Vol 6 No 2, Juni 2022
ABDI DOSEN
Jurnal Pengabdian Pada Masyarakat
pISSN: 2614-6509
eISSN: 2620-5156

IMPROVING THE ECONOMY OF THE COMMUNITY OF KADUMANGGU VILLAGE BY UTILIZING CASSAVA WASTE IN THE PROCESSING OF TAPIOCA FLOUR

Dinda Rosaliana, Qurroh Ayuniyyah
Universitas Ibn Khaldun
[1] dindaarosaliana@gmail.com, [2] qurroh.ayuniyyah@uika-bogor.ac.id

Abstract

Research conducted in Kp. Lgk Nyenang Kadumanggu Village aims to find out how the general description of the processing of cassava into tapioca flour and the utilization of cassava waste into a use value. This study uses a qualitative method. The processing of cassava into tapioca flour consists of collecting raw materials, washing and peeling, grating, extraction, starch deposition, drying and milling. The rest of cassava waste, such as solid waste and liquid waste, can be used for something that has use value and can reduce pollution due to waste. The purpose of this research is to know the process of making tapioca flour from cassava and to analyze the utilization of residual waste to reduce environmental pollution. Solid waste from the process of making tapioca flour is cassava peel, and liquid waste is starch and elod water. Utilization of waste can be used as fertilizer, Asian flour, chips, crackers, and animal feed.

Keywords : Cassava, Tapioca Flour, Waste Utilization

INTRODUCTION

A. Background

Developments in various fields have occurred in Indonesia, one of which is in the industrial sector. Both small, medium and large scale industries are growing very rapidly in Indonesia. One of the industries that dominates and plays an important role in reducing unemployment is small and medium enterprises or MSMEs. Industrial development is a process of developing life for the better than the process of human activities meeting needs. Industry is one of the economic activities that processes raw materials, raw materials, semi-finished goods or finished goods that can be used into goods with higher use value (Sukirno, 1995: 54 in Indrianeu, T. and Singkawijaya, E. B 2019). This includes production activities that process raw materials into semi-finished materials or activities that can change the condition of an item from one level to another, in order to have a high economic value or activities that can convert goods that are useful to meet the needs of the community in an area and between regions.

Cassava is one of the sources of carbohydrates that are often consumed by Indonesians. Cassava is one of the raw materials that has the potential to be processed into flour. Cassava has a chemical composition consisting of about 60% water content, 35% starch, 2.5% crude fiber, 1% protein content, 0.5% fat content, and 1% abi content. Cassava is a source of

http://pkm.uika-bogor.ac.id/index.php/ABDIDOS/issue/archive
Diserahkan: Juni-2022 Disetujui: Juni-2022 Dipublikasikan: Juni-2022

carbohydrates and dietary fiber, but has little protein content. For direct processing, it is recommended to use cassava that is not bitter.

The process of processing cassava into tapioca flour generally consists of three stages, namely peeling cassava skin, washing cassava and squeezing and filtering grated cassava. The process of making tapioca flour is very long and produces a lot of waste such as cassava peels, dregs and processing liquid. Liquid waste should be disposed of immediately because it will harm livestock. Meanwhile, solid waste can be used as animal feed. But of course, both liquid and solid waste have a negative impact on the environment in the form of river pollution and unpleasant odors. The amount of waste produced is deemed necessary to make efforts to utilize and treat the waste so that it becomes a valuable material.

Kp. Lgk Nyenang Kadumanggu Village is one of the villages in Bogor Regency that has business potential that must continue to be explored and developed in order to become maximum results. This village is dubbed as Kampung Aci because most of its residents produce aci (tapioca flour) as their main livelihood. Seeing the potential of tapioca agroindustry in Kadumanggu Village, it is very necessary to further optimize the role of tapioca agroindustry which is one of the sectors that must be developed. Therefore, the development of tapioca agro-industry is an opportunity in business and must be adjusted to the relevant agro-industry problems. The development strategy will have an effect on maintaining the competitiveness or existence of the business and overcoming the problems that exist in the tapioca flour business. And also provide information related to the utilization of waste from the cassava industry, can provide the community with Kp. Lgk Nyenang Kadumanggu Village is a new business that can improve the village's economy.

B. Formulation of the problem

Based on several results of exposures regarding tapioca flour processing activities carried out by the Kp. Lgk Nyenang Kadumanggu Village, it can be concluded that the formulation of the problem is as follows:

1. How is the process of processing cassava into tapioca flour?
2. How to use cassava waste to be of use value?

C. Research purposes

The analysis activities carried out on the residents of Kp. Lgk Nyenang Kadumanggu Village has a goal as described in the problem formulation.

The objectives of this activity are as follows:

1. To know the process of processing cassava into tapioca flour.
2. To find out the utilization of cassava waste into use value.

D. The Urgency of Research and the Benefits of Research

By carrying out this activity, it is hoped that it can provide benefits both for researchers, readers and for the Kp community. Lgk Nyenang Kadumanggu Village who works as a tapioca flour processor. The benefit for oneself is expected to be a teaching material to add information and insight about argo-industrial activities. The benefits for readers are expected to add insight into the processing of tapioca flour, being able to become a source of information and teaching materials regarding the processing and management of tapioca flour.

And the benefits for business actors are expected to be an evaluation material for business development.

METHODOLOGY

The research method used in this study is a qualitative descriptive method by measuring the state of the object in which the researcher himself acts as a key instrument, using a combined data collection technique (triangulation) data whose analysis has an inductive nature and data collection is carried out by field surveys, documentation studies and literature study. Data analysis is inductive and the results of qualitative research emphasize meaning rather than generalization (Sugiyono, 2016: 1 in Indrianeu, Tineu, and Singkawijaya, Elgar Balasa, 2019). The focus of the research is the concentration of the mind on the purpose of the research being conducted. The focus of the research must be shown explicitly which aims to make it easier for researchers before conducting field observations. The focus of the research is the outline of the research, so observation and research analysis will be more focused.

LITERATURE REVIEW

Tapioca industry is one of the many types of agro-industry that are widely spread throughout Indonesia. Starting from small-scale, medium-scale, and large-scale industries. Tapioca flour comes from cassava starch which is dried and mashed. Tapioca flour is a processed cassava product that has a very large business opportunity. With so many tapioca industries, of course there will be a lot of waste generated.

Indonesia is one of the largest cassava producers in the world. Of course, the potential for waste generated from tapioca flour processing activities in Indonesia is very abundant. A total of 20.8 million tons of cassava are produced annually. If cassava peel is contained in every cassava, then the presence of cassava peel waste will reach 16% of the weight of cassava peel or about 3.3 million tons every year.

Research on processing cassava into tapioca flour and utilizing cassava as a use value has been carried out by many previous researchers, resulting in many varied studies and various kinds of references. Varied research results are caused by many factors, including the aims and objectives of the researchers, the ideas of each industry manager, and the activities carried out by the researchers.

According to Roro Roudotul Rohmatin Rose (2019), cassava peel waste can be used as snacks that have a high selling value and can increase the income of the surrounding community. Snacks that can be produced from cassava peel waste are crispy cassava peels derived from cassava peels soaked in a mixture of water, iodized salt, and flavoring for three days. The taste depends on the soaking process. And the cassava skin is fried with 2 times the frying process so that the cassava skin becomes crispy.

According to Tinue Indrianeu and Elgar Balasa Singkawijaya (2019), cassava waste in the tapioca flour home industry has many potentials and benefits that are good for the environment. Cassava waste from tapioca flour processing can be used as raw material for food mixtures, animal feed, organic fertilizer, and snacks such as chips, sauces, pilus, and other foods. This will have a positive impact on the income of local residents and can improve the local economy.

According to Murdani (2106), cassava waste containing carbohydrates/starch and the

like such as cellulose, hemi cellulose, taketin, etc. can be used as biodegradable plastic. To make biodegradable plastic, it takes cassava peel which contains a lot of starch. To make biodegradable plastic from cassava peel waste, 4 steps are needed: cassava peel flour, nata making, biodegredable plastic formation and biodegredable testing. This biodegradable plastic is easily decomposed by microorganisms, light, temperature and water. Therefore, processing cassava peel waste into biodegradable plastic can be a solution in dealing with environmental pollution.

RESULTS AND DISCUSSION

1. Research result

Processing of cassava into tapioca flour is in Kp. Lgk Happy Kadumanggu Village. This tapioca flour industry is one of the home agro industries made from cassava. Most of the main raw materials for tapioca flour, which come from suppliers. In one visit, the supplier usually sends approximately 5 tons of cassava which will be used in one production. For processing cassava into tapioca flour, usually 1 ton of raw cassava raw material will produce approximately 25% dry flour and 40% wet flour.

In the process of processing cassava into tapioca flour carried out by home industries such as the Kp. Lgk Nyenang Kadumanggu Village uses different tools and technology from those used by the factory. Usually the tools used by the people of Kp. Lgk Nyenang Desa Kadumanggu is a scale, knife, grater, basin, filter cloth, oven and desiccator.

2. Processing of Cassava into Tapioca

The process of processing cassava into tapioca flour is carried out by the people of Kp. Lgk Nyenang Village Kadumanggu as follows:

1) Cassava

To make tapioca flour, cassava is needed as the main raw material. With the availability of cassava, it means that you can move on to the next step in making tapioca flour.

2) Cassava Peeling

Before processing, the cassava skin is peeled first because the cassava skin is not used in the process of making tapioca flour. The tool used to peel the cassava peel is a knife. It is recommended that those who peel cassava peel are those who have special energy and experience. After the cassava is peeled, then put the cassava into the container.

3) Cassava Wash

Washing cassava using a special tool and requires a lot of water. In washing cassava, the amount of water should be sufficient. Usually the water used to wash cassava comes from well water or river water.

4) Cassava Grate

After the cassava is cleaned, then the cassava is grated until the cassava turns into cassava pulp. This grating is done with a grater and must always be given water so that the grating process can run smoothly. Under the grater, there is a container that will accommodate the grated cassava starch. Which will then be collected into one called cassava porridge.

5) Cassava Porridge Squeeze

This process is carried out using a squeezing machine. Put the cassava pulp into the squeezer machine and it should always be doused with water. Under the squeeze machine there is a thin cloth that serves to accommodate the flow of water. The dregs are retained in the upper filter, while the water containing starch is collected in a container or sedimentation site.

6) Precipitation of Cassava Porridge

This process has the aim of separating pure starch from other impurities. In this process, starch grains including proteins, fats, and other components are stable and complex. This process lasts for approximately 24 hours.

7) Drying process

This process aims to reduce the water content in tapioca flour. This process can use natural sunlight or with artificial dryers.

8) Meal

After the flour is sun-dried and dried, then the flour will become coarse flour or lumps and blend. If it has been in this process, the tapioca flour will soon be ready and ready to be marketed.

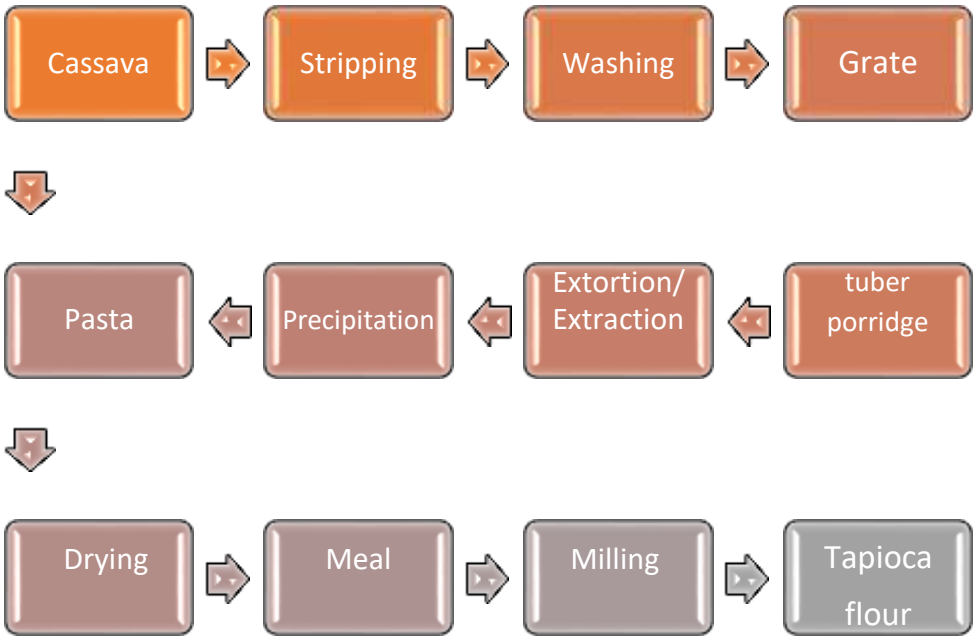
9) Milling

The milling process is carried out to grind coarse flour into fine flour. This process is necessary so that the flour is easier to use.

10) Tapioca flour

After going through a series of long processes, tapioca flour is finally ready to be marketed and used.

The diagram of making cassava starch can be seen in the image below:



3. Utilization of Cassava Waste into Use Value

A lot of waste is generated in the tapioca flour industrial management process. The waste produced includes liquid waste and solid waste that can pollute the environment and cause environmental damage such as unpleasant odors, waterlogging, and the rest of the cassava peel.

These wastes can be used for use value. Among them:

1) Cassava peel

Cassava peel can be used as organic fertilizer, cattle feed and snacks. For organic fertilizers can be directly disposed of around the soil and will rot later. For cattle feed can be mixed with grass. And for processing snacks, you can take the inner flesh of cassava and clean it from the skin, wash it and then fry it.

2) Cassava pulp or cassava

The initial process is pressing or separation with elod water and then drying. Poor quality dregs are used for animal feed and mixed with grass. The dregs that have good quality can be reprocessed into Asian flour.

3) Strain water or Elod

Usually liquid waste is always directly discharged into the river. But if there are people who ask, usually the factory always provides waste for free without asking for payment.

4. Discussion

When viewed from the processing of tapioca flour, this industry can be divided into 2 groups. The first group is a large industry that uses machines, has large capital and tends to have less labor. While the second group still uses simple machines or tools, small capital and

uses more human resources. According to the Ministry of Environment Team (2009: 10 in Indrianeu,

T. and Singkawijaya, E. B 2019), production processes in traditional industries include cleaning cassava, washing cassava, grating cassava, sifting cassava pulp, settling cassava pulp and drying flour.

To produce tapioca flour with good quality, it is better when the cassava comes directly processed by peeling the skin and immediately grinding to get good results. Because if you delay the processing time of cassava, it will cause a decrease in starch quality and will affect the quality of tapioca flour. Cassava must be processed no more than 2 days so that the results given are still good.

Solid waste and liquid waste from the processing of cassava into tapioca flour can be used as raw materials in various types of industries. Such as the manufacture of alcohol, ethanol, and gasholm glue, textiles, and other chemical industries. Waste in tapioca flour can also be used as raw material for the food industry, such as flour, chips, chips, biscuits. Cassava peel waste can be used for animal feed and the soiled skin can be burned.

The process of utilizing waste is carried out so that waste can be used optimally and does not cause environmental pollution. By utilizing tapioca flour waste, it can also increase economic value, reduce consumption of chemical fertilizers, and increase the usability of tapioca solids. But in the home industry processing cassava into tapioca flour, cassava waste is usually used as animal feed.

With the development of industrial waste utilization, it has encouraged the development of new business activities such as the production of fertilizers, animal feed, biogas, food, etc. Of course this will provide many new job opportunities and have a positive impact on the socio-economic quality of the community so as to reduce unemployment. For factory waste, it can reduce environmental pollution. Factories can also get other benefits by selling and buying waste to the community.

CONCLUSION

Based on the results of the analysis that has been carried out, it can be concluded that the processing of cassava into tapioca flour is carried out by the people of Kp. Lgk Nyenang Kadumanggu Village is one of the livelihoods undertaken to earn income from home industries. Some of the potential that can be utilized from the results of the home industry processing cassava into tapioca flour is that it can improve the economy of the surrounding community, it can be used for animal feed, some of the potential that will be obtained by utilizing cassava waste is that it can be used as raw material for food mixtures in the form of Asian flour, animal feed, organic fertilizer, and so on. And the utilization of cassava waste will also improve the economy again for the community around Kp. Lgk Nyenang Kadumanggu Village and can open new jobs if the waste utilization process can be carried out properly.

REFERENCES

Indrianeu, T. dan Singkawijaya, E. B. 2019. Pemanfaatan Limbah Industri Rumah Tangga Tepung Tapioka Untuk Mengurangi Dampak Lingkungan. Tasikmalaya (ID): Universitas Siliwangi.

Karunawan, Jotti, Wati, Annisa Lidia, Rahmawati, Ita, Priyanto, Aan, dan Sulhadi. 2017. Pemanfaatan Limbah Ubi Kayu Dari Sisa Pengolahan Tepung Tapioka di Kecamatan Margoyoso Kabupaten Pati Menjadi Bahan Adsorben Untuk Penjernih Air. Semarang (ID): Universitas Negeri Semarang.

Murdani. 2016. Memproduksi Plastik Biodegradable dari Kulit Singkong. Diakses dari https://bbppketindan.bppsdmp.pertanian.go.id/memproduksi-plastik-biodegradable-dari-kulit-singkong

Rose, Roro Roudotul Rohmatin. (2019). Pemanfaatan Limbah Kulit Singkong Menjadi Crispy Kulit Singkong. Surakarta (ID): Universitas Sebelas Maret.

Wiryaningtyas, Dwi Perwitasari, dan Ashary, Lukman. Pemberdayaan Usaha Tepung Tapioka Guna Meningkatkan Pendapatan Keluarga di Kecamatan Ambulu. Jawa Timur (ID): Universitas Abdurachman Saleh.

Wulan, Devi Widyana, dan Suryoko, Sri. 2020. Analisis Eko-Efisiensi Pada UKM Tepung Tapioka (Studi Kasus Pada UD Sinar Cerah Kecamatan Margoyoso Kabupaten Pati). Semarang (ID): Universitas Diponegoro.