



# World News of Natural Sciences

An International Scientific Journal

WNOFNS 48 (2023) 118-127

EISSN 2543-5426

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## Processing and Organoleptic Quality of Layur Salted Fish (*Trichiurus lepturus* Linnaeus, 1758) in Pangandaran Regency, West Java, Indonesia

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### ABSTRACT

This research aims to analyze the production process of salted layur fish and its organoleptic quality in Pangandaran Regency, West Java, Indonesia. This research was conducted from 10 February 2023 to 10 March 2023. The research method used was a survey method. The research procedure was carried out in two stages. The first stage observed the process of making salted layur fish products and the second stage tested the organoleptic quality of the salted layur fish it produced. Analysis of the production of layur salted fish was carried out by observing production sites and interviewing workers and business owners. Organoleptic quality testing is done by scoring test. The format for the scoring test is shown in Table 1. Observations on the production of salted layur fish were centered in Parapat Hamlet, RT 5 RW 9, Katapang Doyong Field, Pangandaran Village, Pangandaran District, Pangandaran Regency, West Java. Astronomically the research location is at 7°41'26.1" South Latitude and 108°39'47.6" East Longitude. The data obtained were analyzed descriptively. Based on research results, it was found that the process of making layur salted fish in Pangandaran-West Java includes stages of fish preparation, salting, drying, and storage. Organoleptic quality indicates that the resulting salted layur fish is of good quality and is suitable for consumption according to the Indonesian National Quality Standards with an average value of 8.8.

**Keywords:** Quality, Salting, Drying, Scoring, Survey, Layur Salted, *Trichiurus lepturus*

## 1. INTRODUCTION

Fish is a source of protein that is consumed by many people because it is cheap and easy to obtain). However, fish easily experience the process of decay and deterioration in quality, so it must be processed as soon as possible. Fish processing carried out in Indonesia can be grouped into 2 , namely traditional and modern fish processing.

One of the traditional processing that is mostly done in Indonesia is salting which is combined with drying, which is to make salted fish. The two processes used are aimed at reducing the water content in the fish's body, so it does not provide an opportunity for bacteria to multiply (Muhammad et al., 2019). Many fish processors in Pangandaran, West Java, Indonesia, do this traditional way of processing fish.

The type of fish that is mostly processed into salted fish in Pangandaran is layur fish (*Trichiurus lepturus*). Layur fish is a demersal fish that is mostly caught by Indonesian fishermen, especially in Pangandaran (Putra et al., 2018)

The quality of salted fish is strongly influenced by the manufacturing process. The quality of salted fish that is first noticed is the organoleptic quality. Therefore, this research aims to analyze the production process of salted layur fish and its organoleptic quality in Pangandaran Regency, West Java, Indonesia.

## 2. RESEARCH METHOD

This research was conducted from 10 February 2023 to 10 March 2023. The research method used was a survey method. The research procedure was carried out in two stages. The first stage observed the process of making salted layur fish products and the second stage tested the organoleptic quality of the salted layur fish it produced. Analysis of the production of layur salted fish was carried out by observing production sites and interviewing workers and business owners. Organoleptic quality testing is done by scoring test . The format for the scoring test is shown in Table 1. Observations on the production of salted layur fish were centered in Parapat Hamlet, RT 5 RW 9, Katapang Doyong Field, Pangandaran Village, Pangandaran District, Pangandaran Regency, West Java. Astronomically the research location is at 7°41'26.1" South Latitude and 108°39'47.6" East Longitude. Geographically this location is a coastal area, namely the East Coast of Pangandaran which has enormous potential as a center for producing salted fish. The data obtained were analyzed descriptively.

**Table 1.** Scoring Organoleptic Test

<b>Organoleptic Properties</b>		<b>Mark</b>
<b>appearance</b>		
-	Whole, clean, tidy, radiant according to kind,	9
-	Whole, clean, untidy, luminous according to kind.	8

- Whole, clean rather dull.	7
- Whole, not clean, a bit dull.	6
- Slightly damaged physically, less clean, several. bag. rusty.	5
- Slightly damaged physically, the color has changed.	4
- Partially destroyed, dirty.	3
- Destroyed, very dirty, color changes from the specific type.	1
<b>Smell</b>	
- Fragrant, species specific, without added odor.	9
- Nearly neutral, slightly added odor. - Neutral, slightly added odor.	8
- Additional disturbing odor, not rotten, slightly rancid - Rancid, slightly musty, smells of ammonia.	7
- Rancid, slightly musty, smells of ammonia.	6
- Unpleasant, slightly rotten, strong ammonia	5
- Rotten	4
<b>Texture</b>	
- Dense, compact, pliable, moderately dry	9
- Dense, compact, pliable, less dry.	8
- Too hard, not brittle	7
- Solid, not brittle	6
- Soft, wet, not easy to decompose.	5
- Dry, brittle, easily decomposed.	4
- Soft, brittle, easy to decompose.	3
- Soft, wet, easy to decompose.	2

-	Wet, watery, clearly decomposed	1
<b>Mold</b>		
-	None/not seen	9
-	There is/looks	1

Source: National Standardization Body , (SNI 01-2346 , 2006) .

### **3. RESULTS AND DISCUSSION**

#### **Layur Salted Fish business premises**

Mrs. Titin's business of making salted fish is one of the Small and Medium Enterprises (UKM) engaged in the processing of fishery products. This salted fish business is still on the scale of a home industry where the processing is carried out by Mrs. Titin herself, even if only a small amount is processed, and 3-4 people help if the processed material is in abundance, generally 50 kg.

#### **Layur fish (*Trichurus lepturus*) as raw material for salted fish**

According to Nakamura and Parin (1993), the classification of layur fish is as follows:

Kingdom : Animalia  
 Phylum : Chordata  
 Superclass : Gnathostomata  
 Class : Osteichthyes  
 Sub Class : Actinopterygii  
 Infraclass : Teleostei  
 Division : Euteleostei  
 Superorder : Acanthopterygii  
 Order : Perciformes  
 Suborder : Scombridae  
 Superfamily : Trichiuroidea  
 Family : Trichiuridae  
                   Gempylidae  
 Genus : *Trichiurus*  
           : *Lepturacanthus*  
           : *Gempylus*

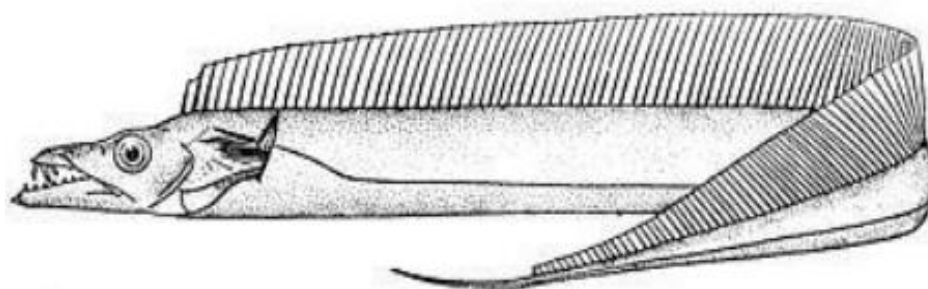
Species : *Trichiurus lepturus* Linnaeus, 1758  
: *Lepturacanthus savala* Cuvier, 1829  
: *Gempylus serpens* Cuvier, 1829

According to Ahmad (2018) , in the international trade of layur fish known as *hairtail* , cutlassfish, or ribbon fish . These fish usually live in waters with subtropical to tropical climates, which are spread from north to south of the equator (Wijopriono and Akbar, 2017.)

In Indonesian waters there are 6 types of layur fish, namely *Trichiurus haumela*, *T. savala*, *T. lepturus*, *T. muticus*, *T. glossodon*, *T. auriga* and spread in oceanic waters (Airlangga, et al., 2018).

According to (Putra et al., 2018), the main characteristic of layur fish is an elongated and flat body, and not scaled. Body length can reach 100 cm, but usually ranges from 70-80 cm. The mouth is wide with sharp teeth on the upper and lower jaw. Layur fish do not have pelvic and caudal fins, and their pectoral fins are small. The dorsal fin of the Layfish extends to the caudal fin and joins the caudal fin. The spines on the dorsal and caudal fins, as well as body color, are characteristics that can be used to differentiate layur fish species.

The morphology of *Trichiurus lepturus* has several characteristics, including having 3 spines on the dorsal fin, 130-135 soft rays on the dorsal fin, and 100-105 soft rays on the anal fin. The body of the fish is very elongated, flattened and tapered at the tail. The mouth of the fish is wide with a protrusion of skin at the end of the jaw. Relatively high dorsal and anal fins taper into spinules which are usually attached to the skin or slightly projecting. This fish has no pelvic and caudal fins, and the front end of the pectoral fins is not serrated. The lateral line of the fish begins at the top of the gill cover, slopes down to behind the tips of the pectoral fins, then runs straight towards the belly at the back. When alive or fresh, the whitefish is bluish with silvery blotches, but when it is dead the color changes to a silver gray evenly.



**Figure 1.** Largehead hairtail, *Trichiurus lepturus* Linnaeus, 1758

### **Salted Fish Processing Process**

The fish processing process carried out by business actors is the wet salting method , which is broadly explained as follows.

#### **1. Preparation**

- a. Provision of Raw Materials

The fish used in this production are purchased from local fishermen. After the fish is obtained, the fish is first sorted based on type, size, and freshness, to uniform the penetration process during the salting process.

b. **Equipment Provision**

- Sharp knife or machete along with cutting board
- Scales for weighing fish and salt to be used
- Bak/bucket along with the cover as a place for salting

**2. Fish Handling or Weeding**

Fish to be processed, washed from dirt attached to the outside of the body (skin, scales, gills, and fins), then weeded . Medium-sized fish such as layur fish are divided from the head to the tail, then the stomach contents are removed. After weeding and cleaning, then washed.

**3. Salting**

After going through the washing process, the fish can be salted immediately. The salting method used is wet salting. In one production of 50 kg of fish using approximately 20 kg of krosok salt. The fish to be salted is put into the salt solution, then the top of the container is closed and weighted so that all the fish are submerged. The soaking time depends on the thickness of the fish body and the desired degree of saltiness. However, in the production of salted fish this time, the fish were soaked in salt solution for 2 days (Figs 2a,b).



(a)



**(b)**

**Figure 2(a,b).** Condition of soaking water after salting for 2 days.

In the process of osmosis, the concentration of the salt solution will decrease because of the water content that comes out of the fish's body, meanwhile the salt molecules enter the fish's body. The osmosis process will stop when the concentration of the solution outside and inside the fish's body is balanced. After going through the washing process, the fish can be salted immediately. The salting method used is wet salting. In one production of 50 kg of fish using approximately 20 kg of krosok salt. The fish to be salted is put into the salt solution, then the top of the container is closed and weighted so that all the fish are submerged. The soaking time depends on the thickness of the fish body and the desired degree of saltiness. However, in the production of salted fish this time, the fish were soaked in salt solution for 2 days.

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#### **4. drying**

After the salting is done, it is continued with drying by drying it on the rack, stacking it, and occasionally turning the fish over the clothesline so that it dries quickly. If the heat is sufficient, drying takes approximately 1 day.



**Figure 3.** Drying fish on a rack

### **Organoleptic Quality**

According to Dendi, et al., (2021), organoleptic quality can be determined by carrying out organoleptic testing . Organoleptic testing is a test method that uses the human senses as the main tool for measuring food acceptance. Sensory testing or sensory testing, also known as organoleptic testing, has been around since humans started using their senses to assess the quality and safety of food and beverages. In this study, organoleptic testing was carried out using the scoring method as shown in Table 1 which included tests for appearance, taste, smell, texture, and the presence of mold.

The first characteristic that consumers pay attention to, value, and like in choosing or consuming a product is appearance . Based on the results of the organoleptic test, the appearance of the layur salted fish produced met the requirements. This can be seen from the average score given by the panelists, which is 9.

The attractiveness of salted fish lies in its distinctive aroma, in addition to taste and texture. Meanwhile, Reo (2013) reported that the level of preference for the smell of salted red snapper has varying scores, where the highest score is 8.33 which means it is considered less fragrant and without additional odors, while the lowest score is 5.6 which is considered disturbing. with an additional, slightly rancid odor.

According to the organoleptic tests carried out, the salted layur fish produced a type-specific odor without additional odor with a score of 9

The texture of salted fish includes an assessment of mechanics, taste, touch and sight which includes wetness, dryness, hardness, smoothness, roughness and oiliness. Factors that



affect the texture of salted fish include hand feel, tenderness, and ease of chewing. The results of the research on the level of acceptance of the panelists for the texture of this layur salted fish was 8, which indicated that the texture of salted fish had dense, compact, flexible, and less dry properties. From the results of this study, it can be concluded that the value of salted fish still meets the Indonesian National Standard SNI 2009, Quality Requirements for Dried Salted Fish, which stipulates that the texture of salted fish is still acceptable.

One of the causes of damage to salted fish is due to exposure to mushrooms. Parameters for the presence of mushrooms in salted layur fish in Pangandaran got a score of 9, this was because there was no fungus found in all the salt fish tested.

#### **4. CONCLUSION**

The process of making layur salted fish in Pangandaran-West Java includes the stages of fish preparation, salting, drying and storage. Organoleptic quality indicates that the resulting layur salted fish is of good quality and suitable for consumption according to the Indonesian National Quality Standards with an average value of 8.8.

#### **Acknowledgement**

In this paper the author has received a lot of guidance and assistance from various parties, therefore the author would like to express his deepest gratitude to: Mrs. Titin, as the resource person who has taken the time and is willing to provide information regarding the processing of salted fish.

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