives, bamboo (as a measuring tool breaking ejection leaves). Ingredients needed: lontar fruit water and lontar leaves, lontar leaves.
- c. Training in making nata da lontar

Here trained how to make nata da lontar more practical when consumed by changing its shape smaller and attractive and making environmentally friendly packaging. The training provided is:

1. Boil the lontar fruit in a saucepan until it boils for 3 minutes.
2. Pour the granulated sugar into the boiling coconut water. Turn off the stove and let the coconut water cool.
3. Pour about 10 ml of vinegar acid into a solution of coconut water to acidity of about 4.5. Ph measurements can use litmus paper.
4. Add acetobacter Xylinum starter bacteria to the solution, stirring evenly.
5. Pour the dough into a baking sheet or basin, cover the nata de coco ingredients with newspaper and tie with a rope. Make sure the newspaper is clean or at least has been sunbathed with the heat of the sun.
6. Keep the baking sheet in a stable rack, not easily shake, and avoid shocks.
7. Wait for approximately 14 days to become nata.
8. The finished nata de coco will harden following the pattern of the baking sheet.
9. Next, the finished nata de coco is washed with water and soaked for 2-3 days.
Change the clean water every day.
10. After soaking, boil with sugar water to make nata de coco chewy and sweet.
11. Slice, according to the cellar, using a kitchen knife and nata de coco, is ready to be served with syrup or other beverages.

- d. Assistance in the manufacture of nata da lontar, printing nata da lontar, and packaging of lontar leaves Assistance of PKK mothers are allowed to continue the manufacture of lontar fruit and lontar leaf packaging in their respective homes. Mentoring activities are carried out to ensure the community understands the training results and can develop them themselves. Mentoring aims to direct the resulting fruit and lontar leaves products that meet good and maximum criteria.

e. Fruit Products and Lontar Leaves

PKK mothers presented the prints of nata da lontar and the packaging of lontar leaves that had been made. Other participants gave input and suggestions to improve the results of product manufacturing.

3. Evaluation Stage

The evaluation stage is carried out to find out the success of the PKM-PM program using the work of PKK mothers; PKK mothers are welcome to fill out a google form to fill out an evaluation questionnaire, see the development of PKK activities from the program that has been taught. Two aspects are evaluated in this activity.

- a. The activities of participants during the training take place

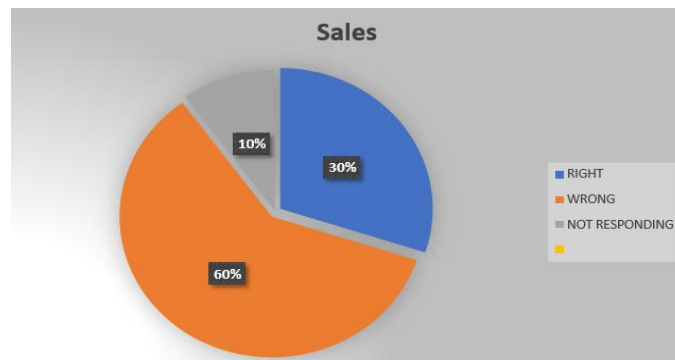
Success can be seen from the participation and activity of participants during both discussions, practices, and product results. The activity is successful if 80% of PKK mothers are present at every meeting held ten times.

- b. Nata da lontar products and lontar leaf packaging produced by participants Each PKK mother can produce one packaging of lontar leaves, and some molds of lontar leaves with minimal good quality. Fellow PKK mothers will evaluate the product.

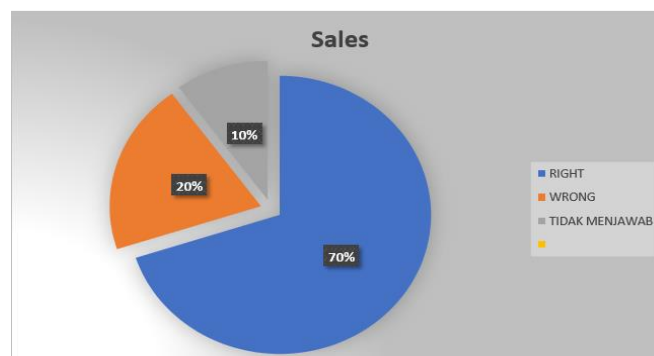
RESEARCH RESULTS AND DISCUSSION

Test Deployment Results

1. Pre-Test Information about nata da lontar and making nata da lontar (before socialization and training process)



2. Post Test Nata da lontar and making nata da lontar (after socializing, lontar fruit processing training)



From the results of tests that have been done before and after training, the level of understanding of PKK mothers is different. Before the training conducted by the author of the level of understanding of the partner community regarding nata da lontar, how to make nata da lontar, and the benefits of nata da lontar are still very lacking, this is due to the lack of information obtained by the people of Tianyar village, especially the mother of PKK mother Tianyar village. After the training that we have done, ibu ibu PKK knows the benefits of nata da lontar, how to make nata da lontar and how to market nata da lontar.

Results Achieved

In the activities that have been carried out, namely training in making nata da lontar from lontar fruit, PKK mother is independently able to make nata da lontar from lontar fruit by her group. She can make and package existing lontar fruit products in nata da lontar. To improve the management of lontar fruit, the PKK's mother formed a group of nata da lontar makers under the name "Asri Group" Asri group is expected to market its products on stalls in partner areas, tourist attractions, and store shops. In addition to PKK's mother marketing her products, the author helped market nata da lontar products from training at the Student Cooperative, making stands at expo and exhibitions. With the results achieved, the income of PKK mothers increased from previous income only as housewives. The benefits of lontar fruit products are not only felt by PKK mothers; the user community also feels the benefits of nata da lontar for health.

The results obtained from this activity are as follows.

PKK mother's mother is independently able to make nata da lontar from lontar fruit by her group

The PKK's mother formed the nata da lontar group under the Asri group and marketed Nata Da Lontar products.

Pkk mother group can market its products on stalls in partner areas, shops, and other places.

Pkk mother group can utilize waste in the production process for animal feed.

The enthusiasm of the PKK mother towards the implementation of the program is characterized by absenteeism.

The PKK Mother Group's understanding of Nata Da Lontar and its manufacture has increased, which can be seen from the results of pre-tests and post-tests.

The empowerment of human resources (H.R.) is right, namely in the form of training programs and management of lontar fruit in PKK mothers who have the potential to create a trickle-down effect (impact effect). The effect that appears is the existence of training products, namely Nata Da Lontar, and the increase in the income of PKK mothers as triggers for the economic embryo of coconut farming communities.

CONCLUSION AND SUGGESTION

From the activities that we have done we can conclude that the training of making nata da lontar products from lontar fruit to PKK mothers in Tianyar village is very useful given the benefits of programs that can produce typical products from PKK mothers of Tianyar village and on target to the built community, namely by increasing income and providing skills for PKK mothers. That PKK mothers in Tianyar village are empowered, and this program is sustainable namely product development, so it can still be done and sustainable.

With this training, we expect support from the local government. In the marketing process, there will be a special space for PKK mothers to market products from lontar fruit as typical products of Tianyar Village.

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