



## REVIEW ARTICLE "MACKEREL MEAT CORNED PRODUCTS"

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### ABSTRACT

Mackerel is an industrial fish, because it can be processed into various processed products, one of which is corned beef. The purpose of this paper is to get information on the stages of making mackerel corned beef and its marketing in Indonesia. Based on review literature obtained information that the processing of mackerel corned beef products is not much different from beef corned beef and chicken meat. Mackerel corned beef consists of the stages of preparing mackerel meat, making dough and canning. Mackerel corned beef products are certainly still rarely found, so to improve the product to be more in demand by the public, namely having to do marketing or promotion.

**Keywords :** *marketing, quality, industry, flavor, added value.*

### INTRODUCTION

Corned beef comes from the English "*corned*", which is from the word "*corn*" which is granules, meaning the shape of the coarse salt particles used to growl or exchange corned beef. According to Astawan (2008), that in Indonesian the word *corned beef* is adopted into corned beef. Corned beef is processed through the salting stage (*kuring*). *Kuring* is a meat process that is added several ingredients such as NaCl salt, Na-nitrite and or Na-nitrate, and sugar, as well as other spices (Soeparno, 2005). This *kuring* is done to get a stable color, aroma, texture and good delicacy, reduce meat grinding during the process and extend the shelf life of meat products.

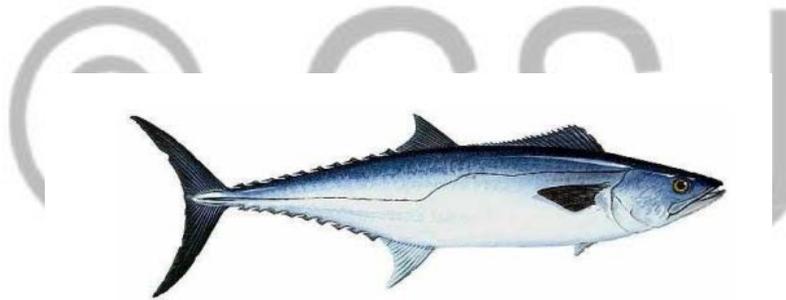
Fish is a material that quickly undergoes decay (*highly perishable food*), so fish

processing needs to be done to prevent the decay process at once to increase its added value. Basically, fish processing has five functions, namely adding taste, adding nutritional value, adding to the value of appearance, forming textures, and extending shelf life (Food Security and Fisheries Office, 2018).

Mackerel includes pelagic fish that live at sea level or nearby. One of the properties of this large pelagic fish is that it likes to cluster, so that its spread in a water is uneven (Martosubroto et al. 1991 referred to in Mutakin 2001). Mackerel is one type of fish that is rich in antioxidants, coenzyme Q10, and omega-3 fatty acids. With abundant nutritional content, it does not rule out the possibility to utilize mackerel meat into processed products. One way to process mackerel meat is to make corned beef. The purpose of this paper is to get information on the stages of making mackerel corned beef and its marketing in Indonesia.

### **Mackerel Fish**

Mackerel includes pelagic fish that live at sea level or nearby. One of the properties of this large pelagic fish is that it likes to cluster, so that its spread in a water is uneven (Martosubroto et al. 1991 referred to in Mutakin 2001). Mackerel taxonomy is classified as follows (Saanin 1984):



**Figure 1.** Mackerel (*Scomberomorus commersonii* )

*Phylum : Chordata*

*Sub phylum: Vertebrates*

*Class: Pisces*

*Subclass : Teleostei*

*Order : Percomorphi*

*Suborder : Scombridea*

*Family : Scombridae*

*Sub family : Scombrinae*

*Genus: Scomberomorus*

*Species : Scomberomorus commersonii*

Mackerel has an elongated shape, slippery skin flesh, has no scales except for scales on the small side snare, the dorsal fin is two, lethargic adjacent to the front that is discounted with

hard fingers amounting to 16-17 pieces, the back of which is supported by 3-4 hard fingers and 13-14 soft fingers. The mouth is wide, the upper jaw and lower jaw are sharply and strong jagged, the sky is small jagged – small. The color of the back is bluish – blue, the edges of the body and abdomen are silver. This type of fish is classified as a large fish with a body length can reach 150 cm (Sheedy, 2006).

Mackerel live in a tropical climate which is also a climate owned by Indonesia. The sea waters in Indonesia are a suitable place for mackerel. The existence of mackerel is almost all over the waters such as Sumatra, Java, Nusa Tenggara, Kalimantan, Sulawesi, Maluku and Irian (Astri, et al., 2012).

Mackerel meat contains high-quality protein and vitamins that are very useful for the growth and resistance of the body. Mackerel meat is one of the animal food products whose contribution is important as a source of protein (Anonymous 2011). All types of pelagic fish contain omega 3 which is very beneficial for the growth and development of the human brain (Mutakin 2001). The results of proximate analysis of mackerel have a water content of 76.5%, protein 21.4%, fat 0.56%, carbohydrates 0.61% and ash content of 0.93%. Here is the composition of mackerel content according to Stansby, 1962

Table 1. Composition of mackerel content

composition	Amount (%)
Water	60-80
Protein	18-22
Fat	0,2-5
Carbohydrates	<5
Ash	1-3

Source: standsby, 1962

Water is an important source of components in foodstuffs that can affect the appearance, texture and taste of food. The moisture content in foodstuffs helps determine the freshness and durability of these foodstuffs (Winarno, 1991)

Fat undergoes complex chemical changes and acts with other staple food elements, producing many components both desirable and damaging food quality during the food storage and handling process (Fennama, 1996) Fish in general classified as low-fat has a fat content of < 5% and high-fat fish has a fat content of > 15% (Junianto, 2003). Mackerel includes pelagic fish and is classified as a low-fat fish because the fat content < 5%, which is 2.03% (when fish caught) Ash is included in the basic data of nutrients as one of the proximate components in food.

Ash provides an estimate of the total content of food minerals. Minerals in ash are in the form of metal oxides, phosphates, nitrates, sulfates, chlorides and halides (Fennama, 1996)

The protein content of fish is closely related to the content of fat and water. Fish that contain low fat on average have a large amount of protein value. Fish meat has very few binding weaves (tendons) so it is very easily digested by autolysis enzymes. The results of autolysis become a suitable medium for the growth of microorganisms (Adawyah, 2006).

Mackerel meat that is white and finely fibrous is very suitable to be used as a variety of processed products. One of the processed products that use mackerel meat raw materials is corned beef.

### **Corned Beef Mackerel fish meat**

Tenggeri fish beef corned beef is a substitution product of beef corned beef and chicken meat. The main ingredient of mackerel corned beef is tenggeri fish meat plus other additives such as salt, milk, sugar, and others.

The stages of making mackerel meat corned beef can be done by modifying the manufacture of chicken meat corned beef, namely as follows: Mackerel fish is difillet, namely discarded skin, bones, offal and head. Next, the fillet (tenggeri fish meat) is crushed. After that, mackerel lumat meat is mixed with other additives, namely salt, skim milk, potatoes, fine pepper, garlic powder and water. Then the mixture is ground to get a homogeneous dough. The next stage, the dough is stored in the refrigerator for 30 minutes to get a solid dough. Finally, the canning process is carried out.

### **Corned Beef Product Quality Standards**

Products that are good, safe, do not harm consumers and quality must certainly refer to the standardization of products that have been determined, such as the Indonesian National Standard (SNI). This standardization aims to protect producers, consumers, labor, and society, from the aspects of security, safety, and health, as well as the preservation of environmental functions. Each product must have different standardization according to the product we process.

To get processed corned beef according to SNI then we must refer to the rules that have been set by SNI, namely in the following table (SNI, 2006).

No.	Test Criteria	Unit	Requirement
1.	Condition		
	Packaging	-	Normal (canned/plastic packaging does not leak, does not bloat, and does not rust).
	Color	-	Usual
	Smell	-	Usual
2.	Fat	% (b/b)	Max. 12
3.	Protein (N x 6.25)	% (b/b)	Min. 17
4.	Carbohydrates	% (b/b)	Max. 5
5.	Nitrite preservatives	mg/kg	Max. 50
6.	Metal spruce		
	Copper (Cu)	mg/kg	Max. 20,0
	Lead (Pb)	mg/kg	Max. 1,0
	Zinc (Zn)	mg/kg	Max.40,0
	Tin (Sn)	mg/kg	Max.40/200*
	Mercury (Hg)	mg/kg	Max. 0,03
7.	Cemaran Arsen (USA)	mg/kg	Max. 1
8.	Microbial spruce		
	Coliform bacteria	APM	< 3
	Staphylococcus aureus	colony/g	0
	Clostridium perfringens	colony/g	0
	Clostridium botulinum	colony/g	0
	Thermophilic aerobic bacteria form spores	colony/g	Max. 100
*canned packaging			

### Fish Corned Beef Marketing in Indonesia

Corned beef food in Indonesia is familiar to the public. But most people only know corned beef products. For fish-based corned beef products are still foreign and strange to the community. Because basically corned beef made from the basic ingredients of fish is very little in the market. If studied corned beef made from fish meat should be healthier and cheaper in the pocket. Because fish meat has a high protein content and an affordable price compared to corned beef.

The marketing form of mackerel corned beef products is not much different from corned beef in general. Corned beef businesses can open outlets, stands and kiosks in shopping centers, markets, city parks, near hospitals, midtown, near schools, highway suburbs, around campus and others. Usually corned beef products are placed at a fresh and cold temperature, not exposed to

direct sunlight. And usually this product is widely found in modern markets and traditional markets because canned products can last longer with normal temperature environments and low contaminant levels.

Before we know the shortcomings and advantages of a product, we should do a SWOT analysis first. SWOT analysis is a way of analyzing data by comparing products made with products owned by competitors. This SWOT analysis includes strength (strength), weakness (weakness), opportunity (opportunity), and threats (threats).

- a) Strength is used to determine the advantages of a product.
- b) Weakness is used to determine the weaknesses of a product.
- c) Opportunity is used to find out the opportunity or favorable conditions if done by the manufacturer.
- d) Threats are used to find out what threats and obstacles will be passed against the products offered.

Mackerel corned beef products are certainly still rarely found, so to improve the product to be more in demand by the public, namely having to do marketing or promotion as much as possible so that the public knows that corned beef is not only based on beef but corned beef with the basic ingredients of mackerel also exists. After the public knows the existence of mackerel corned beef, so that the community is more interested we must improve in terms of packaging or packaging. In addition to the huge nutritional content, usually people also see products in terms of packaging.

## Conclusion

Based on riview literature obtained information that the processing of mackerel corned beef products is not much different from beef corned beef and chicken meat. Mackerelcorned beef consists of the stages of preparing mackerel meat, making dough and canning. Mackerel corned beef products are certainly still rarely found, so to improve the product to be more in demand by the public, namely having to do marketing or promotion.

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