



A DELICIOUS AND HEALTHY SNACKS FROM HIGH PROTEIN NIKE FISH FOR STUNTING PREVENTION

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ABSTRACT

Stunting is one of the health problems that are still very much considered by the world, one of which is Indonesia. So far, the prevalence of stunting in Indonesia is still quite high, reaching 30.8%. Gorontalo is in the 12th highest position with the proportion of stunting events ranging from 30.8% to 42.6%. The prevalence of stunting in children aged 0-59 months in Gorontalo Regency in 2016, which was 4.7% in 2017, which was 2.3% and in 2018 it was around 5.4% of children experiencing stunting. In overcoming this, the fulfillment of nutrition for stunting prevention is very necessary. One of the things that must be considered is the fulfillment of protein to prevent stunting, where this protein content can be obtained from fish. Gorontalo region itself has a unique fish known as Nike fish which has a nutritional composition of omega 3 and 6 fatty acids which play an important role in the development of the baby's brain. Then, there is also ARA (arachidonic acid) and EPA (Eicosapentaenoic acid) which are polyunsaturated fatty acids that are good for fetal development and are also rich in protein. However, because the processing of Nike fish in Gorontalo is only limited to being consumed as fish in general, the first snack innovation made from Nike fish in the form of biscuits can be enjoyed by all people, especially children. The average fat content in Nike biscuits was 25.71%, while the average protein content is 12.52% and the water content itself is 14.34%.

Keywords: Nike, Stunting, Biscuit, Protein

INTRODUCTION

One of the health problems that is currently the focus of the Indonesian government is stunting (short children). The prevalence of stunting for children under five in Indonesia is the second largest in Southeast Asia, after Laos, which reaches 43.8%. In 2018 the Indonesian Ministry of Health again conducted Basic Health Research (Riskesdas) conducted by the Health Research and Development Agency (Litbangkes) on Stunting Prevalence. Based on this research, the stunting rate or children growing short fell from 37.2% in Riskesdas 2013 to 30.8% (Kementerian Kesehatan Republik Indonesia, 2018 in Rahmadhita, 2020).

The results of the Nutrition Status

Monitoring in 2017, the stunting rate in Gorontalo Province was 31.7% which was divided into very short at 11.2% and short at 20.5% (Badjuka, 2019). Based on the results of Riskesdas 2018, Gorontalo is in the 12th highest position with the proportion of stunting events ranging from 30.8% to 42.6%. From the prevalence of stunting in children aged 0-59 months in Gorontalo Regency in 2016 which was 4.7% in 2017, which was 2.3% and in 2018 it was around 5.4% of children who experienced stunting (Badjuka, 2019)

Nike fish is one of the local wisdom in Gorontalo Province. Nike fish or commonly known as *duwois* seen as the original genetic resource of Gorontalo, which in this case is one of four indicators of communal intellectual



property in addition to traditional knowledge, traditional cultural expressions, and geographical indications. Each type of fish species in the ocean has its own characteristics and advantages. Likewise, Nike fish itself has a nutritional composition that is superior to other fish. In addition, Nike fish also contains Selenium (Se) (Yusuf,2012).

Citing several studies, said Nike fish also contains omega 3 and 6 fatty acids which play an important role in the development of the baby's brain. Then, there is also ARA (rachidonic acid) and EPA (Eicosapentaenoic acid) which are polyunsaturated fatty acids that are good for fetal development and are also rich in protein. Fish also contains high DHA, so consumption of 600 grams of fish per week is recommended because it can help prevent depression in mothers during pregnancy and childbirth. In addition to being seen from the health side, this can also be an ingredient to introduce this native fish from Gorontalo in various regions with unique processing of course. In addition, this can bring huge profits in the sale of Nike fish. So not only in the form of fish that are ready to be cooked but also in the form of snacks that can be consumed anytime.

Based on the results of research in the Journal of Nutrition and Food Science, Selenium is one of the other important ingredients that play a role in reducing the risk of low birth weight (LBW) and the risk of stunting (BA, 2016).

Gorontalo Governor said the Communal HKI for Nike Fish was very suitable for Gorontalo. This fish is a local fish that is popular with the community. Nike is small in size with clear color. This fish is different from the type of anchovy field which tends to be slightly larger and flatter. Nike or the people of Gorontalo call it (Duwo) which is one of the fish that is endemic to the area itself. Why not, because

these fish only appear in certain locations and with a body that only has a size of 2-4 cm (Yusuf, 2012).

So far, Nike's fish processing has only been fried, steamed, or sauteed. So we took the initiative to create innovation and creativity in the processing of Nike fish originating from home businesses and industries with high nutritional value so that they can be used as additional food to meet the nutritional adequacy rate for children. Snacks with the type of biscuits are snacks that are often found in markets, mini markets, or other sales places. However, these biscuits are different from the biscuit products that we offer, because these biscuit products are made using Nike fish which is a local wisdom from Sulawesi, especially the Gorontalo area which contains high protein to meet the nutritional needs of children.

METHODS

The test method that we did first was the experiment of mixing Nike fish meal with biscuit-making ingredients four times. The production process starts from the collection of raw materials where the materials used are obtained from traditional markets. After that, fresh Nike fish are washed four times to make sure the fish are much cleaner using running water and then drained. Then the Nike fish is wrapped in banana leaves and steamed. After steaming, let the fish cool for a few minutes. Then destroy Nike fish using spoon or fork into small, coarse pieces. After that, the Nike fish were dried in an oven at 50oC for 30-45 minutes. Then remove and cool, after that put the cooled Nike fish into a blender to be crushed more finely where the result will be in the form of flour that is ready to use. After that, we conducted laboratory tests on the nutritional content of the finished biscuits before being distributed to consumers.



FIGURES AND TABLES

Table 1. Fat content laboratory test on Nike biscuits

Sample Type	Sample Code	Fat (%)	Average (%)
Cake	A1	26,12	25,71
	A2	25,76	
	A3	25,27	

Table 2. Protein content laboratory test on Nike biscuits

Sample Type	Sample Code	Protein (%)	Average (%)
Cake	A1	12,64	12,52
	A2	12,59	
	A3	12,32	

Table 3. Laboratory test water content on Nike biscuits

Sample Type	Sample Code	Water (%)	Average (%)
Cake	A1	13,61	14,34
	A2	12,81	
	A3	16,74	

Based on the results of laboratory tests conducted before the distribution of Nike biscuit products, the fat content of Nike biscuits was obtained using three biscuits. Namely, the first sample was 26.12%, the second sample was 25.76%, and the third sample was 25.71 % with the average fat content for the three is 25.71%. Meanwhile, in testing the protein content using three biscuits, the protein content in the first sample was 12.64%, the second sample was 12.59%, and the third sample was 16.52%. In the water content test itself, the percentage of water content in the first sample was 13.61%, in the second sample 12.81%, and for the third sample the water content in Nike biscuits was 16.74%, so it can be drawn the average percentage of water content in Nike biscuits is 12.52%.

AUTHORS' CONTRIBUTIONS

WPM carried out wrote the manuscript, YMS carried out make comparisons with other biscuit inventions and help to correct the writing of the manuscript, RH and RH conduct experiments and supervise laboratory tests of biscuit products. JBH carried out analyze the target

market for children and make comparisons with other stunting prevention products.

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