

# Nutrition Value Of Development Of Snack Cireng Cassava And Fish

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**Abstract:** Snack are ready-made foods that are self-produced or purchased from sellers or merchants. Snack sellers can be found along the roadside, in stalls, cake shops around the crowded places like schools, offices, colleges and so on. The Ministry of Health (2014) states that snack is a given or consumed between two time of meals with an energy value of about 200 Kilocalories and 5 grams of protein. Whereas PMT-US standard (Supplementary Feeding of School Children) requires 200-300 kilocalories and 5-7 grams of protein. Snacks are sold around the school by unsettled and non-resident sellers in the school stalls or canteens. Various snacks are sold as rice noodles, sweet corn, fried tempe tofu, fried foods, meatballs, bread, cracker, potatos, jelly, cooked rice, noodles, cimol, cilok, cireng, biscuits, milk, iced tea, iced juices, etc, (Alfid TA, Retno I, Setho and Yohanes K, Bastianus DR, Anasari M 2013) The BPOM (Food and Drug Supervisory Agency) research in Alfid in 2003) stated that from 9465 samples 80% contain harmful ingredients. Snack also has a contribution in the fulfillment of daily nutrition that is energy amounted to  $233.11 \pm 28.41$  Kcal and protein at  $6.21 \pm 1.39$  gram (Rachmawati HN 2013). This type of research is experimental with cireng manufacture from cassava and fish, cassava cireng, Fish and tapioca and cireng original made from tapioca flour. The study aims to determine the taste, nutritional value and large of serving portions. The results were obtained for all three products The weighing 50 gram serving portion nutritional value has not reached the standard of the nutritional value of snacks. From the aspect of approaching cireng original flavor is cireng tapioca plus cassava and fish while cireng cassava and fish not like cireng original. It is advisable to develop or further modify in order to achieve nutritional standards of snack and as a healthy and safe snacks and the characteristics of cireng are not lost.

## 1 INTRODUCTION

Children have a high character physical activities such as playing with friends, good appetite, at school about 4-6 hours used to learn while playing and guided by the teacher. Usually, students bring lunch from home in the form of snacks that are bought or made by his parents. Most of the students there were no supplies usually given pocket money which varies in value will be spent on school break time. The growth is relatively small compared to the previous period, such as weight and height, within a year of weight and height gain of about 10% of initial body weight measurement. (Arisman MB, 2004) The nutritional needs of this group are 1750 kcal and 37 gram protein (Kemenkes 2013) Snack is a food or beverage that is processed for sale along the way, Public halls and catering services (food stalls, restaurants, hotels) served as food ready to eat. Around the school (inside and outside the school) there are also stalls and street vendors offering a variety of snacks. Snack that is sold and often bought is fried rice noodles, sweet corn, tempe, somay, meatball soup, fried meatballs, sate intestines, nastar cakes, fish meatballs, fried chicken, ciki, potatos, tofu, bread, jelly, donut, rice wrap, Cimol, cireng, cilok, biscuits, milk, iced tea, ice cream, ice juice, Marimas iced, ice chocolate, ice lolly which contains low calories and protein. (Alfid TA, Retno I, Setho H, 2013, and John K, Bastianus DR, Anasari M, 2013) School children buy snacks with saw the color, attractive packaging, tastes good and the price is cheap according to ability allowance (John K, Bastianus DR, Anasari M, 2013) Though good snacks and cheap not necessarily healthy and safe. The results of BPOM (Food and Drug Supervisory Agency) in Alfid 2003 stated that 80% of 9465 snack samples contain harmful ingredients such as formalin, borax, rhodamine B, saccharin, sodium cyclamate which can cause long-term health problems. Snacks that are both healthy and safe when consumed can contribute to meeting the needs or nutritional adequacy of children. Rachmawati NH (2013) stated that average school children snacks give energy intake of  $233,11 \pm 28,41$  kcal and protein  $6,21 \pm 1,39$  gram MoH RI (2014) stipulates that a given interlude or snack between two time for meals provide energy for 200 calories and protein 10% (by 5 grams). Standard of PMT-AS (Supplementary Feeding of School Children) is 200-300 kilocalories of energy and 5-7 grams of protein. Snack

generally high energy from carbohydrate and oil revenues, but still low of protein. The combination of two types or more substances with different nutritional content is an alternative to improve the nutritional value of the product. Advantages of the use of food ingredients mix with a certain proportion can change the nutrient composition of the final product. For foods with low nutrient content can be increased by the addition of other food ingredients with higher nutritional composition (Munifa, et al 2015). Like cassava, the fish is combined with tapioca / kanji Cassava (*manihot utilisima*) is a local food with high enough energy content but lower protein content. Processing of cassava by industry as tapioca flour and animal feed. Domestic household consumption is still processed traditionally. Cassava is a staple food used as a substitute for or made snacks such as tape fried cakes, brownies cassava chips cassava, lemet, shredded, Tiwul, bread flour cassava, cassava klepon and processing simplest boiled and fried (Wikipedia2013). Nutritional Value of cassava per 100 grams is 146 kcalori energy, protein 1.2 gram, 0.3 grams fat and 34.7 grams carbohydrat equivalent to 40 grams of tapioca flour, only very low protein content (MoH 2005). To increase the protein value of processed cassava or tapioca products recommended for additional  $\frac{1}{2}$  servings of foods high in protein such as fish or nuts. Indonesia in addition to producing cassava is also a producer of fish both sea fish and fresh water. In 2014 fishery production reached 13.82 million tons. Domestic consumption is estimated to reach 9.5 million tons. (BPS Sulsel 2013). Processed fish mostly as a side dish with a variety of delicious flavors using variations of spices and other materials and how cooking such as fried, baked, cooked soupy. Fish has a high protein content, in 100 grams of fish containing 17-20 grams of protein. Processed fish products can be designed with the flavors, shapes and colors are attractive and generally as a side dish (Munifa, 2015) but can also be combined into a variety of snack if included in the making.

## 2 MATERIAL AND METHODS

Materials used are cassava with good quality, fresh, flesh diameter of 2-3 cm and a length of 20 to 50 cm, is not bitter. The fish used are fresh fish (flying fish) that have thorns / bone slightly and easily separated spines and bones, tapioca,

seasoning materials and supplementary materials, fried oil. Processed products snack cireng original (250 grams tapioca) cireng cassava (500 grams of cassava plus 125 grams of fish) and cireng combination (250 grams of cassava, tapioca 250 grams, 125 grams of fish) produce different nutritional content and flavors.

### 3 RESULT

The products made there are three type, namely of cireng original, cireng cassava and fish and cireng modifications. Results of analysis of products as follows.

**Table 2. Results of Product Analysis**

No.	Product name	Characteristics generated
1.	Cireng cassava + fish	One serving weight: 50 grams  Nutritional value obtained: Energy: 770 kcal Protein: 2.97 grams Fat: 1.27 g Carbohydrates: 13, 3 grams  Taste : Color: a bit dark Aroma : typical of sharp fish Taste: salty, savory, no taste of fish Texture: can be bitten, not chewy, after cold rather loud
2.	Cireng original	Weight perportion: 50 grams  Nutritional value Energy: 138, 15 cal Protein: 0.4 to 4 grams Fat: 4, 16 grams Carbohydrates: 46.12 grams  Taste Color: white yellowish an Aroma: savory seasoning Taste: savory Texture: can be bitten, chewy
3.	Cireng modification	Weight perportion: 50 grams  Nutritional value Energy: 118.6 cal Protein: 2.90 grams Fat: 1.33 g Carbohydrates: 40.1 grams  Taste Color: yellowish, slightly brownish, brighter Aroma: still a savory aroma of fish and spices Taste: savory Texture: can be bitten, somewhat chewy, after cold rather loud

2016 Prepared Data

## 4 DISCUSSION

### NUTRITION COMPOSITION

#### Energy

Third product of cireng produce the nutritional composition is nearly equal. Energy generated between 77.0 to 138.15 kcal. The highest value on the original cireng and the lowest on cassava fish cireng. This is due to the original cireng using coconut milk as a liquid. General fluid used is water. When using plain water will lower energy value. The main source of energy comes from carbohydrates derived from tapioca flour and cassava. The main ingredients of cassava produce lower

energy because the ingredients are complex carbohydrate and fiber. While the original cireng main ingredient tapioca flour which is a source of simple carbohydrates. These three type of cireng products of energy produced have not reached the required for a large portion of 50 grams. To achieve the default value energy can be done by increasing the portion serving to weight of 100 grams or more so that the energy obtained in the range of 144.0 to 276.0 kcal or more. However, it should be considered if a serving portion is enlarged can interfere with the main meal because it gives a sense of satiety longer, especially if the distance between two short meal times.

### Protein content

The third protein content of cireng varies between 0.84 grams to 2,97 grams perportion with weighing 50 grams. The lowest content is obtained from original cireng and highest in cassava cireng plus fish. This happens because the original cireng the main ingredient is only tapioca flour which is low in protein content. While on cireng cassava and fish plus any additional modifications cireng cassava and fish compared with cireng original. Although there is an increase in protein content, but has not reached the required protein levels. To increase the protein can be by enlarging servings of servings into two or three times. Only needs to be considered a large portion will shift the position of the main meal or a full meal the child. The length of time between two meals should also be considered, the longer the distance gives the stomach the opportunity to empty and ready to be filled with the main meal. In school children especially primary school level one and second level which time of school about 4 hour. While for third level and up time school longer (07.00 - 13.00 hours).

## 5 CONCLUSION

1. Cassava and fish can be made cireng snack but do not give characteristic (chewy texture).
2. Cireng modified by the addition of cassava and fish provide results better nutritional value and characteristics cireng (chewy chewy texture) still exists.

## 6 SUGGESTION

1. To achieve the nutritional composition can be developed with the addition of other protein-rich ingredients other than fish such as eggs, peanuts.
2. Worth considering large food portion serving so as not to disturb the position of the main meal.

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