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## Acceptance analysis F coconut Dast Flour as a substitution of wheat flour in churros production: A case study of generation Z in DKI Jakarta

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### Abstract

Coconut dregs are an element that has many health benefits. It has a high fiber content, so that it can be used as a substitute for wheat flour. However, from the point of view of its utilization, coconut dreg has yet to be utilized correctly and is only used as food waste. This study aims to determine the success and acceptability of a churros product with coconut dregs flour as a substitute. This research was conducted experimentally, which consisted of making churros using different variations of coconut dreg flour substitution in a total of 5 samples, with sample system. This control system did not experience coconut dreg flour substitution. One hundred panelists, generation Z in DKI Jakarta, passed this acceptance test. The results of the organoleptic test on churros products with sample D had a level of preference (91.50%) which showed that churros sample D was very acceptable to the analysis shows that sample D is the dominant sample in terms of taste, texture and color. This result is based on the percentage of taste (93%), texture (89%), and color (87.80%). It would be better if the next trial of coconut dregs flour used food waste.

**Keywords:** Acceptability Test, Organoleptic Test, Coconut Dregs Flour

### 1. Introduction

Churros is a snack that comes from Spain. Churros are Spanish donuts at this very Churros favored by children, adults, and parents. Churros are delicious food made by frying. Previously, churros were printed using a star-shaped spet mold, then fried in hot oil, producing a crispy and soft texture (Rochmah et al., 2019). Churros own color chocolate is golden, and the main ingredients in making churros are flour, water, butter, salt, and eggs (Faridah & Yuhelma, 2023). Churros are crunchy on the outside and soft on the inside. In the presentation, churros use various kinds of sauces like sauces chocolate, caramel, blueberry, and strawberry, which makes churros even more enjoyable to enjoy because you can get churros yourself combined with various kinds of flavors that by the ones favored and tend has a sweet taste. In their development, churros are often innovated occasionally and constantly evolving from their shape and different type topping variants (Mukti et al., 2021). Therefore the researcher chose churros to be used as research material.

Churros is a food made from wheat flour; the essential ingredients for making wheat flour come from wheat. Wheat itself is the result of imports from other countries where the supply is very high soared and high because almost all foods use wheat flour. Wheat imports in Indonesia are controlled and dominated by the Australian state as the largest wheat supplier to Indonesia, seen from 2018 and 2021. Import Australia's wheat country controls 50-60% of Indonesia's wheat imports and can be seen based on the table of the largest wheat importers in Indonesia from 2018-2021.

Based on data from the Central Bureau of Statistics (2022) shows that the country of Indonesia continues to experience developments in wheat imports from abroad from year to

year, and the highest peaks are in 2018 & 2021 (Jalunggono, 2021). Thus there is a need for further handling regarding existing wheat imports.

This research was conducted as a response to people's dependence on imports, especially wheat flour, to reduce the use of wheat flour and utilize coconut dregs as a substitute for making churros. Churros are a popular food sought after by Indonesians because of their delicacy and attractive variety of flavors, shapes, and colors. Coconut dregs are one of the most abundant natural resources in Indonesia (Fattah et al., 2023). With this country's high production of coconuts, their use can reduce wheat flour imports and provide good nutritional value. In addition, Indonesian people, especially in Jakarta, also have a high level of consumption, including in terms of snacks such as churros.

Generation Z, a group of people born between 1997 and 2012, is known to have a high tendency toward consuming sweet foods. In the age range of 13-28 years, this generation likes to try new things. Therefore, the research I will test can be relevant to this characteristic. As a result, innovation in creating Churros is very suitable to be the choice for young people, including Generation Z, who like new and innovative things (Amelia, 2022).

Data BPS (2020) shows that DKI Jakarta has a vast Generation Z population, reaching 2,292,094 million. This fact shows that many people from Generation Z in Jakarta like to try new things. Jakarta was chosen as the research location because the data shows that Jakarta ranks first in terms of the number of people who are consumptive and tend to spend money on food and like to shop for food from innovations as a unique experiment for them (Kusnandar et al., 2022). Therefore, DKI Jakarta is the right research sample trial area.

This study has limited problems using quantitative methods to analyze and observe churros products that use coconut dregs flour and surveys to measure consumer acceptance of these products. The focus of this research is on the substitution of coconut dregs flour in making churros. This study aimed to evaluate the success rate of churros products with coconut dregs flour substitution and to measure consumer acceptance of the product. This research benefits writers in implementing learning during lectures, for readers in obtaining new information and knowledge, and for the campus as literature and reference for other students interested in conducting similar research.

## 2. Methods

The variable that became the focus of the study was the number of substitutions for coconut dregs flour in churros, with the AE sample showing variations in the number of substitutions for coconut dregs flour. Consumer acceptance is evaluated by paying attention to aspects of churros' taste, texture, color, and aroma as the dependent variable. The data collection method consists of primary data and secondary data. Primary data was collected through filling out questionnaires by respondents to assess consumer acceptance of churros with coconut dregs flour. Secondary data is obtained from journals, articles, or other studies that support this research.

The research subjects were Generation Z in DKI Jakarta, with a total sample of 100 respondents. The sample is randomly selected from the population. The research variables include acceptance of churros as the dependent variable and taste, aroma, texture, and color of churros as independent variables. In this study, researchers used the experimental method by controlling for other variables, such as the equipment used, weighing the ingredients, and the production process, to ensure that differences in consumer acceptance evaluations were caused by different amounts of coconut dreg flour substitution in churros. The samples from this study were tested against Generation Z in DKI Jakarta using a questionnaire to collect primary data about consumer acceptance of churros with variations of coconut dreg flour substitution. Secondary data is used to support this research.

### 3. Results and Discussion

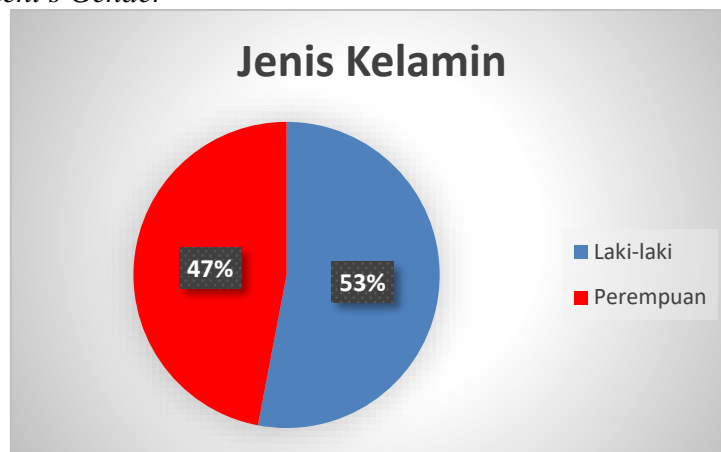
In this research, a trial was conducted to make churros using coconut dregs flour. The ingredients for making churros generally use wheat flour, but churros flour was used as a substitute for wheat flour in this study. Research results contain an analysis of the data presented in answering the problem formulation listed in Chapter I, including the results of the descriptive and hedonic tests. Descriptive and hedonic test results were analyzed using the ANOVA analysis technique. The product in this study was substituted with coconut dregs flour which was done with sample treatment given as follows:

- a) Churros by using sample
- b) Churros by using sample B
- c) Churros using sample C
- d) Churros by using sample D
- e) Churros by using sample E

In this chapter, the researcher researched 100 respondents as a measuring tool at the acceptance stage of Churros with coconut dreg flour substitution. The researcher conducted the test by giving a sample of 100 respondents.

Figure 1

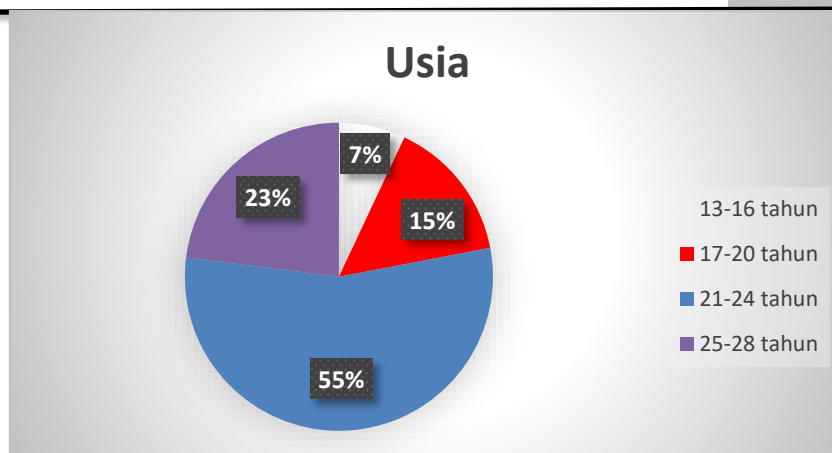
*Graph of Respondent's Gender*



Based on the diagram above, it shows that the respondents obtained by the researcher in this study were predominantly male. This is also based on existing data where the number of male sex is more dominant than female sex.

Figure 2

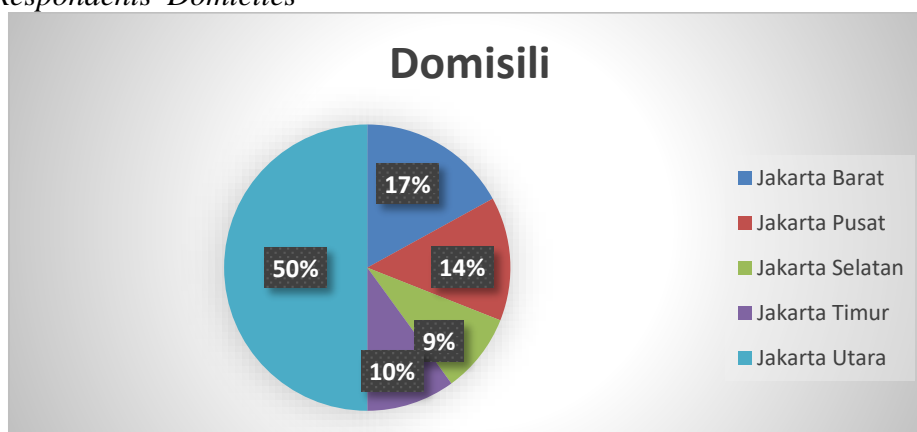
*Respondent Age Graph*



Based on existing age data, it shows that the age of 21-24 years is the dominant age in this study because most of the ages of 21-24 years are a period of transition between adolescence and adulthood. During this time, people tend to look for ways to create social identities and expand their network of friends, so the researchers found that most respondents were from the age group of 21-24.

Figure 3

*Graph of Respondents' Domiciles*



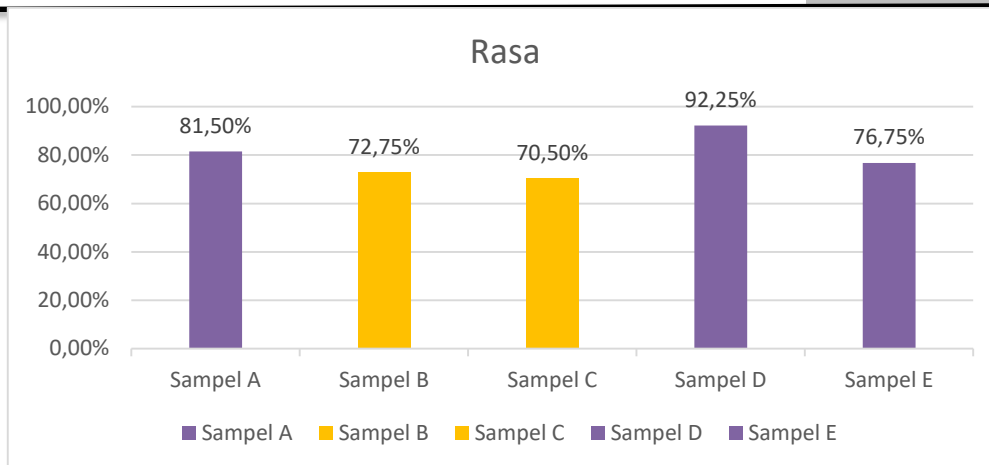
Based on the existing data, it shows that the North Jakarta area is the most dominant area in this study. This is also because the North Jakarta area is one of the most densely populated areas in existence. So the researchers got the most respondents in the North Jakarta area.

Based on the results of the organoleptic test, the study conducted a descriptive test and can be seen through the following table:

#### **Descriptive Test**

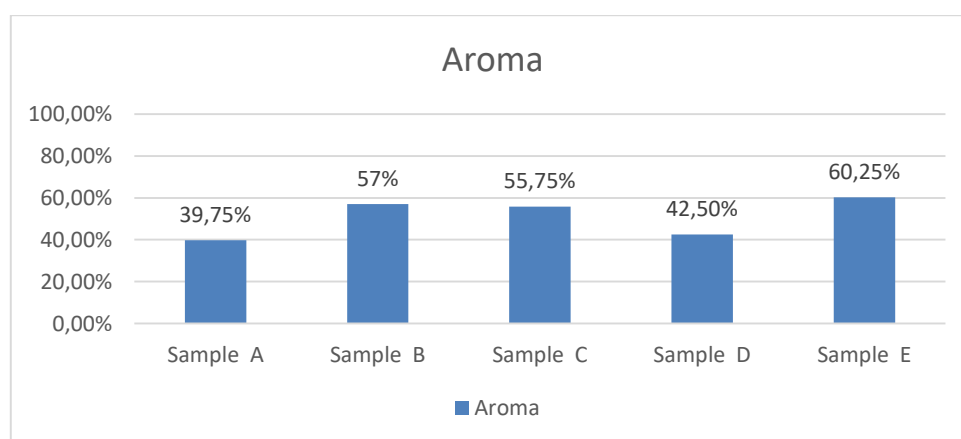
Figure 4

*Taste Graph*



Data analysis in the descriptive test showed that five Churros samples were tested using coconut dregs flour substitution. The results of the descriptive test show percentage of good taste in each sample. From the results of the descriptive test, it can be seen that the percentage of good taste from Sample The highest D is equal to 92.25% of this because, according to the panelists, sample D has a unique taste and fits perfectly when eaten. Meanwhile, the percentage of lowest pleasure is found in samples equal to 70.50% of this because in sample C. There is no use of sugar and salt, so according to the panelists, the taste is on ample land C. However, according to the calculation scale used, both samples can still be categorized as good taste. From these results, the substitution of coconut dregs flour can have a significant effect on the taste of Churros. This shows that substituting coconut dregs flour can be an excellent alternative to producing delicious Churros. However, keep in mind that the results of the descriptive test are only based on the judgments of several panelists, so there may be differences in results when tested by different panelists or using different test methods. In addition, other factors, such as raw materials, recipes, and manufacturing processes, can also affect the taste of the resulting Churros.

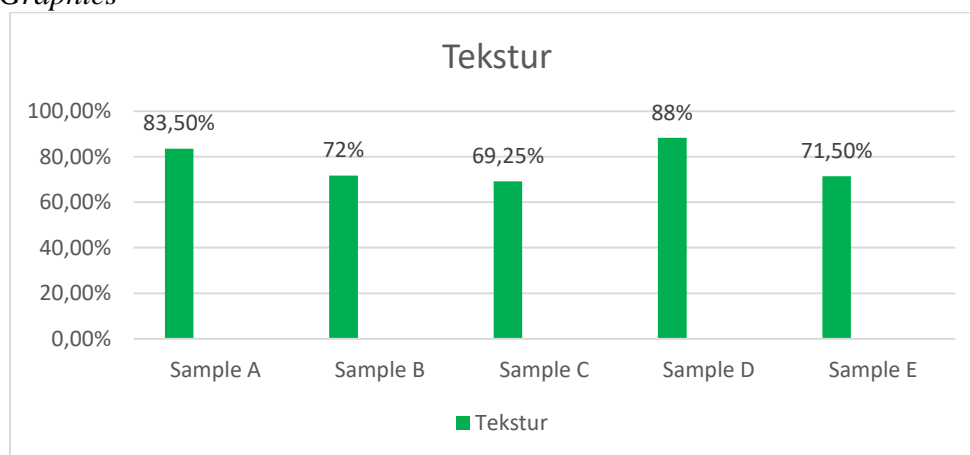
Figure 5  
Aroma chart



From the results of the descriptive test of Churros aroma with coconut dregs flour substitution, it can be concluded that the five samples tested had less or no aroma. In this case, the lowest percentage was found in Sample A at 39.75%, which indicates that the sample really has no aroma because it is an original churros product. While the largest percentage was found

in Sample E of 60.25%, this happened because the sample E product was a sample with a slight aroma, but the presentation was still relatively low and showed that the aroma in the sample was not felt. From the results of the presentation assessment, it can also be seen that there is a significant difference between Samples A and D and the other samples. Sample A had the lowest percentage of aroma and was clearly odorless, while Sample D had the second lowest percentage of aroma after Sample A. Meanwhile, the other samples, namely Samples B, C, and E had a higher percentage of aroma compared to Samples A and D, but were still relatively low and were judged to be less flavorful by the panelists. This shows that the substitution of coconut dregs flour in Churros can affect the aroma of the product, so it is necessary to make adjustments to the ingredients or manufacturing methods to improve the quality of the aroma in the product.

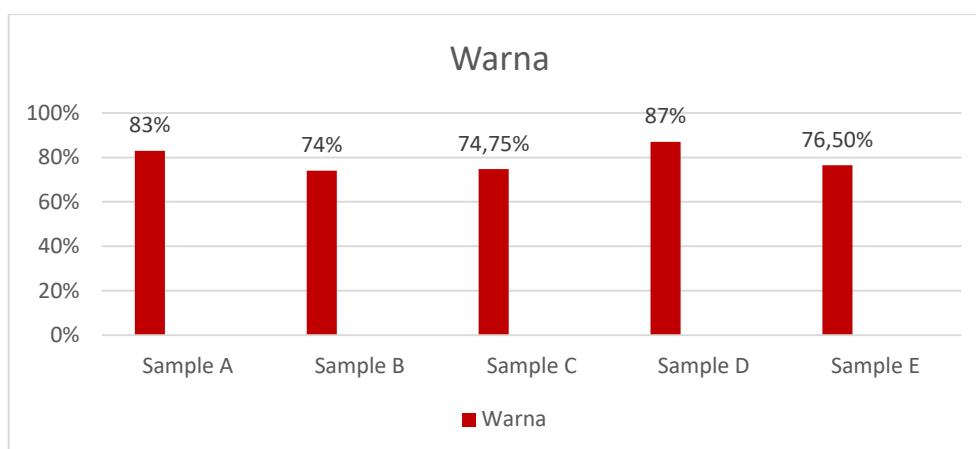
Figure 1  
*Texture Graphics*



From the results of the descriptive test on the texture of Churros with coconut dregs flour substitution, it can be seen that all samples have a percentage value above 60%, which indicates that all samples can be categorized as churros with a soft texture. However, there is a difference in the percentage of values between the five samples tested. Sample D shows the highest value with a rate of 88% because the texture is crispy on the outside and soft on the inside from sample D, so sample D has the highest percentage, which indicates that the churros in sample D have a very smooth texture. Sample A has the second highest percentage value with 83.50%, meaning that the churros in sample A also have a very soft texture because sample A is an original product. Samples B and E have percentage values of 72% and 71.50%, respectively, indicating that both have a soft texture, but their percentage values are lower than samples A, and D. Sample C has the lowest percentage of 69.25%; this is due to the absence of sugar used in sample C, indicating that churros in sample C are less soft than the other samples.

Nevertheless, sample C is still included in the category of churros with a soft texture. The substitution of coconut dregs flour in making churros does not significantly impact the surface of churros because all samples are still categorized as churros with a soft texture. Sample C had the lowest percentage, with 69.25%, due to the absence of sugar in sample C, indicating that the churros in sample C were less soft than the other samples. Nevertheless, sample C is still included in the category of churros with a smooth texture. The substitution of coconut dregs flour in making churros does not significantly impact the surface of churros because all samples are still categorized as churros with a soft texture. Sample C had the lowest percentage, with 69.25%, due to the absence of sugar in sample C, indicating that the churros in sample C were less soft than the other samples. Nevertheless, sample C is still included in the category of churros with a smooth texture. The substitution of coconut dregs flour in making churros does not significantly impact the surface of churros because all samples are still categorized as churros with a soft texture.

Figure 2  
*Color Chart*

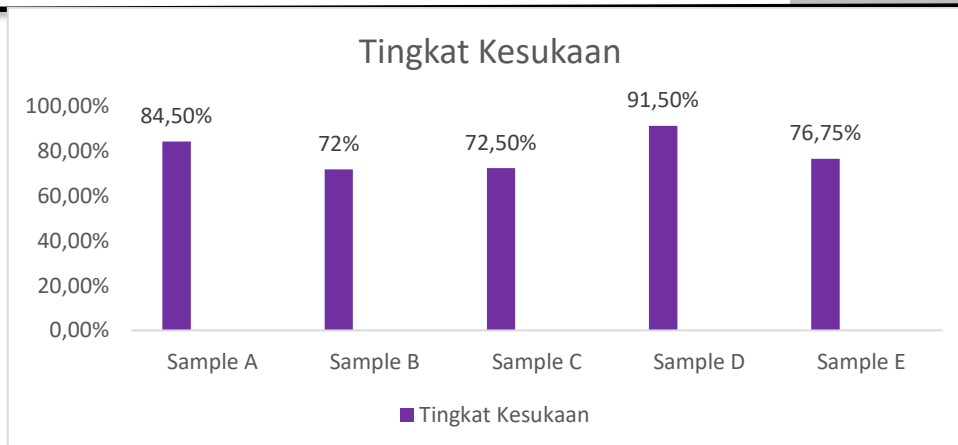


Based on the results of the descriptive test, there was a difference in color presentation between each churros sample. Sample D had the highest percentage, namely 87%, indicating that the color of churros in sample D was considered very attractive by the panelists. Meanwhile, Sample A has the second highest color percentage, namely 83%, but the percentage is still lower than Sample D. This shows that the colors in Sample A are also considered attractive, but slightly lower than Sample D. Meanwhile, Sample B has the lowest color percentage, namely 74%, although it is still categorized as an attractive color. Sample C also has the same color percentage as Sample B, but is placed in the second lowest rank because there is a lower value from the panelists in assessing color in Sample C.

### Hedonic Test

Figure 3  
*Likeability Chart*

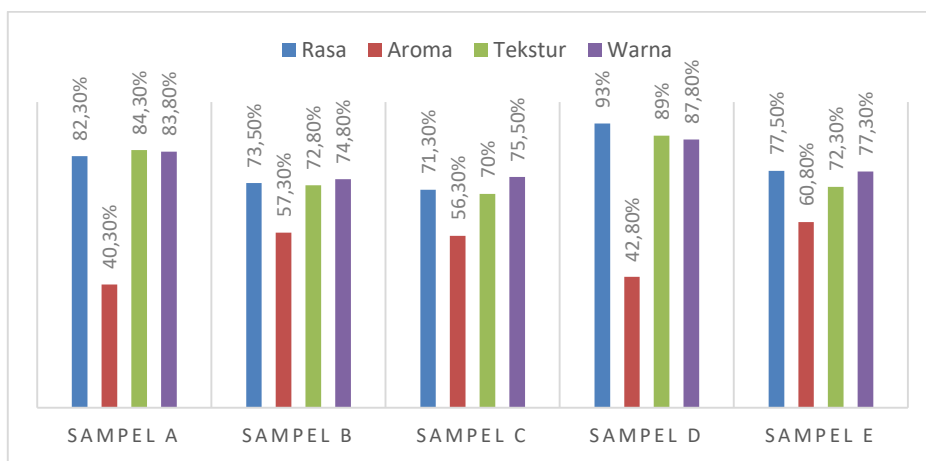




The results of the descriptive test on Churros aroma showed the percentage of panelists' preference level for churros products with coconut dregs flour substitution in each sample. The highest percentage was in Sample D, with 91.50%. This was because the texture and taste of simple churros were the most preferred and attractive colors became an attraction for panelists, which showed that panelists liked the aroma of churros in sample D. Meanwhile, the lowest percentage was in Sample B with a percentage of 72%, this was because churros sample B was less hollow as in general churros and, but this sample was still included in the likes category. Sample A has a percentage of 84.50%, Sample C has a percentage of 72.50%, and Sample E has a percentage of 76.75%. All of which indicated that the panelists liked the aroma of churros in each sample. Therefore, based on the results of this descriptive test, it can be concluded that the substitution of coconut dregs flour has no significant effect on the level of panelists' preference for.

Figure 4

Overall Results Graph



Based on all the available descriptive test results, it shows that of the 5 existing samples, it is shown that the most dominant sample is Sample D, this is because sample D has the most attractive taste, texture, color compared to the other four samples. Based on the panelist's assessment, it was explained that the taste that is owned is savory, this is because it is based on the ingredients used, namely coconut dregs which adds a savory taste to churros for its own texture, sample D has a crunchy texture on the outside and soft on the inside. For the second dominant sample is sample A which is a sample with the use of 100% wheat flour based on the

results of the analysis showing that Sample D already has a more attractive texture, taste and color than sample A. Meanwhile Samples B, C,

**ANOVA test**

Table 1

*Taste Anova Test*

		Sum of Squares	Df	MeanSquare	F	Sig.
Sample B flavour	Between Groups	13,259	3	4,420	23,082	.000
	Within Groups	18,381	96	.191		
	Total	31,640	99			
Sample C flavour	Between Groups	6,490	3	2.163	4,914	.003
	Within Groups	42,260	96	.440		
	Total	48,750	99			
Sample D flavour	Between Groups	1014	3	.338	.978	.406
	Within Groups	33,146	96	.345		
	Total	34,160	99			
Sample E flavor	Between Groups	3,990	3	1,330	4.117	.009
	Within Groups	31010	96	.323		
	Total	35,000	99			

Based on the existing analysis results, Samples B, C, and E have a sig value of <0.05, which means  $H_0$ . This shows that there is a taste effect on the three samples. Whereas sample D shows a sig value > 0.05,  $H_0$  is accepted because there is no taste effect on sample D.

Table 2

*Aroma Anova Test*

		Sum of Squares	Df	Mean Square	F	Sig.
Aroma Sample B	Between Groups	10,814	3	3,605	6,204	.001
	Within Groups	55,776	96	.581		
	Total	66,590	99			
Aroma Sample C	Between Groups	3,540	3	1,180	3045	.033
	Within Groups	37,210	96	.388		
	Total	40,750	99			
Scent D	Between Groups	.336	3	.112	.296	.828
	Within Groups	36,254	96	.378		
	Total	36,590	99			
Aroma Sample E	Between Groups	10.213	3	3,404	7,059	.000
	Within Groups	46,297	96	.482		
	Total	56,510	99			

Based on the results of the aroma analysis, it was shown that Samples B and E had sig values <0.05 which indicated that  $H_0$  was rejected because there was an effect of aroma on these two samples. Meanwhile, samples C and D had sig > 0.05, which means that  $H_0$  was accepted because there was no significant aroma effect on samples C & D.

Table 3

*Texture Anova Test*

		Sum of Squares	Df	Mean Square	F	Sig.
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						Original Article
Sample B	Between Groups	3,075	2	1,537	3,627	.030
texture	Within Groups	41,115	97	.424		
	Total	44,190	99			
Sample C	Between Groups	4,872	2	2,436	3,628	.030
texture	Within Groups	65,128	97	.671		
	Total	70,000	99			
Sample D	Between Groups	1021	2	.510	1,390	.254
texture	Within Groups	35,619	97	.367		
	Total	36,640	99			
Sample E	Between Groups	2,913	2	1,456	2,890	.060
texture	Within Groups	48,877	97	.504		
	Total	51,790	99			

Based on the results of the texture data, samples B, C, D, and E.  $H_0$  were accepted because there was no significant effect on the four samples.

Table 4  
*Color Anova Test*

		Sum of Squares	Df	Mean Square	F	Sig.
Sample B color	Between Groups	006	2	003	007	.993
	Within Groups	42,984	97	.443		
	Total	42,990	99			
Sample C color	Between Groups	071	2	.036	.102	.903
	Within Groups	33,889	97	.349		
	Total	33,960	99			
Sample D color	Between Groups	.589	2	.295	.785	.459
	Within Groups	36,401	97	.375		
	Total	36,990	99			
Sample E color	Between Groups	2031	2	1016	2,582	.081
	Within Groups	38,159	97	.393		
	Total	40,190	99			

The ANOVA analysis results on the existing samples' color show that  $H_0$  is accepted by samples B, C, D, and E and has no effect on color.

Based on all the results of the existing analysis data, it shows that Sample D is the dominant sample in terms of taste, texture, and color. This result is based on the percentage of Taste (93%), Texture (89%), and Color (87.80%) ratings. The assessment was carried out on 100 existing panelists. Sample A was the dominant sample because Sample A was a churros sample with an average ratio. However, in this study, the results obtained in Sample D did not affect sample A. Meanwhile, in Samples B, C, and E, it was found that there was an influence on the taste and aroma in the sample.

In the hedonic test results, Sample D was the sample that the panelists most liked. At the same time, Sample A is the second sample the panelists favor because it is rated like churros.

In contrast, when eaten, the model is considered to have a savory taste and crunchy texture, with a slight aroma that is difficult to guess, while sample E is the third sample that panelists prefer. This is also based on the method of manufacture, which does not use sugar, whereas sample B is considered to have a slightly soft texture; this is also based on the addition of eggs in the manufacturing process. The results are that panelists tend to like sweet tastes, based on the results showing that each panelist has different preferences.

#### 4. Conclusion

Based on the results of trials that have been carried out by researchers on 100 panelists to answer the existing problem formulation of the use of coconut dregs flour as a substitute for using wheat flour in making churros, coconut dregs flour can be used as a substitute for wheat flour in making churros and can be accepted by the community. This can be seen based on the results showing that sample D is made from coconut dregs flour but is one of the most preferred samples by existing panelists with the highest acquisition of favorability values.

Based on the results of existing trials, researchers also found that coconut dregs flour has a good function for health with a high fiber content of coconut dregs that can help people lose weight because the high fiber content can help a person control existing appetite, besides that consumption of coconut dregs flour can also help improve digestion, besides that by reducing consumption of wheat flour it also reduces refined carbohydrates which are not suitable for health because they can cause diabetes and are also things that are not good for the body.

Based on the results of the discussion and conclusions that have been obtained, the suggestions that can be given are as follows:

- a) The use of coconut dregs flour can be used in making churros, but if you want to use coconut dregs flour, it is better to use a bit extra essence to cover the pungent coconut aroma; besides that, in the process of making coconut dregs flour. It is necessary to bake it at a low temperature so that the results obtained are maximized.
- b) It is suggested that future researchers conduct trials using coconut dregs flour to manufacture other types of food because it has been proven that the community can accept coconut dregs flour in mixing food production.
- c) It is hoped that future researchers will continue to carry out trial research by utilizing existing food waste; this also aims to reduce existing food waste.

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