

OPPORTUNITY OF MODIFIED CASSAVA FLOUR (MOCAF) AS WHEAT FLOUR SUBSTITUTE AN ALTERNATIVE MATERIALS TO SUPPORT FOOD SECURITY

Budiarto

Departement of Agribusiness, Agriculture Faculty, UPN "Veteran" Yogyakarta.
Street SWK 104 (North Ring Road) Condong Catur Yogyakarta
HP.08122758771. E-mail: budiarto_upn@yahoo.com

ABSTRACT

The purpose of this paper are (1) Identify public perceptions and preferences of two combination of wheat flour and mocaf composition in processed food products, (2). Identify potential and constraints in developing small and medium industries mocaf and (3) Describe the stages of making process mocaf. The research was conducted in Yogyakarta Special Region (DIY). The method used is descriptive, the primary data based on personal communication of 50 respondents and focus group discustion with farmer groups and experts, while the secondary data obtained from the scientific literature, scientific journals and scientific books related to the theory of cassava, mocaf , wheat flour and food security. The analysis was done by comparing and summarizing data obtained by the relevant theory. Conclusion, public perception of cassava and foods made from raw cassava shows the value of perception that are less good. But the perception became more well if the question is mocaf and foods made from raw mocaf. Community's preference to two combination of flour compositions and mocaf in processed food products is relatively good by the score of test results almost the same between the two compositions. Based on the identification of potentials and constraints obtained the result that the potential for farmer groups to develop mocal industry is relatively good and strong, with notes of support from all stake holders.

Keywords : *cassava, mocaf , wheat flour, food security.*

INTRODUCTION

Food security is an issue that is very strategic and important as a priority in national development. Problems in the development of food security includes food production activities, distribution of production land to the consumer, as well as during the pre-consumption and the consumption by the public. Food security is defined as the fulfillment of food for households as reflected in the availability of sufficient food, both quantity and quality, safe, equitable and affordable. Efforts to achieve food supply is done by relying on local resources, institutions and local culture.

Diversification of food has a broad aspect, as viewed from the consumer, can provides a variety of food, nutritious, quality and safety. Changes in food consumption patterns of the principal people of Indonesia now leads in rice and



flour-based foods including dried noodle, wet noodle and instant noodle. These changes need to be aware because wheat flour is the raw material and import of commodities not yet produced in Indonesia so that the direction of these changes can lead to dependence on imported food that endanger national food. Dependence of food against another country can affect the susceptibility to foreign intervention in economic and political.

Mocaf is a product derived from cassava flour that uses the principle of modifying cassava cells in fermentation, which produces distinctive characteristics, so it can be used as a food ingredient with a very wide scale. Experimental results show that mocaf can be used as raw materials from a variety of foods, ranging from noodles, bakery, cookies until semi-moist food. Because the application has a spectrum similar to wheat flour, rice and other starchy, then mocaf has huge market potential. Advantages mocaf has aroma and flavor better than regular cassava flour, white has more color than usual cassava flour, have relatively low prices compared to rice flour and wheat flour. The purpose of this paper are (1) Identify public perceptions and preferences of two combination of wheat flour and mocaf composition in processed food products, (2). Identify potential and constraints in developing small and medium industries mocaf and (3) Describe the stages of making process mocaf.

MATERIALS AND METHOD

Research Sites

The research was conducted in Yogyakarta Special Region (DIY), the method used is descriptive, the primary data source on private communication of 50 respondents and focus group discussion with farmer groups and experts, while the secondary data obtained from the scientific literature, scientific journals and books related to the theory of cassava, mocaf, flour and food security. The analysis was done by comparing and summarizing data obtained by the relevant theory.

Sample Determination Method

The design of consumer-related research sample was chosen by stratified quota sampling method. In this research, stratification is done by classifying the study population into three of the population residing in urban areas and rural tourism. Quota sampling is applied to determine the sample size of 50 samples of consumers (respondents). Samples were selected without taking into account the number of population as the sampling frame. Phase identification of opportunities and constraints in developing the local flour industry were selected purposively,



consisting of 20 respondents were farmers by considering the potential of farmers' groups and key-persons 5 persons consisting of the villages, hamlets and community leaders

Method of Data Collection and Analysis

Data collection in this research is done by using several methods of documentation, interviews, FGD (Focus Group Discussion), and RRA (Rapid Rural Appraisal). This study used a questionnaire instrument is a combination of several questions to be open and closed. In this study there were two questionnaires used in the two groups of respondents. Technical analysis used in this research is descriptive statistics.

RESULTS AND DISCUSSION

1. Perceptions of mocaf flour

Based on research result shows that 98% of respondents know the product starchy (Table 1). It appears that the type of flour mentioned in number lower than the type of flour is known respondents. The abble to discript of one type of flour showed that the flour was to be one top of mind of respondents, while unknown whether or not a type of flour showed the level of respondents' knowledge of these types of flour.

Rice flour is a type of flour most widely mentioned by respondents (88%). Other types of flour that a lot of mention is the wheat flour (86%), cornstarch (40%), glutinous rice flour (32%) and starch (38%). Only 4 of 50 respondents (8%) who said at the time mocaf flour was first interviewed. Furthermore, when extracting knowledge about some kind of flour made by enumerators guidelines note that the number of respondents who knew about mocaf flour increased to 12 egg (24%). Of the 12 respondents who knew about Mocaf, most (6 of 12 respondents) are the respondents in urban areas and the rest, 4 respondents are respondents in the area of tourism. Only 2 respondents in the region rural states and find out about the flour though Mocaf sources of raw materials mocaf flour produced in rural areas. This indicates that the flour mocaf not known by most respondents. Respondents' perceptions of performance mocaf flour as raw material products processed food is relatively small, only 18% of respondents who spontaneously declared that this flour can be used as a raw material processed food products while the rest (82%) claimed not to know. Concluded that and dissemination of information regarding the usefulness of flour mocaf not optimal up to the DIY community. The dominance of wheat flour and rice flour in top of mind of society is still very strong. The perception



that cassava flour as a raw material is food mofaf "second class" (for the economically weak communities) was approved by 22 out of 50 respondents (44%). However, respondents who perceive mofaf flour as food for economically weak groups are small, that is as much (12%). These results indicate that the processing of cassava into flour mofaf has increased the value perception of the respondents.

2. Knowledge based of mofaf flour to processed food products

Based on research result shows that respondents knowledge about the product processed food can be produced from starch mofaf still minimal. Respondents that states do not have knowledge about the processed food products made from raw flour mofaf are more numerous than respondents who have knowledge, that is 88%: 12%. Respondents who know consists of respondents who had never consumed raw starch-based processed products mofaf as many as 5

Table 1. Perceptions of some types of flour

No	Flour	Abble to discript (%)	Understand (%)
1	Wheat	86	92
2	Rice	88	84
3	Sticky rice	32	44
4	Hunkwe	18	20
5	Cassava	22	24
6	Banana	18	22
7	Cornstarch	40	52
8	Tapioca	38	54
9	Sago	24	28
10	Garut	16.	18
11	Sweet potato	14	12
12	Toothless gum	12	12
13	Mofaf	8	10

Source : the primary data, 2010

Table 2. Perception of origin of raw materials, how to create and performance mofaf

No	Mofaf	Not Understand (%)	Understand (%)
1	As a raw material for processed food substitutes	82	18
2	Raw materials derived from cassava	68	32
3	How to make	86	14

Source : the primary data, 2010

people (10%) and who ever heard / seen but have never consumed as much as 2 people (4%). Knowledge is the most they earn from culinary events on television, socialization in PKK activities and visits to other regions. Form of processed food products that had consumed five respondents were mofaf porridge, dumplings



mocaf, ice cream mocaf, mocaf chips and other processed food products vary based on mocaf flour. These results have provided evidence that during this socialization and utilization of processed food products that can be produced from local flour, including flour mocaf, which has been done by the government and some elements of other societies, its reach is very limited

3. Attitudes towards the wheat-based processed food products mocaf

Based on research results indicate that most respondents can not understand flour-based processed food products mocaf. This caused the majority of respondents do not yet have enough knowledge about product. Ignorance of society towards processed food products based on mocaf flour actually caused more by the limited number of industries food processing that use raw materials and the amount of flour mocaf local flour industry including flour mocaf in DIY.

4. Community preferences to a combination of flour and starch composition mocaf in processed products of wet and dry food

Based on the results showed that respondents' preferences for processed food products are substituted with flour Mocaf relatively good. Average scores for the four refined products are tested on respondents in a row for wheat buns, dumplings mocaf, nastar flour and nastar mocaf is 3.44, 3.64, 3.71 and 3.49. Mocaf Wheat flour can be used to substitute rice up to 20% in the manufacture of vermicelli (Widowati et al., 1994). In addition mocaf flour can be used as a baking ingredient, such as pastries, layer cake, and cake (Antarlina, 1998). Mixture of 50% and 50% wheat of mocaf flour recommended for the manufacture of cake flour because it is more preferable, taste, color interesting, and has a medium level of sweetness (Zuraida, 2001). According to this data can be concluded that the wet processed food products (buns), substituted with flour to increase the degree of preference for mocaf respondents, while for dried processed food products (nastar) substituted with mocaf flour actually reduce the degree of preference of respondents.

5. The potential and development constraints of mocaf flour

Quality of cassava produced in DIY especially district of Gunungkidul good enough so suitable for use as a raw material powder mocaf. Preferences of farmers to plant cassava commodity prices are affected by this with commodity crops like corn. However, the ease of treatment of cassava, a relatively low production cost and additional benefits of cassava leaves as a source of vegetables for the family to make these commodities remains an option for farmers in the district of Gunungkidul particular and special area of Yogyakarta in general.



6. Stages of the process of making mocaf flour

Cassava flour (mocaf) is one of the products processed fresh cassava which is a semi-finished material. Flour mocaf have a long shelf life is 6-8 months, so making flour is one of the alternatives of fresh cassava during the main harvest. In addition to a long shelf life, by making mocaf flour will increase the economic value of cassava, where the price of flour mocaf per kg to Rp. 4,000. Mocaf flour-making process is quite simple as in Figure 1.

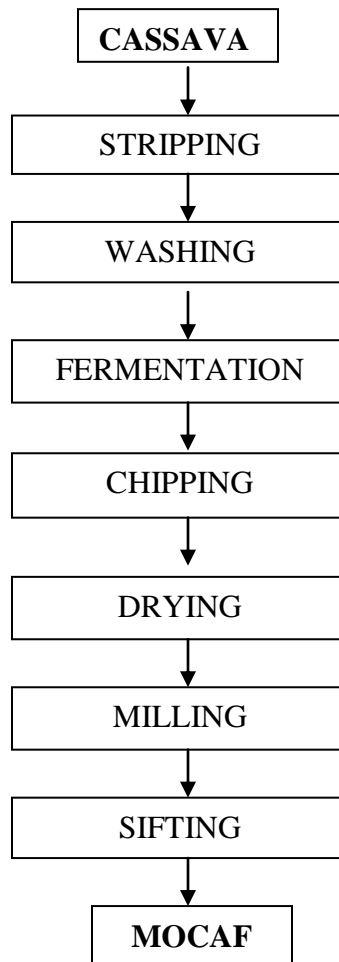


Figure 1. Flow chart of the process of making mocaf flour

The difference in principle in the manufacture of mocaf flour with ordinary cassava flour or tapioca is through a chemical process of fermentation of fermented cassava first. (Not that made a "tape"), then dried (dry, 3 / 4 using the sun. (Using hybrid dryers) for guaranteed hieginitas, once dried, sweet yam chips shaped. Freshly ground, miling, siftings (strained), packed become versatile flour products.

Principle of Mocaf Flour

- a. Modifying cassava cells in fermentation, by microbial Lactic Acid Bacteria (LAB) dominate during the fermentation of cassava flour .
- b. Microbes that grow produce pektinolitik and cellulolytic enzymes that can destroy the cell walls of cassava in such a manner, resulting in liberation of starch granules.
- c. The microbes also produce enzymes that hydrolyze starch into sugar and then convert it into organic acids, mainly lactic acid.
- d. This will cause changes in the characteristics of the flour produced in the form of increased viscosity, gelation ability, power rehydration, and ease of dissolution.
- e. Similarly, a neutral taste mocaf to cover the taste of cassava by 70%.

CONCLUSION

Public perception of cassava and foods made from raw cassava shows the value of perception that are less good. But the perception became more well if the question is mocaf and foods made from raw mocaf. Community's preference to two combination of flour compositions and mocaf in processed food products is relatively good by the score of test results almost the same between the two compositions.

Based on the identification of potentials and constraints obtained the result that the potensial for farmer groups to develop mocal industry is relatively good and strong, with notes of support from all stake holders.

The principle of processing cassava into cassava mocaf is modifying cells in fermentation, the microbial Lactic Acid Bacteria (LAB)

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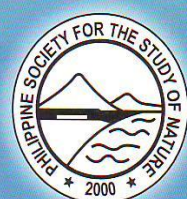
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