

# International Journal of Arts, Humanities and Social Studies

Website: https://www.ijahss.in/

ISSN(Online): 2582-3647

Volume 3; Issue 6; Nov-Dec 2021; Page No. 100-106

Original Paper

# Open 6 Access

## Development of Tri Datu Snack Culinary Business To Support The Local Economy In Mengesta Village

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## **ABSTRACT**

The uncontrolled use of artificial food coloring will have a negative impact on health. One of the natural food coloring ingredients is Angkak which is produced from fermented rice. Mengesta Village is well-known as a local rice producer with distinctive characteristics, which is grown organically. The version of processed food made from rice in this area has not been done much. The purpose of implementing this PPPUD activity is to produce innovative products in the form of  $Tri\ Datu$  snacks and describe the entrepreneurship motivation of the target community. The research method uses the PAP (Participatory Assessment and Planning) method which consists of four main steps, namely (1) finding problems, (2) identifying potentials, (3) analyzing problems and potentials, and (4) choosing problem solving solutions. Data analysis was carried out descriptively and qualitatively. The results of this study are: produce a variety of products in the form of Angkak (Red Mold Rice) and  $Tri\ Datu$  snacks, namely snacks consisting of three types of colors from the original rice color and three types of snacks (begina, uli, and matahari), with good quality. Entrepreneurial motivation from partners is very high. Thus, new economic sources will grow that will support local economic growth.

**Keywords:** Organic rice, angkak (Red Mold Rice), Tri Datu snacks, entrepreneurial motivation.

Citation: Parwati, N. N., Suharta, I. G., & Tungga Atmadja, A. (2021). Development of Tri Datu Snack Culinary Business To Support The Local Economy In Mengesta Village. *International Journal of Arts, Humanities and Social Studies*, 3(6), 100-106.

## INTRODUCTION

The use of bright colors in food is often appetizing, especially among children. However, often the ingredients used as food coloring are made from chemicals that are harmful to health. Many research results have found that the use of artificial dyes has a high risk to health, including causing itching, asthma, tumor growth, and can even have an impact on behavioral disorders, such as anger and depression [1,2].

The use of synthetic food coloring is often used by food manufacturers for several reasons, including because the price is relatively cheaper and the color is bright so it is appetizing. The use of dyes such as Rhodamine B and methanil yellow, for example, is carcinogenic, if used in the long term it will trigger diseases such as cancer and tumors in human organs [3]. Until now, there are still many found circulating in the market, foods that use dyes made from these dangerous chemicals. Worse still, these food products target children, because they tend to choose foods with bright and attractive colors for them. The public (parents in particular) are required to be careful in choosing foods that contain artificial colorings as mentioned earlier. This is because the impact caused by food with artificial coloring, can not always be felt in the immediate future. However, the impact is often in the long term.

Nature has actually provided coloring materials that can be used as additions to food to make the appearance of the food more attractive and safe for health. One of them is a dye that comes from rice. One of the areas in Tabanan Bali which is famous as a producer of good quality rice is Mengesta Village. Mengesta Village, Penebel District, Tabanan Regency, Bali, is about 55 km from Singaraja City (the research location), with a travel time of approximately 2 hours. The boundaries of the Mengesta Village area are as follows. To the north of the hills bordering the Buleleng district, to the east of the Baturiti sub-district, to the south of the Marga sub-district, and to the west of the Selemadeg sub-district.

The area of Penebel sub-district is 14,198 ha, located at an altitude of 159-1,087 above sea level. An area of 4,437 Ha is a rice field area. The characteristics of this area are archipelagic areas which have a sloping to wavy topography consisting of hilly areas and rice fields. Based on these characteristics, most of the land use is cultivated for rice as the main crop. The type of rice plant that is developing well in Mengesta Village in particular is the local red rice plant (red sandalwood rice) with a planting age of about 6 months. Mengesta Village is famous as a producer of local brown rice, black rice, and local white rice, which are the flagship products of the Mengesta Village.

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The superior products produced by farmers in Mengesta Village have been marketed by two MSMEs in this area in the form of marketing unprocessed rice and marketing products that are processed into snacks. The partners involved in this research are (1) *UD Arisa Jaya* and (2) *IRT Rama* Cake. Both partners are engaged in similar business fields, namely food and agribusiness. The current condition of each partner is described below.

## 1) Partner I: UD Arisa Jaya

*UD Arisa Jaya* is engaged in the supplier, manager, and seller of agricultural products and organic fertilizers. The location is 5 km from the sub-district of Penebel and 14 km from the district of Tabanan. In running its business, it employs 6 people in the rice production business, 5 people in the production of organic fertilizers, 2 drivers and 1 administrative staff. Access road in the form of asphalt roads with quite good quality. electricity, water, and telecommunications are readily available. The equipment owned is a set of rice mills, a set of rice dryers (dryer), and a set of organic fertilizer making machines (figures 2 and 3). The investment value of the equipment owned is around 1.5 billion. In running its business, it is assisted by operational vehicles, in the form of 1 large truck, 1 ankle truck, 1 grand max vehicle, and 2 motorcycle units, with an investment value of around IDR 500,000,000. The building is owned by 1 rice factory room with an area of (20 x 15) m, 1 storage warehouse for rice and unhulled rice (10 x 7) m, 1 storage room for production products with an area of (7 x 5) m, 3 units for each fertilizer production area. area (20 x 7) m.

The raw materials needed to carry out their business are in the form of rice/grain and the raw materials for making fertilizers are livestock waste and agricultural waste. The suppliers of raw materials are farmers in the local village area who are members of organic farmer groups that cultivate local rice as a rice producer, namely: sandalwood red rice, black rice, and white rice. The rice planting period cultivated by farmers here is 6 months. The farming system used is organic farming, using organic fertilizer produced from *UD Arisa Jaya* in collaboration with the organic rice farmer group *Somya Pertiwi Banjar WongayaBetan, Mengesta* Village, *Penebel* District, Tabanan.

Rice produced from farmers in the Mengesta Village area which is managed by organic rice farmers is of very good quality, some of which have succeeded in reaching consumers from hotels and restaurants in Bali, one of which is "Bali Tangi" which is located in the city of Denpasar. In addition to producing rice, *UD Arisa Jaya* is also a producer and supplier of organic fertilizer for farmers in the Tabanan and surrounding areas. The raw material used to make fertilizer is livestock waste obtained from farms in the Tabanan and surrounding areas.

Based on the researcher's interview with the owners and employees of *UD Arisa Jaya*, which was held on July 28, 2020, the following information was obtained. The average rice production produced by *UD Arisa Jaya* in one month is 4.5 tons with an average price of IDR. 81,000,000. The average organic fertilizer produced in one month is 2000 sacks with a selling price of IDR 25,000/bag. Rice product packaging techniques, available in sizes 25 kg, 5 kg, and 1 kg using pressed plastic.

# 2) Partner II: IRT "Rama Cake"

IRT "Rama Cake" is engaged in food production of various types of cakes in the form of wet cakes, namely: cakes, muffins, sponge cakes, and brownies as well as pastries, namely traditional Balinese traditional ceremony snacks. The type of processed food that has been successfully made is brown rice tea. In running its business "Rama Cake" employs 6 workers. The road access is quite good (asphalt road). Electricity, water, and telecommunications are readily available. The distance to the district city is 5 km, to the district city is 13 km.

Some of the equipment that has been owned are as follows. Oven 2 pieces, 6 pieces pans, 200 pieces small cake molds, 10 medium size cake molds (15 cm diameter), medium cake molds (20 cm diameter) 5 pieces, large cake molds (25 cm diameter) 2 pieces, 1 mixer, and 1 gas stove (figure 4), 2 operational vehicles. The investment value is around IDR 225,000,000. The rooms owned are 1 production room with an area of  $(10 \times 7)$  m, 1 room for product storage and packaging with an area of  $(4 \times 5)$  m.

The raw materials needed to run the business are rice flour and brown rice to make tea. The rice used is the result of agricultural production in the Mengesta Village area which is produced by *UD Arisa Jaya*. In one month the average wet cake produced is 10,000 pieces of wet cake at a price of IDR 2000/seed and 15,000 pieces of pastries in the form of typical snacks for ceremonies in Bali at a price of IDR. 500/seed. The average price is IDR 27,500,000. In addition, "Rama cake" also produces brown rice tea with consumers' not only local residents but also foreign tourists. Product packaging technique using simple technology is packaged in plastic wrap and then pressed. In one month, about 10 kg of brown rice tea is produced at a price of IDR 50,000 to IDR 75,000 per kg. Product marketing is done by selling directly to consumers, especially during Hindu religious holidays. In addition, marketing is also carried out by sending it to shops in the Tabanan and Denpasar areas.

Based on the current condition of the two partners, it can be observed that both partners are developing businesses in similar fields, namely food and agribusiness. They have a strong commitment to optimizing the potential of the region, both natural potential, human resources, and local culture. This can be seen from his business products are derived from local agricultural products, based on local culture. Judging from the quality of the products of these two partners, they have a great opportunity to penetrate a wider market even as an export product. This is because, until now, rice is a basic need of the Indonesian people in particular. In addition, judging from the quality of the rice produced by the partners, it is broken skin rice which contains vitamins that are still intact. This rice is also the basic ingredient for making red rice tea with a distinctive aroma and taste that other regions in Bali do not have. However, in running their business there are still many obstacles experienced by the two partners who require a touch of science and technology.

The priority problem that is handled through this research that has been agreed with partners is that the variety and packaging of the product is still lacking and not innovative, thus hampering the pace of sales. Most of the rice products are sold in bulk (kwintalan) at a price much cheaper than the retail price on the market. Processing of products into food uses artificial coloring and flavorings which tend to endanger health. The types of products produced are still limited with quality that has not been tested for safety standards for consumption because they do not have knowledge in related fields. The goals and objectives targeted through this research are as described in table 1.

Table 1: Target and Goals

Target	Goal
Carry out training and Assistance for Partners:	Increased knowledge and skills of partners to produce:
a. Making product variations by utilizing technology,	a. variations of red/black organic rice packaging that meet
namely making red rice Angkak and various	export quality standards; and
Balinese traditional cakes/snacks with natural dyes	b. variety of healthy food products, in the form of traditional
from rice.	Balinese snacks.
b. Good and attractive product packaging, and meet export quality	c. increase partner motivation for entrepreneurship.

In implementing the solutions offered to solve partner problems, it is carried out by applying technology based on research results and the first theoretical study related to the manufacture of red rice *Angkak*. Red Mold Rice (RMR) also known as red yeast rice or *Angkak* is fermented rice in which the food fungus Monascus sp. is grown. RMR is said to facilitate the process of digestion, blood circulation, strengthen the intestinal wall or stomach function [4][5]. Traditionally, RMR is used as a colorant, flavoring, and food preservative. This RMR product can be added to snacks, meat, fish or soup in the cooking process to give it an attractive color and add flavor.

The genus Monascus is divided into 4 species, namely M. pilosus, M. purpureus, M.rubber, M.floridanus. Natural pigments that have been successfully extracted are known as food coloring and Monascus also produces pigments which are divided into 3 groups. The three groups are: (1) orange pigments, named monascorubin and rubropunctanin, 2) yellow pigments, named ankaflavins and monascin, and 3) red pigments, named monascorubramin and rubropunctamin. These pigments contain proteins, peptides, amino acids and nucleic acids in their products or culture media. [5] stated that in the *Angkak* fermentation process, the pigments were formed sequentially, namely at the beginning of the fermentation the hypha of M. purpureus was yellow, then the adult ascomata part produced an orange pigment color (orange) and the adult ascomata part produced the pigment color. Red. To see the yellow pigment used a wavelength of 390 nm, while the red color with a wavelength of 500 nm.

Currently, research on *Angkak* has been widely carried out in Indonesia as reported by [6][7], making shrimp paste using natural dyes derived from *Angkak* powder, showing the addition of Angkak powder by 0.5 %, 1%, and 1.5% and 5% salt concentration can increase the color of the shrimp paste without causing changes in taste, smell, and texture. [8][9] reported that *Angkak* made from red rice cultivar BP18041F9 had higher yellow and red pigments than *Angkak* derived from red rice cultivar Bali Butong. The lovastin content in the two tested brown rice cultivars was in the average range of 0.92% compared to that of white rice, which was 0.21-0.27%. The resulting Angkak is used as a snack coloring agent.

## MATERIALS AND METHODS

This research method uses the PAP (Participatory Assessment and Planning) method which consists of four main steps, namely (1) finding problems, (2) identifying potentials, (3) analyzing problems and potentials, and (4) choosing problem solving solutions. The research method is presented in table 2.

Table 2: Research Methods

eet and Recognize	Analyzing	Choosing a	Indicator
Potential	Problems and	Troubleshooting	Achievements
	Potential	Solution	
aw materials are vailable in the orm of various /pes of rice in ufficient uantities with ery good quality.	The available raw materials have the potential to be developed as creative economic sources that have a higher selling value	Increase knowledge and skills in the form of training and assistance in making various versions of	<ul> <li>Produce traditional Balinese snacks with good quality and safe for consumption.</li> <li>Increased partner motivation in entrepreneur ship is minimally high.</li> </ul>
V D1 /[ U	w materials are ailable in the rm of various pes of rice in fficient antities with	rw materials are ailable in the ailable in the are of various best of rice in antities with ry good quality.  Potential The available raw materials have the potential to be developed as creative economic sources that have a higher	Potential  We materials are ailable in the ailable in the above the potential to be assistance in making developed as another with ary good quality.  Potential  The available Increase knowledge and skills in the form of training and assistance in making and various versions of antities with ary good quality.  Potential  Solution  Increase knowledge and skills in the form of training and assistance in making food products from rice, including sources that have a higher snacks with natural selling value dyes from rice, as well

## **Research Implementation**

The implementation of this research involves two partners, namely *UD. Arisa Jaya* and *IRT. Rama* Cake. These two partners in running their business utilize superior products produced by local villages, namely various versions of products from sandalwood type red rice. These two partners were actively involved in all programs designed together in this research, starting from participating in training activities and implementing mentoring activities.

Evaluation of the implementation of research activities, seen based on the achievement of research implementation includes: (1) additional product variations in the form of innovative traditional rice cakes and snacks with good quality; and (2) the existence of entrepreneurial motivation from partners with a minimum of high category. All data collected were analyzed descriptively and qualitatively.

## RESULTS AND DISCUSSION

#### Raise Red Rice

The brown rice product that has been successfully made is *Angkak* which functions as a health drink and as a producer of natural dyes that are safe for consumption as food coloring. Red Mold Rice (RMR) also known as red yeast rice or *Angkak* is fermented rice with food fungus Monascus sp. RMR can facilitate the process of digestion, blood circulation, strengthen the intestinal wall or stomach function. RMR is very safe to use as a colorant, flavoring, and food preservative. This RMR product can be added to snacks, meat, fish or soup in the cooking process to give it an attractive color and add flavor.

Treatment so that *Angkak* can be used as cake coloring, follow the steps below. (1) A spoonful of brewed with hot water, leave for about 5-10 minutes, discard the water. (2) Brew again, leave for about 5-10 minutes then drain the water. (3) Do it one more time (3x total). (4) Drain. (5) Knead/blender until it becomes a powder that is ready to be mixed with the cake ingredients.

## Snack Tri Datu

The results of the research are variations of *Tri Datu* Snack products. This *Tri Datu* snack is made from rice products produced by farmers in Mengesta village, which are cultivated by the organic farming group "Somya Pertiwi". The three types of rice which are the basic ingredients for making these snacks are quality agricultural products. The brown rice produced is sandalwood type brown rice which can only thrive in this village area. In processing agricultural products into food, especially this *Tri Datu* snack without using artificial/chemical coloring materials. All ingredients are made naturally including coloring by utilizing the natural color of rice. So that all these snack products are safe for consumption and safe for health. The taste is very savory and crunchy because the snack production is well managed.



Figure 2: Training on Making Tri Datu Snacks and the resulting Products

Angkak produced from fermented brown rice is used as a coloring agent for the Tri Datusnack. Snack *Tri Datu*is the name given to traditional Balinese snacks which are commonly used as upakara snacks in Hindu religious rituals. Giving the name *Tri Datu* is an innovation that is carried out by combining superior local products with the philosophy of life adopted by the community. Three types of colors are served in these snacks, namely: red, white, and black. In addition to the color, the snacks are packaged into one consisting of three types of snacks, namely: snack *begina* (*rengginang*), snack *uli(jajeuli)*, and snack *matahari/sirat*. This snack is made red using natural dyes made from red rice *Angkak*. Jajeuli is white in color which comes from the original color of white glutinous rice. Sun snacks are made from black rice flour with a natural black color from the color of black rice.

This *Tri Datu* snack has philosophical value for Hindus in particular. *Tri Datu* comes from the word Tri which means three and Datu which means color [10][11]. So *jajan Tri Datu* means snacks with three colors, namely: red, black, and white. These three colors symbolize the holiness of God in its manifestation as Tri Murti. Tri Murti includes Lord Brahma as the creator which is symbolized by the color red. Lord Vishnu as the preserver, symbolized by black, and Lord Shiva as the savior, symbolized by white. In the context of literacy, it is represented by the Ang-Ung-Mang script, the union of the three becomes AUM or OM (Omkara or Ida Shang Hyang WidhiWasa/God) [10]. For Hindus, the use of these three types of colors will always remind them of the greatness of God, namely as the creator, preserver, and dissolving agent. These three things also symbolize the cycle of life, namely birth, life, and death.

The name *Tri Datu* was also chosen from the philosophy contained in the names of the three types of snacks chosen, namely snacks *begina/gina*, snacks *uli*, and *matahari* snacks as a substitute for *sirat* snacks. Snacks like this have the meaning of remembering with *geginan*, or remembering with duties and responsibilities. Snack uli has the meaning of "ulan laden" or earnestly and diligently in carrying out duties and obligations. Snack of *matahari/sirat* has the meaning of wisdom, like the sun without favoritism in giving its light to the earth or jajansirat has the meaning of "apangmesirat" which means that what is done is real. Thus, the three snacks used as a means of ceremony have the meaning of gratitude to God / Ida Shang Hyang WidhiWasa for carrying out duties and responsibilities diligently, with full sincerity, based on a sincere feeling so that what is done gets the best blessing from Lord.

The snack *Tri Datu* has been validated based on expert opinions, namely from Hindu clergy, academics, and community opinions. Based on the opinion of the clergy, the *Tri Datu*snack (Figure 01) is very appropriate to represent the meaning of expressing gratitude to God as a means of performing rituals in Hinduism in particular. The product quality of the resulting *Tri Datu* snack has been validated by 3 academics and 12 consumers using a questionnaire. The questionnaire used includes: the quality of the ingredients used, taste, and appearance, using a Likert scale with five grading options (1. Very not good; 2. Not good; 3. Fairly good; 4. Good; 5. Very good). The results of the questionnaire distribution obtained that the average score of the respondents' opinion was 98.6 which was in the very good category.

*Tri Datu* snacks besides having a philosophical meaning as mentioned earlier also have a delicious and very savory taste. This is because these snacks are made from quality ingredients without preservatives, using original dyes from rice, and rice used from organically grown agricultural products. Therefore, the various snacks from this *Tri Datu* snack are very suitable for consumption by consumers from various circles (not only the Hindu community).

## **Entrepreneurial Motivation**

Entrepreneurial motivation is known based on the distribution of entrepreneurship motivation questionnaires using a Likert scale with five grading choices. The questionnaire given contains 15 statements as follows.

- a) Getting a better source of income is my motivation to enter the world of entrepreneurship.
- b) I choose entrepreneurship because I can manage my own work schedule.
- c) I choose entrepreneurship because I can determine the amount of profit I will receive.
- d) I choose to be an entrepreneur because I can manage my own company regulations.
- e) I feel challenged to do a job that frees all my creativity.

- f) I am optimistic that I can succeed if I become an entrepreneur.
- g) I think that the higher my morale, the higher my success will be.
- h) Becoming a successful entrepreneur is what I dream of.
- i) I want to be independent in the economic field, do not like to depend on others.
- j) I feel happy if I can fulfill my primary needs as a result of entrepreneurship.
- k) I am a person who has a great responsibility in carrying out the decisions I take.
- 1) I am optimistic, if I am an entrepreneur my future will be more secure.
- m) I will become a successful entrepreneur in order to open up job opportunities for others.
- n) I feel that I have sufficient skills needed for entrepreneurship.
- o) I will continue to be patient in developing my business until it reaches success.

Based on the results of the questionnaire given to 10 respondents consisting of MSME actors, PKK mothers, and other potential consumers, the results are as shown in table 3.

Table 3:Participants' Responses to Entrepreneurial Motivation

Average Score $(\overline{X})$	Many Respondents (people)	Category
$4.2 \leq \overline{X}$	9	Very positive
$3.4 \leq \overline{X} < 4.2$	1	Positive
$2.6 \le \overline{X} < 3.4$	0	Enough
$1.8 \le \overline{X} < 2.6$	0	Negative
$1.0 \le \overline{X} < 1.8$	0	Very negative
Total:	10	

Based on table 3, it can be seen that the number of respondents who have a minimum "positive" response is 10 people (100%). No one had enough, negative, or very negative feedback.

Business development opportunities in the food sector are very wide open in this region. This is because the raw materials are very abundant with good quality. Based on the results of the questionnaire given to 10 respondents consisting of MSME actors, PKK mothers, and other potential consumers, the results are as in table 3. Based on table 3 it can be seen that the number of respondents who have a minimum "positive" response is 10 people (100%). No one had enough, negative, or very negative feedback. This indicates that the mothers of the training participants are highly motivated to develop new businesses by utilizing the superior results of local agriculture.

In addition, by utilizing sources of regional superiority as products of economic value, it will encourage the growth of MSMEs in the target area which has a direct impact on local economic growth. This is in line with the results of research conducted by [12,13,14] which states that MSMEs have an important role in encouraging economic growth and have a large share in employment.

The results achieved after the implementation of training on making *Angkak* and *Tri Datu* snacks in the target areas are as follows. (1) Increased knowledge and skills of the community in the field of food processing technology by utilizing superior agricultural products in the form of sandalwood brown rice, white rice, and black rice. (2) The increase in community sources of livelihood which has an impact on the improvement of the local economy.

## **CONCLUSION**

The implementation of this research has been able to produce a variety of innovative processed food products with very good quality. Innovative products produced in the form of Angkak as a health drink and food coloring,  $Tri\ Datu$  snacks whose manufacture is innovated are associated with the philosophy adopted by the Balinese people in particular and Hindus in general. In addition, the ingredients used for making these snacks use regional superior products in Mengesta Village in particular, and Tabanan Regency in general. The entrepreneurial motivation of this research partner is very positive, so it has the potential to develop the business sector in the culinary field.

Based on the results obtained in the implementation of this research, some suggestions that can be put forward are: in an effort to improve the economy of local communities, it is necessary to carry out mutually supportive cooperation between MSME actors or other communities and universities on an ongoing basis so that there is a synergy between the theories developed in higher education institutions. High with practices developed in the community, both in the economic, social, and cultural fields.

To the government who handles the field of creative economic development to continuously provide guidance to the community, especially to MSME actors so that business products that develop in the community can be facilitated to obtain business permits, whether distribution permits, permits from BPOM, or others. Thus, MSME actors feel that they get a guarantee from the government to develop their business.

#### ACKNOWLEDGEMENTS

Thanks are conveyed to *DRPM Kemendikbudristek* for funding through the third year *PPPUD* grant with contract number: 125/UN48.16/PM/2021 and *LPPM Undiksha* for all their support, and all partners implementing this research.

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