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REVIEW ARTICLE " MILKFISH SAUSAGE "

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Abstract

One of the processed fish products in Indonesia is fish sausage. This article aims to get information on making milkfish sausages and their marketing in Indonesia. Based on the literature study obtained information that the stages of making milkfish sausage consists of preparing milkfish meat in the form of lumat and without thorns, mixing with other additional ingredients, donating, filling in cashing and finally pungkusan. The marketing of fish sausages in Indonesia partly took on the children's segment. The marketing of fish sausages is still somewhat less massive, because especially the majority of children prefer to consume chicken meat sausages.

Keywords : donating, charging, marketing, taste, children.

Introduction

Sausage is a meat that is mixed with spices and spices, then included and formed in wrapping or *cashing* (Sutrisno, Purwiyanto, and Eko 2010). Sausages are known as food ingredients that have a savory taste, a chewy and dense texture, and elongated round shape. The savory taste of sausages is widely preferred by children and adults. In general, sausages are made from beef and chicken. Now this has been developed fish sausage, which is a sausage made from fish meat. In principle, almost all types of fish can be used to make sausages, such as tuna, lemuru fish, cob fish, dim fish, mackerel and other fish (Center for Marine and Fisheries Education, 2015).

To make fish sausages must use fresh fish raw materials, not physically disabled and of good quality. The quality of protein in fresh fish is still good because it contains water *soluble protein (water soluble protein*) and salt *soluble protein (salt soluble protein*) which serves as an emulsifer in the manufacture of fish sausage dough, Omega-3 is needed by the body for the

prevention of degenerative diseases such as heart disease and blockage of blood vessels. Omega-3 fatty acids also play a very important role in the process of growing nervous cells including brain cells (Astawan, 2007).

Currently, sausages that are widely circulated in the market are beef sausages and chicken sausages, while the use of fish as raw materials for making sausages is still not developed by the community even though the protein contained in fish meat is very high in quality and cheap in price. In addition, the nutritional content of fish is low in cholesterol (has high EPA and DHA) so that the potential for the development of sausage products made from fish base ingredients will increase. This article aims to get information on making milkfish sausages and their marketing in Indonesia

Classification, Fish Taxonomy and Nutritional Content of Milkfish

Fish sausage products can be made from different types of fish. One type of fish that is often processed for the manufacture of fish sausages is Milkfish. According to Sudrajat (2008) The classification of milkfish (*Chanos chanos*) is as follows:

Kingdom : Animalia
Phylum : Chordata
Subfilum : Vertebrate
Class : Osteichthyes
Subclass : Teleostei
Ordo : Malacopterygii
Famili : Chanidae
Genus : Chanos
Species: *Chanos chanos*

Figure 1 Milkfish

Chanos chanos, English Milk fish, was first discovered by a man named Dane Forsskal in 1925 in the Red Sea. Bandeng fish *(Chanos chanos*) belongs to the family Chanidae (Milk Fish) which is a type of fish that has an elongated, dense, flat (*compress*) and oval shape. It has a long, slender, dense, flattened, and oval body. It resembles a torpedo. The ratio of height with a total length of about 1 : (4.0- 5.2). Meanwhile, the ratio of head length to total length is 1:

(5.2-5.5) (Sudrajat, 2008). The size of the head is balanced with its body size, oblong in shape and not scaly. The front of the head (approaching the mouth) is increasingly pointed (Purnowati et al, 2007).

Milkfish has an excellent nutritional content for the human body. The amino acids that make up proteins in milkfish are almost similar to protein constituents in the human body. The nutritional content contained in milkfish as found in Table 1.

Tabel 1. Komposisi gizi ikan bandeng

Komposisi proksimat	Air Tawar	Air Payau
Air (%)	75,857	70,787
Abu (%)	2,812	1,405
Protein (%)	20,496	24,175
Lemak (%)	0,721	0,853
Karbohidrat (%)	0,114	2,780

Sumber : Hafiludin (2015)

Based on Table 1,the nutritional complex of milkfish varies by its habitat. The protein content of milkfish whose habitat in brackish water is higher than fresh water. Milkfish also contains vitamins and minerals. Mineral content is identified in the ash content.

Making Milkfish Sausage

Ingredients used in the manufacture of milkfish sausage

The ingredients used in the manufacture of milkfish sausages in addition to milkfish are tapioca flour, sugar, onions, garlic, garam, white pepper, ginger, egg whites, skim milk and ice water. These ingredients have many uses in improving the quality of the milkfish sausage produced.

Tapioca flour in the manufacture of bendeng fish sausage is as an adhesive and dough filler. The use of tapioca flour in the manufacture of sausages varies greatly between processing, many factors affect it. The more use of tapioca flour, the lower the quality of fish sausages produced. Tapioca flour is made from cassava extract. The most nutritional content in tapioca flour is starch. Starch is a polysaccharide insoluble in cold water, but absorbs water and expands. When heated, the starch grains will swell and form a gel that resembles glue. Starch that undergoes gelatinization is easily digested and in the process of hydrolysis will break easily (Widarti et al 2016).

Another ingredient is sugar. According to Agustin and Putri (2014), gula includes carbohydrates, has a sweet taste and dissolves in water. Gula is easily digested in the body as a source of calories. Sugar is widely usedas a preservative for a variety of foods. Sugar in the manufacture of sausages plays a role in providing flavor rather than in preserving the product. However, the use of sugar will cause acidic bacteria to develop, especially bacteria that can

ferment sugar into acids and alcohol. With the onset of acid and alcohol is expected to improve the taste of the product. The addition of too much sugar will occur crystallization on the surface of the gel formed. Whereas if sugar is added a little or less, a soft gel will be formed (Santoso and Sulardjo, 2012)

Garlic and onions are cooking spices that are commonly used in making a food produn, including sausages. Garlic is used to enhance aroma and enhance the taste of the product. Alisin is a compound that can be found inwhite filigree that determines the characteristic smell of garlic. Garlic also contains several vitamins including thiamin, niacin, riboflavin, ascorbic acid, B vitamins, vitamin C and contains β-carotene which is a form of vitamin A in small amounts (Wibowo, 2007). Garlic (Allium sativum) has a characteristic that is its aroma that is able to give a fragrant taste to the cuisine. Ali'sin this will decompose when garlic is defiled. Alisin compounds have very strong physiological functions, such as antioxidants, anticancer, antitombrotic, anti-inflammatory, decreased blood pressure and can lower blood cholesterol, garlic contains anti-bacterial and fungal substances. Garlic can also maintain immunity (Yulistina et al., 2012).

Another type of onion used as a spice in the manufacture of milkfish sausage is bawang merah. The chemical content consists mostly of water about 80-85%, protein by 1.5%, fat by 0.3% and carbohydrates by 9.2%. In addition, onion bulbs also contain a compound that contains amino acid bonds that are odorless, colorless and can dissolve in water.

The compenent of food that cannot be good is garam because it contributes greatly to the taste. Salt is used as a preservative because at certain concentrations it can inhibit microbial activity (Suprayitno, 2017).

Pepper or pepper (Piper nigrum L.) is a type of spice in the form of whitish grains. The chemical content contained in pepper is saponins, flavonoids, essential oils, kavisin, resins, egg white substances, amylasum, piperine, piperline, piperroleine, poperamine, piperonal, dihdrokarveol, kanyo-fillene oxide, kariptone, tran pyocarrol and pepper oil. In the cultivation of fish sausages, pepper is used for flavoring. The addition of pepper in cooking produces a fairly sharp taste and aroma, usually called spicy (Yulistina et al., 2012).

Ginger also includes spices that are commonly added to the manufacture of milkfish sausages. The addition of ginger is aimed at improving the taste of milkfish sausage.

Another additional ingredient in making milkfish sausage is egg whites. The usefulness of egg whites in the manufacture of this sausage to increase coagulation power, foaming power and emulsion power in sausage dough. In addition to egg whites, another additional ingredient is skim milk.

Skim milk is a part of milk that contains a lot of protein, often also called milk serum. Skim milk is milk whose fat content has been reduced to below the minimum limit that has been

set. Milk is a fat emulsion in water that contains mineral salts, sugars and proteins. Skim milk is used in the sausage processing industry as a binding agent because skim milk has a high protein content (3.5%) so it is able to unite sausage making ingredients. Milk proteins consist of casein 80%, lactalbumin 18%, and lactoglobulin 0.05-0.07%. Casein is a yellowish-white substance obtained in ca condition as calcium casein in the form of small particles of gelatin in suspen.

The last additional ingredient used in the manufacture of milkfish sausage is ice water. The presence of ice water or ice in the manufacture of this sausage to maintain the temperature of milkfish meat remains low during meat grinding and dough making. The benefits of fish meat temperature remain low is to prevent the protein in milkfish meat from being denatured due to the movement of the grinding machine. Another benefit is that protein extraction can run well, because if the protein is denatured due to too high dough temperature, the protein cannot be an emulsifier.

Stages in the manufacture of milkfish sausage

The manufacture of milkfish sausage is in principle the same as beef sausage, chicken meat and other fish meat. The initial stage that must be done is to prepare boneless milkfish meat and then the milkfish meat is ground until it is lumat or smooth. Then add salt little by little to the meat of milkfish that has been smooth and stirred until evenly distributed. Add the tapioca flour while continuing to stir. Then successively put the fine pepper, and other ingredients that have been mashed before, and then stirred until homogeneous. Insert the chunks of ice cubes at the time of mixing all the ingredients, so that sausages with good elasticity are obtained.

In making milkfish sausages, it is necessary to use food processor other stirring machines. The stirring process in making sausages needs to be stirred quickly in order to produce a homogeneous dough, so that it can be a sausage that has good quality as well.

The ready dough is put in the "stuffer" and then stuffed into the cashing or sausage wrapping material by pressing. Try not to have air cavities in the cashing. Reduction of air cavities can be done by piercing the part containing air with a sterile needle so that the dough can solidify in chasing. The size of the sausage length is approximately 10-15 cm or as the manufacturer wishes, then tie it with a rope, leaving until some ties. The next stage is steaming.

Steaming is one of the cooking techniques by using water vapor to ripen the ingredients. Steaming milkfish sausage is done by putting the sausage in a steamer with a temperature of ± 60^0 C for 30 minutes. Then after cooking lift and drain. To extend the durability, sausages can be stored at low temperatures in the refrigerator. Before storing, milkfish sausage should be smoked first. If it will be served, milkfish sausage is more

delicious if fried first with margarine or butter (3-5 minutes).

Fish Sausage Marketing in Indonesia

The market segmentation of ready-to-eat fish sausage products can be marketed based on demographic segmentation, where this fish sausage product is marketed to all circles regardless of economic level, education or clear gender. But this ready-to-eat fish sausage product if based on age, fish sausage will be preferred by children because it is used as a snack that is cheap and nutritious.

This ready-to-eat fish sausage product is due to food products that are practical, namely without being cooked first, it is marketed by targeting consumers / people who like to relax or do light work while enjoying snacks that are easy to get. For example, such as children who are playing or learning who need ready-to-eat and nutritious snacks, and are easy to get.

In addition, by looking at the current state of affairs, namely the COVID pandemic that has hit everywhere, thus requiring the public to maintain health and immunity in their bodies. One way is to consume foods or snacks that have good nutritional content for our body. Then with the advancement of today, where technology is developing rapidly, everything becomes easier and more practical, and durable.

The development of the quality and quality of fish sausage products will be a uniqueness that is more in demand by the community. One of the things that must be done is to modify the product in terms of displaying the shape and color of fish sausages, then in the form of additional ingredients containing nutritional elements and functional content that is beneficial for the body.

In the process of improving the quality and quality of fish sausages require formulations carried out in the organoleptic and hedonic testing stages. After that, the panelists will determine the preferred taste, aroma, color, shape and texture. The panelists to be selected are tailored to the target market for product distribution, namely consumer panelists and children.

The marketing of fish sausages is still somewhat less massive, because especially the majority of children prefer to consume chicken meat sausages. Chicken meat sausages are more brand and simpler processing than fish sausages that have to go through the process of careful separation of thorns. Things that must be done so that fish sausages are more in demand by the community are massive product branding, product modifications, and socializing the importance of consuming fish by doing "Fond of Eating Fish".

Conclusion

Based on the literature study as above, the stages of making milkfish sausage consist of preparing milkfish meat in the form of lumat and without thorns, mixing with other additional ingredients, donating, filling in cashing and finally pungkusan. The marketing of fish sausages in Indonesia partly took on the children's segment. The marketing of fish sausages is still somewhat less massive, because especially the majority of children prefer to consume chicken meat sausages.

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