

Prospect of Corn Flour Utilization to be Chips Through Citizen Training in Antang district, Makassar

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Abstract

This research is an experimental research that has objectives to know the process of making the corn flour, to know the making of chips from corn flour, to know the panelists acceptance to corn chips and to know citizens' opinion to corn chips. This research uses some samples they are, 20 housewives and 15 organoleptic panelists which consist of 5 expert panelists, 5 trained panelist and 5 untrained panelists. Data collecting technique uses score sheet, questionnaire and documentation. Analyzing data technique that is used is quantitative descriptive analyzing technique. The result of this research conclude that the process of making corn flour are ingredient and tool preparation, ingredient weighing, making and shaping the chips, frying and packaging the chips. The best formula based on scoring of the panelists is 50% substitution of corn flour and 50% substitution of glutinous rice flour with 96% color presentation, 85% aroma, 89.33% texture and flavour 95.67%. Based on training that has been done in Antang district, Makassar that the citizen gave positive respond and prospect of corn flour utilization to be chips can give a new alternative in corn processed and can help the economic condition of the citizen.

Keywords: Corn, Chips, Prospect, Training.

INTRODUCTION

Indonesia is an agricultural country with abundant natural wealth. especially in the agricultural sector which is very diverse in the form of plants, as well as mineral materials.



Indonesian people have long known corn as a food source of carbohydrates to replace rice. Takalar Regency, South Sulawesi Province is the highest maize producing area, followed by Gowa Regency, Jeneponto Regency and Bone Regency.

Corn is a food source of carbohydrates, corn is the third staple food after rice and wheat besides that, corn is very important in the context of food diversification, and its function as a raw material for the food industry and food ingredients for animal feed. One of the agricultural businesses in Indonesia that is currently very prospective and potential is the corn cultivation business (Hasni (2014).

Corn diversification can be done by processing corn into various processed products, both in wet and dry form. The effort to diversify corn processing into several processed products also aims to increase the economic value of corn and create agro-industrial activities.

Total corn production in 2013 was 1,250,203 tons, when compared to the previous year there was a decrease in production of 265,126 or 17.50 percent from 1,514,608 tons. This decrease in production was caused by climatic factors where high rainfall and several flooded areas made it impossible to plant corn, resulting in a decrease in harvested area and productivity. (<http://sulselprov.go.id/kumpulanfile.pdf>)

In general, all levels of society are familiar with corn but the use of corn for making crackers is not yet known by the community. Yellow Corn (Hybrid bima 2) is easy to find in several markets and the price is cheap, baby corn is often used to make vegetables, bakwan, soup and so on. Aged corn is used as a substitute for rice, cornbread, biscuits, animal feed, corn flour, and cookies.

One of the products that can be developed from processed corn is corn flour for making crackers. Corn crackers in this experiment used old corn, namely Yellow Corn (Bima 2 Hybrid). Making corn crackers is the result of an experiment and trains the community to create new things using local food ingredients and serves as a guideline for the community in general and for researchers in particular. Through this experimental research it is hoped that Yellow Corn (Bima 2 Hybrid) will become a processed product that has economic value and can train and increase the knowledge, skills of housewives and young women in Antang Village, Makassar Municipality.

Based on the results of initial observations conducted on May 4 2015, as many as 50 residents in the Antang Village generally work as IRT (housewives), especially in the Antang area, the people are happy with eating crackers. They eat crackers as a staple food companion, the researcher wants to choose Yellow Corn (Bima 2 Hybrid) as a material for making crackers



because in Antang Village many residents raise chickens and corn is only used as animal feed, and do not know about making crackers from corn flour. In the market, yellow corn (Hibirida Bima 2) is only sold as fodder and no one has ever processed this corn into crackers.

Training on making crackers by utilizing corn raw materials which are processed into flour, researchers will carry out training for 20 people for IRT (Housewife) in Antang Village, Makassar Municipality. Based on this background, the author chose the title "Prospects of Utilizing Corn Flour into Crackers Through Community Training in Antang Village, Makassar Municipality". Researchers hope that the people in Antang Village can utilize yellow corn (Bima 2 Hybrid) not only as animal feed, and can process corn flour into crackers and train IRT (Housewife) skills, making it an effort to improve the economy and income.

Based on this background, the objectives of this study are: (1) to find out the process of making corn flour, (2) to find out how corn crackers are made, (3) to find out the panelist's acceptance of corn crackers, and (4) to find out people's perceptions of processed corn crackers.

RESEARCH METHODS

This research is an experimental research. The experimental method can be interpreted as a research method used to find the effect of certain treatments on others under controlled conditions (Sugiyono 2011). The research intended in this research is the manufacture of corn flour, then the manufacture of crackers from the basic ingredients of corn flour with a ratio of 100% corn flour substitution, 75% corn flour and 25% glutinous rice flour substitution, 50% corn flour and 50% glutinous rice flour substitution.

This research was conducted starting from product experiments including the manufacture of corn flour, and the manufacture of corn crackers with frying processing techniques using the deep frying method (using a lot of oil). The second is an organoleptic test and the third is a training activity.

The experimental research location was carried out at the PKK Laboratory, Faculty of Engineering, Makassar State University, while the second research location (application of experimental results / standard recipes) was on Jl. Raya Baruga, Antang Village, Makassar Municipality. This place was chosen as the research location because this area is one of the areas that use yellow corn (Bima 2 Hybrid) as animal feed.

The data collection techniques in this study are observation, documentation, and questionnaires. While the data analysis technique used in this study was distribution analysis, namely each panelist carried out an organoleptic test on the samples tested by scalar or score.



The data analysis technique used in this study is a quantitative descriptive analysis technique. Instrument measurements in the questionnaire used a Likert scale with answers (Strongly Agree, Agree, Doubtful, Disagree, and Strongly disagree) which were used to confirm answers (Strongly like, Like, Dislike, Dislike, and Strongly dislike).

RESULTS AND DISCUSSION

Results

1. Product result description

Based on the results of research that has been carried out by going through several stages of processing, there are 2 types of products in the utilization of yellow corn. The first product is corn flour which is used as the basic ingredient for making corn crackers and the second is the finished product of corn crackers. The method used is the Deep Frying method (using a lot of oil) with three substitution ratios, namely the first 100% corn flour substitution, the second 75% corn flour and 25% glutinous rice flour substitution, the third 50% corn flour and 50% glutinous rice flour substitution.

To make corn flour as the basic ingredient for making crackers, dark yellow corn that has been selected and cleaned is used. In the experiments conducted, about 1 kg of dark yellow corn was used with special treatment, starting from the selection to the flouring stage and the weight of the flour obtained was around 500 grams. The following results of corn flour and corn crackers can be seen in Figure 1 to Figure 2.



Figure 1. Corn flour



Substitution 100%



Substitution 75 %



Substitution 50 %

Figure 2. Corn crackers with three substitutions

The tools used in the manufacture of corn crackers are as follows:



Figure 3. Tools used in the manufacture of corn crackers

The ingredients used in the manufacture of corn crackers are as follows:



Figure 4. Ingredients and seasonings used in making crackers

a. Ingredients and seasonings used:

- 25 grams of Red Onion
- 25 grams of Garlic
- 3 grams of baking soda
- 3 grams Crispy
- 25 grams of granulated sugar
- 30 grams of grated cheese
- 250 cc Water

b. The steps in making corn crackers are as follows:

- 1) Mixing corn flour with spices. Finished corn flour is added with mashed spices, such as shallots, garlic. Salt, baking soda, sugar, grated cheese, crisps and eggs are beaten with the ground spices then poured over the flour and kneaded until the dough is well blended.
- 2) Dough formation (molding): The finished dough is then put into the mold.
- 3) Frying: After the dough is put into the mold, the frying process is carried out using the deep frying method (using a lot of oil, so that the fried ingredients are submerged). Frying is done using medium heat for 3-5 minutes.
- 4) Sorting: The sorting process is carried out to select crackers that are intact or not broken, which is done manually.

- 5) Packaging: Is the final stage of the entire production process, where the crackers are ready to be packed in plastic.

2. Corn Cracker Organoleptic Test Results

Based on the results of the research that has been done, then the resulting product is then given to the panelists through the organoleptic test method to determine the level of preference and acceptance of the panelists for this product. The following describes the results of the panelists' assessment of the quality of corn cracker products between crackers and substitutions of 100% corn flour, 75% corn flour, 25% glutinous rice flour, 50% corn flour and 50% glutinous rice flour. With the deep frying method that has been tested as follows:

a. Color

Based on the percentages that have been obtained, it can be explained that the level of acceptance of panelists in the organoleptic test for the color of crackers with 100% corn flour substitution was 74.67%, 75% corn flour substitution was 76%, 50% corn flour substitution was 96%.

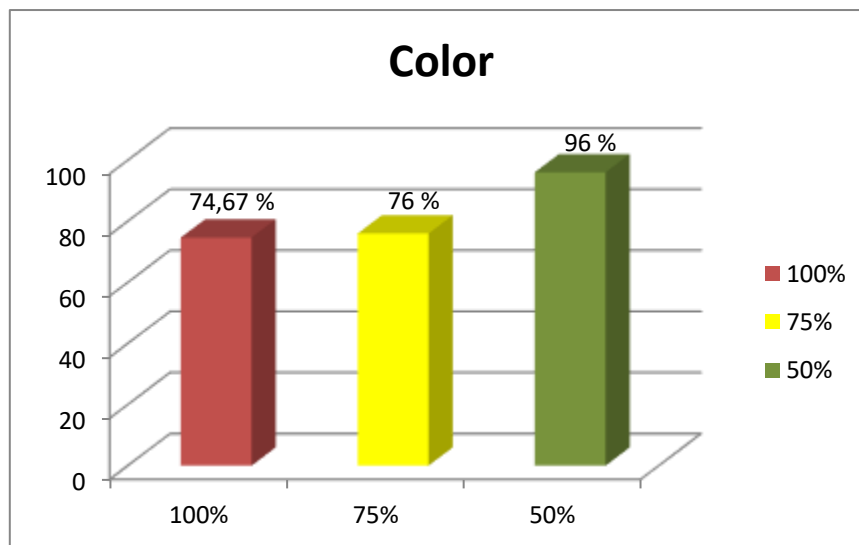


Figure 5. Results of data analysis for 2023

Based on the picture above it can be explained that the level of preference of the panelists regarding color is:

Substitution 100 %	Substitution 75 %	Substitution 50 %
74,67 %	76 %	96 %

b. Texture

Based on the percentages that have been obtained, it can be explained that the level of acceptance of panelists in the organoleptic test on the texture of corn crackers with 100% corn flour substitution was 58.67%, 75% corn flour substitution was 69.33%, and 50% substitution was 89.33 %.

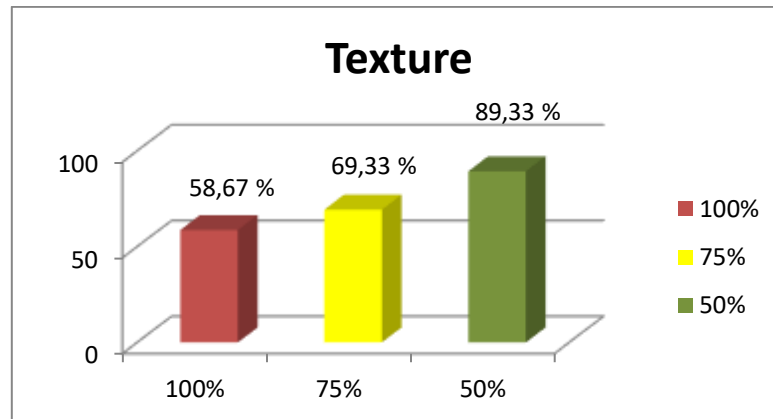


Figure 6. Results of data analysis for 2023

Based on the picture above it can be explained that the panelist's preference level regarding texture is:

Substitution 100 %	Substitution 75 %	Substitution 50 %
56,67 %	69,33 %	89,33 %

c. Aroma

Based on the percentages that have been obtained, it can be explained that the level of acceptance of panelists in the organoleptic test for the aroma of crackers with 100% substitution was 74.67%, 75% substitution was 77.33%, 50% substitution was 85%.

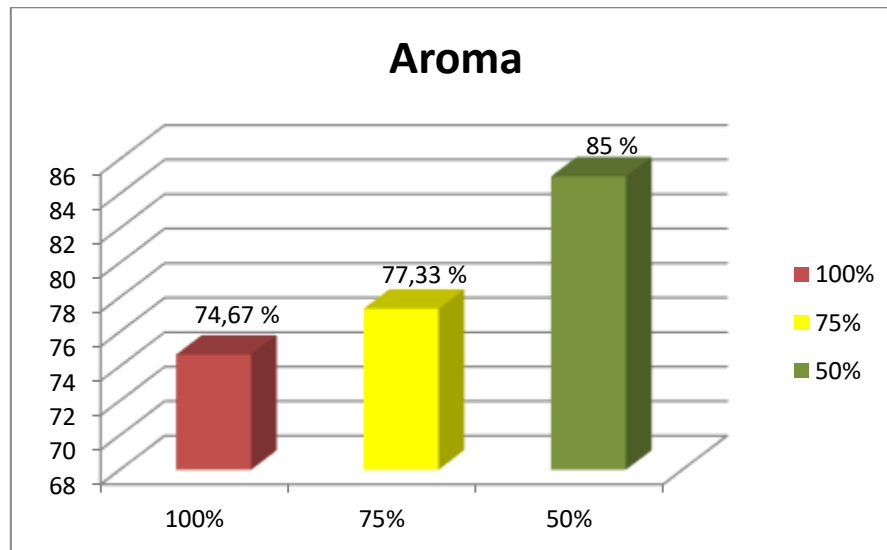


Figure 7. Results of data analysis for 2023

Based on the picture above it can be explained that the level of preference of the panelists regarding aroma is:

Substitution 100 %	Substitution 75 %	Substitution 50 %
74,67 %	77,33 %	85 %

d. Flavor

Based on the percentages that have been obtained, it can be explained that the level of acceptance of the panelists in the organoleptic test for taste is the size of corn crackers with 100% substitution of 68%, 75% substitution of 64%, 50% substitution of 94.67%.

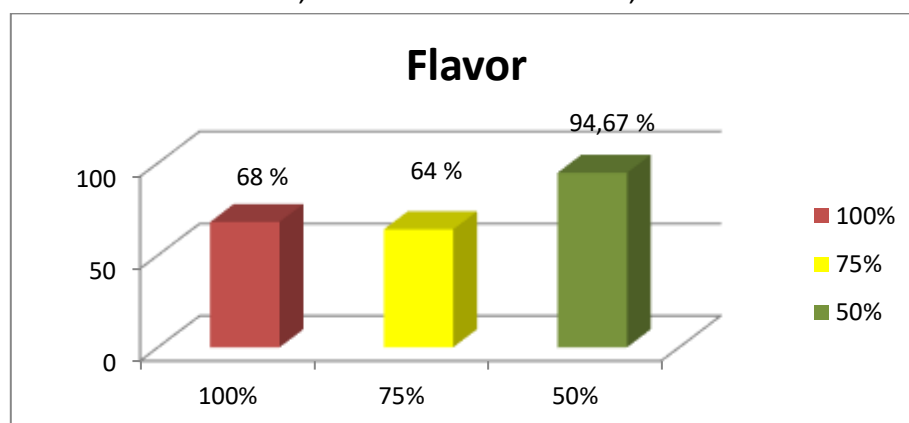


Figure 8. Results of data analysis for 2023

Based on the picture above it can be explained that the panelist's preference level regarding taste is:

Substitution 100 %	Substitution 75 %	Substitution 50 %
68 %	64 %	94,67 %

DISCUSSION

The process of making corn flour

The manufacture of corn flour starts from the selection of materials, the corn soaking process is carried out for $\pm$ 24 hours so that the corn becomes soft during the milling process. The next stage is the flouring process, at this stage a grinder is used to grind the corn, drying the corn flour is done to remove the water content contained in the corn flour, drying it in the sun for 3 days. After the corn flour is dry, it is then sieved to produce corn flour with a fine texture. For 1 kg of dry corn produces about 500 grams of corn flour.

The process of making corn crackers

Based on the results of the research that has been carried out, it can be explained that the process of making corn crackers is carried out through several stages. In this research, three substitutions were carried out, 100% corn flour, 75% corn flour and 25% glutinous rice flour, 50% corn flour and 50% glutinous rice flour. The first stage is mixing the dough with spices that have been mashed such as shallots, garlic, after the mixture is thoroughly mixed with the spices, then the mixture is put into the cracker mold. Next is the frying process with the deep frying method (using a lot of oil so that the crackers sink when fried) and then packaged using plastic and labeled packaging. And in this study there were obstacles in making 100% substitute corn flour corn crackers because during the printing process the corn crackers were rotated from the mold, the mold was difficult to rotate, because the water from the dough easily came out so the resulting shape was small because the dough broke easily. and the texture is hard.

Panelists' acceptance of corn crackers

Based on the panelist's assessment in the organoleptic test on 3 panelist categories, namely lecturers majoring in PKK UNM, students majoring in PKK UNM culinary department, students majoring in fashion design PKK UNM and the general public, it can be concluded that the level of preference of panelists for the quality of corn crackers that is most preferred is at substitution 50 % corn flour and 50% glutinous rice flour with the results of the assessment,



namely: (a) a color rating of 96%, (b) a texture rating of 89.33%, (c) an aroma rating of 85%, (d) a taste rating of 94, 67 %. The color quality of corn crackers is influenced by the substitution of corn flour and glutinous rice flour with a brownish yellow color. The crunchy texture of crackers is produced from additional ingredients used such as developers (baking soda) and crunch. While the taste is obtained from a combination of spices and the quality of corn flour and glutinous rice flour.

Community perception of corn crackers

Through training activities carried out for housewives who live in the Antang Village, Makassar Municipality, positive responses were obtained, especially when participating in the training, the community had a very high interest in participating in the training. And the community stated that the prospect of using crackers is very feasible, because the process of making corn crackers is easy and the ingredients used are widely available everywhere in Makassar City, and the method of processing is the same as the way of making crackers in general. This statement can be seen from the questionnaire distributed to respondents in the form of questions with very good responses.

It is hoped that this research can increase people's knowledge about yellow corn (Bima 2 Hybrid) which they previously did not know and only considered yellow corn (Bima 2 Hybrid) as animal feed. In addition, the community can reduce dependence on wheat flour which is increasing.

CONCLUSION

1. The process of making corn flour starts from the process of selecting corn, soaking the corn for 24 hours, grinding the corn using a grinder, drying the corn flour in the sun for 3 days, and sifting it. The quality of the corn flour produced is yellow.
2. Making corn crackers is carried out in several stages, starting from mixing the dough with spices that have been mashed such as shallots and garlic, after the mixture is thoroughly mixed with the spices, then the mixture is put into the mold, frying using the deep frying technique, and then packaged with using plastic and labeled packaging,
3. Acceptance of panelists based on the results of the oranoleptic test can be seen from the level of preference of panelists for corn crackers with 100% substitution of corn flour with a color percentage of 74.76%, aroma 74.76, texture 58.67%, taste 68%, substitution of 75% flour corn and 25% glutinous rice flour with a color percentage of 76%, aroma 77.33%,



texture 69.33%, taste 64%, substitution of 50% corn flour and 50% glutinous rice flour with a percentage of color 96%, aroma 85%, texture 89.33%, taste 94.67%. Based on the research that has been done, it can be concluded that the quality of corn crackers preferred by panelists is 50% corn flour and 50% glutinous rice flour substitution.

4. The training activities that have been carried out in Antang Village, Makassar Municipality have given very positive responses to respondents. That yellow corn (Bima 2 Hybrid) is not only used for animal feed but can be processed into corn crackers, and the training activities carried out turn out to be the prospect of using corn flour into crackers as one of the business opportunities to increase family economic income.

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