Global Scientific JOURNALS
GSJ: Volume 10, Issue 5, May 2022, Online: ISSN 2320-9186
www.globalscientificjournal.com

CATFISH NUGGET PRODUCT REVIEW ARTICLE

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Abstract

Catfish is the leading commodity of freshwater aquaculture fish in Indonesia. Catfish can be processed into raw materials for making nuggets. This article aims to review catfish nugget products dumbo in terms of the manufacturing process and quality description Based on the literature review obtained information that making catfish nuggets consists of the stages of preparing catfish into catfish meat lubrication, mixing materials, donation, steaming, printing and printing. The quality of catfish nuggets is good like other fish nuggets, namely chewy texture, savory and crispy taste, the aroma shows the characteristic fish and browned after frying. Delicious and high-grade fish nuggets amount of flour used as much as 10% of the weight of fish meat.

Keywords: quality, chewy, donating, steaming, excellent.

INTRODUCTION

Nuggets are practical and fast food in the activities of a dense society (Nurzainah and Namida, 2005). Nuggets are processed products from ground meat, given the addition of seasonings, printed and then smeared with bread flour on the surface and fried (Shamsir, 2008). Nuggets are one form of ready-to-eat frozen food products, namely products that have warmed until half-cooked (precooked), then frozen. This ready-to-eat frozen product only requires a frying time of 1 minute at a temperature of 150ºC (Ginting, 2015). Ground meat that can be made into nuggets can come from beef, chicken meat, and fish meat. Nugget products often found in supermarkets and traditional markets in Indonesia are chicken nuggets and fish nuggets.

Fish nuggets in Indonesia are diversification of fish processing. Currently, processed fish

products that are widely found in the market are traditional fish processing such as salted fish and pindang fish. Processing fish is very important to do because fish are easily rotten. In addition, the processing of fish is aimed at increasing its added value and increasing the consumption of fish protein in Indonesia.

Fish that can be used as raw materials for nuggets are thick fleshy fish and slight thorns in the meat. The type of fish that has the characteristics mentioned is that it can come from freshwater fish or marine fish. Freshwater fish that can be used as raw materials for nuggets are tilapia, catfish, and catfish. Sea fish that can be used as raw materials for nuggets are cob, tuna, skipjack, mackerel, and others. Freshwater fish that is widely cultivated and used as a superior commodity in Indonesia is dumbo catfish. The meat of this catfish tastes good and savory. Lysine is an essential amino acid that is found in catfish meat. This article aims at tore-view dumbo catfish nugget products in terms of manufacturing and quality description.

MORPHOLOGY AND TAXONOMY CLASSIFICATION OF CATFISH

The morphology of catfish is that it has a scab head, a largemouth, has no scales and its body is elongated round. Gray to black and slimy skin tone. Anatomy catfish has an additional breathing apparatus (arborescent organ) located at the front of the gill cavity. This additional breathing apparatus allows catfish to take in oxygen directly from the air. This breathing apparatus is reddish and shaped like a lush tree header full of blood capillaries. Catfish can live in aquatic conditions that contain little oxygen levels (Suyanto, 2000). As a swimming aid, catfish have three single fins, namely the dorsal fin, tail fin, and anal fin. Catfish also have paired fins that are pectoral fins and abdominal fins. The pectoral fin is equipped with a hard, pointed fin called a Patil. This Patil is useful as a weapon and a tool for movement (Khairuman and Amri, 2002 in Fitriah 2004).

Figure 1. Catfish

(Source: http://imagesandro.blogspot.com/2010/12/normal-0-false-false-false_231.html)

The classification of catfish according to Saanin (1984) is as follows:

Kingdom : Animalia
Phylum : Chordata
Class : Pisces
Order : Ostariophysi
Family : Clariidae
Genus : *Clarias*
Species : *Clarias sp*

Nutritional Content of catfish meat

The nutritional composition of catfish meat varies greatly depending largely on the species, habitat, feed, growth phase, and sex. According to Astawan (2008), generally, the nutritional content of catfish meat is zi catfish meat including protein content (17.7%), fat (4.8%), minerals (1.2%), and water (76%) (Astawan, 2008). Other information (Malau E P R, 2020) states that the nutritional content of catfish meat is found in Table 1.

Table 1. Nutritional Content of Catfish

Nutritional Content	Edible parts	Whole fresh fish
Water content (%)	78,5	47,1

Calories (cal)	90	54
Protein (%)	18,7	11,2
Fat (%)	1,1	0,7
Calcium (mg)	15	9
Phosphor (mg)	260	159
Iron (mg)	2	1,2
Sodium (mg)	150	90
Niacin (mg)	2	1,2
Thiamin (Vitamin B1) (mg)	0,1	0,06
Riboflavin (Vitamin B2 (mg)	0,05	0,03

According to Farikhah (2014), catfish meat can be used as a source of protein because the protein content is more than 10%. Catfish meat protein contains a lot of the amino acids lysine and leucine. The content of both amino acids is greater when compared to those found in beef. The amino acid leucine is beneficial for maintaining nitrogen balance in adults while in children it is indispensable for growth. Leucine is also useful for the remodeling and formation of muscle proteins. The amino acid lysine is needed for tissue growth and repair.

The mineral content contained in catfish meat which is quite high is phosphor. Phosphors are needed in the formation of bones and teeth and help with calcium absorption. Another nutritional content that is no less important contained in catfish meat is fat. The fat in catfish meat contains omega-3 and omega-6 which are very important in the development of the child's brain and lower blood pressure to avoid stroke.

Processing Nugget Catfish

Tools and materials used

The tools used in the manufacture of catfish nuggets consist of blenders, knives, pots, gas stoves, scales, spoons, swallows, and baking sheets. This equipment is widely available in traditional markets and supermarkets in Indonesia. The ingredients used in addition to catfish are wheat flour, bread flour, iodized salt, chicken eggs, cooking oil, pepper, sugar, garlic, onions, carrots, and clean water. The ingredients used between processing can be different, depending on their preferences, for example, the use of wheat flour can be replaced with cornstarch or can also use tapioca flour. The amount of each ingredient usage may also vary depending on the quality of

the desired nugget and the target market.

Stages of making catfish nuggets

The first stage in the manufacture of catfish nuggets is to weed catfish which is to remove the contents of the stomach, gills, fins, and catfish heads. Furthermore, the catfish in the fillet without the skin is taken from the meat and separated from the bones. Then the catfish meat is cleaned and blended so that the meat is obtained. The process of finishing / melting catfish meat is adding ice water. The purpose of adding ice water is to prevent the denaturation of the protein actin-myosin by heat.

The next stage is the manufacture of dough. The process is to add the wheat flour little by little. The amount of wheat flour used is as much as 10% of the weight of catfish meat. After that, the other ingredients are salt 4.5%, pepper 0.5%, garlic 2%, and water ±5% of the weight of catfish meat. The next stage is done stirring until evenly using a mixer.

The dough that has been made is then put into the mold and steamed in and steamed for 30 minutes. Steaming leads to the development of starch granules called gelatinization. A gelatinization is an event of the development of starch granules so that the granules cannot return to their original state. Steaming is done within a time of 30 minutes with the intention that the dough becomes solid so that it is easily cut or diced.

After steaming, cooled into the freezer at a temperature of ± 3 °C. Nuggets that have been cooled are then printed with the desired shape. Then the process of pouring by dyeing into the egg whisk and coating with bread flour. Irrigation is a process that must be done in making nuggets that have two stages, namely dyeing nugget dough that has been cut on egg whites and garnishing bread flour. The first stage is the dyeing of nuggets that have been cut on egg whites with the aim that bread flour can stick to the nuggets. The garnishing of bread flour becomes the second stage and is the most important part of the process of making frozen food products and other food industries. The garnishing of bread flour makes the product crispy, and tasty.

Figure 2. Catfish nuggets

(Source: https://lifestyle.okezone.com/read/2013/03/11/310/774127/nugget-lele)

Quality of fish nuggets

Nuggets are one of the processed products of frozen meat. This product has a long shelf life. Storage in the freezer can reach 2 weeks to 1 year. The characteristic of this fish nugget product is that it has an elastic and chewy texture. The elastic properties of fish nuggets are influenced by several factors, including the type of fish, the level of freshness of the fish, the pH and water content of fish meat, washing, the age of the fish, the temperature and time of heating and the type and concentration of additives. The quality of processed fish nuggets is good when the texture of the fish nuggets produced is chewy, the taste of processed fish nuggets is savory and crispy because of the process of adding bread flour that gives the crispness of the product, and the aroma shows the characteristic fish and browned after frying. Delicious and high-grade fish nuggets the amount of flour used should be at most 15%-30% of the meat weight. Ideally, added flour is as much as 10% of the weight of fish meat. It is often found, especially those peddled on the streets fish nugget flour reaches 30%-40% of the weight of the meat. Fish nuggets like this are suspected to taste and quality is not good.

Conclusion

Based on the literature review obtained information that the manufacture of catfish nuggets consists of the stages of preparing catfish into catfish meat lubrication, mixing ingredients, donating, steaming, printing, and pouring. The quality of catfish nuggets is good like other fish

nuggets, namely chewy texture, savory and crispy taste, the aroma shows the characteristic fish and browned after frying. Delicious and high-grade fish nuggets amount of flour used as much as 10% of the weight of fish meat.

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