# LEVEL OF ACCEPTANCE HEALTHY SNACK FOR PICKY EATERS PRESCHOOL CHILDREN IN KENDARI

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**ABSTRACT**

*Acceptance of healthy snack products made from local food for difficult to feed (picky eater) age of preschool children. The experimental study was conducted on a pre experimental basis, with a sample size of 25 people and processed using a cruciate-wallis test to determine the acceptability of trained panelists (students) and the Comstock method to determine an untrained panel of acceptance test (preschoolers). Received power test by looking at the remaining food in preschool children was obtained from 25 schoolchildren with biscuits remaining only 12% (3 children), while 88% (22 children) were left. The results of the organoleptic test showed that the best product was product / formula 1 (B2) with an average of 3.69 according to the color, aroma, taste, and texture attributes.*

***Keywords**: Difficulty eating (picky eater), receiving power.*

## INTRODUCTION

Difficulty eating (Picky Eater) is the behavior of children who experience eating disorders in the form of refusal to eat, do not want to eat, take more than 30 minutes to eat, and only want to eat certain foods. Difficulty eating in children is often found in the community. An eating difficulty is identified when a child refuses or is unable to accept adequate amounts of variations of food or drink, even though the child needs adequate nutrition to maintain his nutritional status.

Research conducted in Jakarta shows the prevalence of eating difficulties in preschool children aged 4-6 years is 33.6% and 44.5% suffer from mild to moderate malnutrition, and 79.2% have lasted more than 3 months.

Basically, eating is a learning process, so introducing a child's diet should be done in stages. Starting from the most refined textured foods to the coarse, from simple side dishes to complete. Then when the child is willing to do it himself, parents need to motivate. Thus the child will feel comfortable and be excited to eat. In fact, what happens is usually the parents or the closest adults are also classified as individuals who also tend to be picky about food. Moreover, as it is currently supported by the availability of instant fast food (Fast Food), it makes it easier for parents not to bother processing it. But behind this ease and ability, unconsciously the behavior of picking and eating can be a medium for children to imitate food choices because toddler-age children are imitators of those closest to them. Whatever he sees, it is considered that it is good and deserves to be emulated, but sometimes parents do not even think that their habits that are felt mediocre will have an impact on their children (Dubois, 2007).

The results of the study in preschool children in Puuwatu sub-district stated that 83.0% of the nutritional knowledge of mothers of children who experienced picky eater was lacking, and 99.0% of the behavior of mothers of children who experienced picky eater was also in the category of lacking[15]. Meanwhile

Angraini's research (2012) in the Ngadirejo Posyandu in Blitar City showed that there was a correlation between parents' eating behavior and Picky Eater events in toddler children (p = 0,000, r = 0.396).

To provide correct food for school-age children must be seen from many aspects, such as economic, social, cultural, religious, in addition to the medical aspects of the child itself. Food in school-age children must be harmonious, balanced and harmonious. Harmonious means according to the level of growth and development of children. Harmony is in accordance with the economic, socio-cultural and religious conditions of the family. While balanced means the nutritional value must be in accordance with the needs based on age and type of food ingredients such as carbohydrate, protein and fat. Because of the large variations in food needs of each child, then giving food advice to children should not be too rigid. Feeding children should not be done with violence but with persuasion and monitoring of growth and development. Good feeding must be in accordance with the Amount, Type and Schedule of a particular child's age. These three things must be fulfilled according to the child's age as a whole, not only prioritizing the type but forgetting the amount or otherwise providing an adequate amount but the type is not suitable for the child.

Children's habits for snacks and dependence on just one type of food cause children's consumption patterns are not balanced and safe. For this reason, in order to meet the adequacy of energy, protein, fat and carbohydrates in the family menu arrangement, one of the efforts that can be taken is by adding snacks as a snack to the family dish. The snacks served, of course, must be healthy, safe, and can supply the nutritional needs of the family. Consumption of foods including safe snacks with balanced nutritional content, enough energy and nutrients is highly recommended so that good eating habits are formed to improve appetite to achieve optimal physical and cognitive development, normal body weight, and reduce the risk of chronic diseases in adult age.

In addition, a person's dislike for one type of food makes balanced consumption patterns difficult to apply in the daily diet. Variation and keratifitas in the presentation of the disliked food ingredients into various snacks as a snack between meals is the best alternative because usually people prefer it in the form of snacks.

Supplementary feeding (PMT) is an intervention to restore or increase the nutritional intake of children with difficulty eating (Picky Eater) in the form of additional food outside of food consumed by children in their family environment. The results showed that energy intake in preschool children in Puuwatu sub-district was in the category of less than 79%, and protein by 22% was also in the less category.

Based on several problems related to eating difficulties (Picky Eater) in preschool children, the researchers tried to raise the issue namely how to accept healthy snacks made from local food ingredients for children who have difficulty eating (Picky Eater) preschool children.

## OBJECTIVE

The purpose of this study is to determine the acceptability and modification of healthy snack products made from local food raw materials for children who have difficulty eating (Picky Eater) at preschool age.

## RESEARCH STUDY

How is the acceptability of food to the modification of healthy snacks made from local food as a supplementary food for children with difficulty eating (Picky Eater) in preschool children.

Benefits of study.

Improving the efficiency of local food because it is very potential as a source of household economic income, and as information material to the community, especially mothers who have preschool children who have difficulty eating (Picky Eater) in preparing additional food in the form of snack products.

## RESEARCH METHODS

The study was carried out pre-experimentally consisting of 2 treatment modifications and one as a control. The research was conducted in July-November 2017. Panelist tests were conducted at the Nutrition Technology Laboratory of the Poltekkes Kendari Nutrition Department for panelists as many as 30 people and at Satria Kindergarten to test the transmission power of preschool children as many as 25 people.

Analysis of the data used is the Kruskal-Walis test for the acceptance of trained panelists and the Comstock method for viewing the acceptability of preschoolers.

## RESULT

Research conducted in July-November 2017, obtained the following results:

Table 1. Demography preschool children

| Age | n | % |
|---|---|---|
| < 5 Age | 11 | 44 |
| ≥ 5 Age | 14 | 56 |
| | **25** | **100** |
| **Sex** | | |
| Boys | 8 | 32 |
| Girls | 17 | 68 |
| | **25** | **100** |

Figure 1. Receipt distribution of yellow sweet potato biscuits based on color attributes

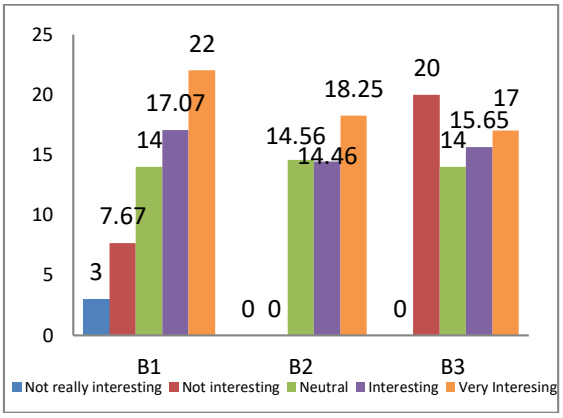


Figure 1. Shows that the acceptability based on the color attribute of yellow sweet potato biscuits is very interesting category found in B2 products with a percentage (18.25%), but for the unattractive category found in B3 products with the highest percentage which is 20%.

Figure 2. Receipt distribution of yellow sweet potato biscuits based on aroma attributes

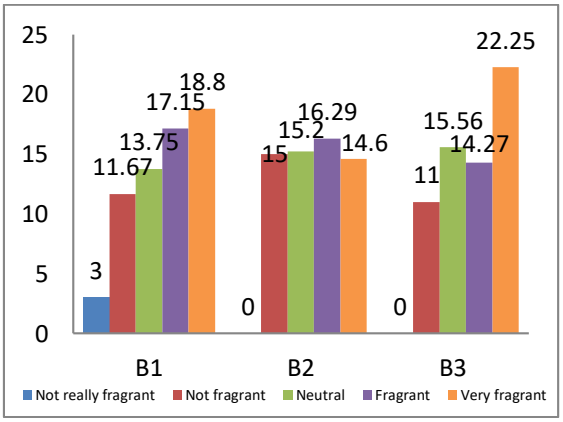


Figure 2. Shows that the acceptance based on the aroma attribute in the very fragrant category found in the B3 product has the highest percentage of 22.25%. As for the fragrant category, B2 products are 15.0%.

Figure 3. Distribution of acceptance of sweet potato biscuits based on flavor attributes.

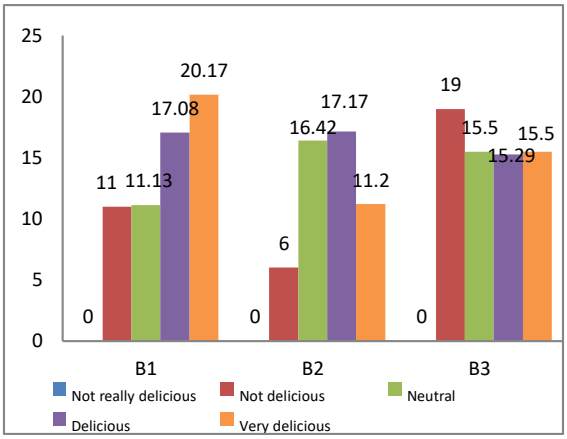


Figure 3. Shows that the receptivity of biscuits to the taste attribute is in the good category, that is, B2 products have the highest percentage of 17.17%. As for the bad category, there is B3, which is 19.0%.

Figure 4. Acceptance distribution of sweet potato biscuits based on texture attributes.

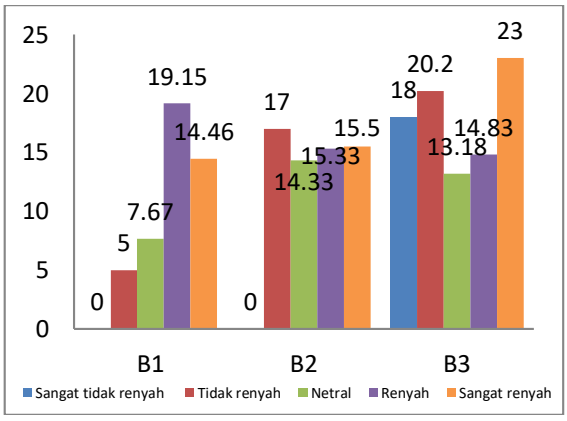


Figure 4 shows that the acceptability of sweet potato biscuits based on the texture attribute is in the category of crispy namely B2 products have the highest percentage of 15.33%. Whereas the non-crispy category is found in B3 products, which is 20.2%.

Table 2. Nutrient Substance Content in 100 gr Ingredients

| **Nutrient** | **Amount** |
|---|---|
| Energy (kkal) | 732,9 |
| Protein (gr) | 21,6 |
| Fat (gr) | 36,4 |
| Carbohydrate (gr) | 80,9 |

Table 3. Results of analysis of biscuit formula attributes (Kruskal wallis test)

| | Warna | Aroma | Rasa | Tekstur |
|---|---|---|---|---|
| Chi-Square | 2,422 | 5,226 | 0,355 | 27,262 |
| Df | 2 | 2 | 2 | 2 |
| Asymp. Sig. | ,298 | ,073 | ,837 | ,000 |

From the results of the test. It can be seen that the values for the color attributes (p = 0.298) can be concluded that there are no differences in the color attributes of the three formulas. In the aroma attribute (p = 0.073) it can be concluded that there is no difference in the aroma of the three products, the taste attribute (p = 0.837) then it is concluded that there is no difference in the taste of the three products, and the texture attribute (p = 0,000) then it is concluded that there is a texture difference of the three products because the p value <0.05. from the three products it can be concluded that there is no difference in terms of color, aroma, and taste. While in terms of texture of the three formulas there are differences.

Table 4. Average preferences for sweet potato biscuits

| Criteria | Products | | |
|---|---|---|---|
| | B1 | B2 | B3 |
| Color | 3,57 | 3,97 | 3,77 |
| Aroma | 3,60 | 4,10 | 3,70 |
| Taste | 3,73 | 3,70 | 3,80 |
| Texture | 4,27 | 3,00 | 3,23 |
| Amount | 15,2 | 14,8 | 14,5 |
| Average | 3,79 | 3,69 | 3,63 |

Based on table 4. It is known that based on the average value of color, aroma, taste and texture of the product obtained the highest value is in the product / formula 2 (B2) with an average of 3.69 namely 40

grams of sweet potato flour, 40 grams of green bean flour flour and 20 gr.

Table 6. Distribution of Food Left(Biscuits)

| Biscuit | n | % |
|---|---|---|
| Not leftovers (≤25 %) | 22 | 88 |
| Leftovers(> 25 %) | 3 | 12 |
| Total | 25 | 100 |

Based on the above table, it can be seen that for food leftovers (biscuit products 39 gr), from 25 samples of preschool-aged children who have biscuits left only 12% (3 children) only, while those who have no remainder are 88% (22 children).

## DISCUSSION

### Acceptability Level

The level of preference for one type of food is very closely related to consumers' acceptance of the food itself. Food acceptability can be assessed through food tastes. The effort to get good food taste has been started since choosing the food ingredients to be used which will then prepare the food ingredients to be cooked in various ways and make certain interesting shapes. There are several factors that affect consumers' eating power, including: color, taste, aroma, and texture (Moehyei, 1997).

1. Color

   The results showed that the acceptance of sweet potato biscuits based on the color attribute was in the attractive category. In formula 1 (B2) most of the panelists (14.46%) stated that they were attractive to the color of sweet potato biscuits. In formula 2 (B3) as many as 15.65% of the panelists said they were attractive to the color of the biscuits, and were the products with the best acceptability according to their color attributes.

   The color of the biscuits is rather yellowish brown, when compared to control it has similarities. The color is influenced by the color of the material, the basic color of yellowish sweet potato flour makes the product color a bit yellowish brown. Most of the panelists said formula 2 was interesting in its color attribute category. In this formula the combination of the color of sweet potato flour which is yellowish brown and the color of white mung bean flour produces an easy yellow color, besides that when burning the right temperature it produces a brownish yellow product. According to Nurlela et al, 2015 good cookie colors are brownish yellow and all depend on all ingredients used.

2. Aroma

   The results showed that the acceptance of sweet potato biscuits based on the aroma attribute was in the fragrant category. In formula 1 (B2) most of the panelists (16.29%) stated that it was fragrant and was the product with the best acceptance according to the aroma attribute. In formula 2 (B3) as many as 14.27% of the panelists said it was fragrant.

   The aroma that arises is caused by volatile compounds found in the evaporating material. The aroma of biscuits is caused by various other ingredients such as margarine, sugar. According to Matz 1987, the developer material in making cookies functions as a regulator of aroma.

3. Taste

   The results showed that the acceptance of sweet potato biscuits according to the taste attribute was in the tasty category. In product 1 (B2), more panelists (17.17%) stated that it was delicious, which was the product that had the best acceptance in terms of the number of presentations according to the taste attribute. In product 2 (B3) more panelists (15.29%) said it was good.

The taste of the product is caused by the ingredients of the product itself, the product looks the most preferred product is B2 product, consisting of 40 g of sweet potato flour, 20 grams, wheat flour, 40 grams of mung bean flour. The taste of green bean flour is slightly tasty. Besides the taste of sweet potatoes is not too dominant. Sweet potato flour contains bitter taste-causing components that are in raw food. The bitter taste in sweet potato flour is usually caused by several chemical compounds such as phenolic and alkaloids. Bitter taste is also caused by a black root infection in the roots of sweet potato plants. This infection causes the formation of phytoalexin compounds (Fenwick et al in Rouseff 1990).

4. Texture

The results showed the acceptance of sweet potato biscuit products according to texture attributes. In formula 1 (B2) 15.33% of panelists stated that crispy was the best product according to the texture attribute in formula 2 (B3) more panelists (14.83%) stated crispy.

The addition of sweet potato flour and mung bean flour can reduce the elastic properties of the gluten and decrease the texture of the biscuits to be rather hard. According Subandoro, et al (2013) the amount of gluten in the dough causes the dough to be less able to hold the gas, so the pores formed in the dough are also small. As a result the dough does not expand properly, then after baking it is finished producing a hard product

5. Food Left

The receptivity to a food product is determined by the stimulation of food through the sense of sight, digestion and taste or even taste may hear. The acceptability of food products served is influenced by the taste of the food products themselves. To find out whether food products are received or not, we need to look at how much food is left.Seeing the presentation of leftover food by 88%, it can be concluded that biscuit food products for school children can be accepted by school children or in other words these products are preferred. One effort to evaluate the quality of food products made can be done by noting the amount of food left.

**Effect of Giving Sweet Potato Flour Biscuits (Ipomea Batatas) Products with the Addition of Green Bean Flour.**

In this study the provision of healthy snacks (biscuits) to preschool children affects the child and the mother, to get used to choosing and consuming healthy foods with optimum nutritional value.

To meet the needs of these preschoolers, biskut products are given which have a higher nutritional content than biscuits in general because these biskui use sweet potato flour with the addition of mung bean flour.

At preschool age, children experience psychological development becoming more independent, autonomous, can interact with their environment, and express their emotions more. The usual form of emotional overflow is crying or screaming when the child is not comfortable. The nature of the development that is formed can affect a child's diet. This causes children to sometimes be too picky, for example, tend to like eating light so that they become full and refuse to eat during mealtime.

**Children with Difficulty to Eat (Picky Eater)**

Difficulty eating is called feeding problems, at a mild level is called picky eating and at a more severe level is called feeding disorder. Palmer defines eating difficulties as an inability to eat or rejection of certain foods as a result of neuromotor dysfunction, obstructive lesions, or

psychosocial factors that affect eating or a combination of two or more of these causes.

causing the child to be deficient in macro and micro nutrients which can ultimately interfere with physical growth characterized by lack of weight and height or difficulty in increasing weight and also impaired cognitive growth.

Handling of children's eating problems includes training for parents, nutrition education, interaction training and the ability to provide food (Louise, 1999)[14]. Meanwhile, according to (Devi, 2014), factors causing eating difficulties due to dietary factors, psychological factors, and organ factors.

**Nutrient Content**

Based on nutrient calculation of yellow sweet potato biscuits with the addition of green beans in 100 gr.

The results of the study of yellow sweet potato biscuits with the addition of green beans after calculating the nutritional value can be seen in table 9. Based on the table the nutritional value of yellow sweet potato is higher than SNI, this shows that the nutrients possessed by yellow sweet potato biscuits are better if compared to the standard.

## CONCLUSION

Acceptance of snack products (biscuits); it is known that based on the average value of color, aroma, taste and texture of the product obtained the highest value is in the product / formula 1 (B2) that is 20 gr flour flour, 40 gr sweet potato flour and 40 gr mung bean flour, 15.65 % of panelists stated attractive to the color of biscuits by (52,%), the majority of panelists (16.29%) said they smelled of the aroma aspect, more panelists (17.17%) said it was good for the taste category, as many as 15.33% panelists expresses crispy according to the texture attribute. Acceptance test by looking at food scraps in preschool children is obtained from 25 samples of school children who have only 12% of the remaining biscuits (3 children), while those with no remainder are 88% (22 children).

From the results of the Kruskal Wallis test it can be seen that the values for the color, aroma and taste attributes can be concluded as not present while for the texture attributes there are differences in the texture of the three products because the P value <0.05.

Organoleptic test results indicate that the best product is product / formula 1 (B2) with an average of 3.69 according to the attributes of color, aroma, taste, and texture.

The results of the calculation of the nutrient content of yellow sweet potatoes with the addition of green beans when compared with SNI content of nutritional value of biscuits is higher than the standard.

**Suggestion**

For parents who are overweight should pay more attention to the child's breakfast habits before and when they arrive at preschool.

Based on the results of the study note that the most preferred yellow sweet potato biscuits are in the formulation of 40 grams of sweet potato flour, 40 grams of green bean flour, and 20 grams of wheat flour so that for the community especially for parents who are interested in making biscuits as a healthy snack of children this product can be an option.

Based on the results of the study above, the researcher recommends that further researchers be able to provide biscuits repeatedly (several times giving) and also supervise the food consumed by preschool children (samples) both at home and outside the home.

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