



Received: 26-11-2023
Accepted: 06-01-2024

ISSN: 2583-049X

Analysis Quality Level of Freshness and Damage Physical Sea Fish in Traditional Markets Pucung, Depok City

¹Evi Liviawaty, ²Nursahbani Komarudin, ³Pramudya Kenny, ⁴Ulvia, ⁵Syahla Hanifah, ⁶Satria Putra Gusfian
^{1, 2, 3, 4, 5, 6} Fisheries Study Program, Faculty Fisheries and Science Maritime Affairs, Padjadjaran University, West Java,
Indonesia

Corresponding Author: **Ulvia**

Abstract

Fish can interpreted as fast commodity _ experience putrefaction, so needed fast and precise handling. _ Traditional market Pucung become one of the markets that provides various type need material food like sea fish. Research purposes this is for analyze level freshness and damage physical sea fish sold in traditional markets Pucung, Depok City through organoleptic tests. Research methods this apply approach in a way qualitative with use method studies case and followed with survey method. Testing freshness of sea fish in research this using organoleptic tests for evaluate quality quality and damage physical fish sold through four stages. Organoleptic test results on mackerel fish, tuna fish, snapper fish, tuna fish, skipjack fish, shrimp,

squid and pomfret Fish Sea on view eyes and texture is at a score of 5. Organoleptic test results gills in mackerel, tuna, skipjack and squid found at a score of 5. Gills in tuna and snapper, shrimp and pomfret sea found at score 7. Organoleptic test results odor in mackerel, tuna and shrimp found at a score of 5. Snapper, tuna, skipjack, and pomfret sea found at score 3. Research conclusions this that is quality level freshness in research this through organoleptic tests obtained dominant at a score of 5 which means outline _ _ Not yet in accordance with provisions of SNI 2729:2013, where the minimum assessment limit is a score of 7.

Keywords: Fish, Fish Freshness, Physical Damage, Organoleptic Tests

Introduction

Fish can interpreted as fast commodity _ experience putrefaction, so needed fast and precise handling. _ Effort to prevent setback the quality of the fish can be done since the fish were first caught (Deni, 2015) ^[2]. Cooling become treatment main thing that can be done applied for maintain freshness of fish at stage beginning handling. Handling fresh fish is recommended at room temperature low around 0 ° C for hinder decay. Temperature tall can result level fish freshness is easy rot so that impact on damage fish physics (Al Fatich *et al.*, 2023) ^[1]. According to Methusalach *et al.* (2014) ^[7] level the freshness of the fish has various type possible factors _ influence on fish quality, factors the consists from internal factors and factors external. Internal factors include: factor in a way biological origin _ from in fish, while factor external originate of the processes implemented like method handling, facilities handling, and time handling. According to Wijayanti & Lukitasari (2016) ^[10] damage physical and quality the quality of the fish can be observed with using organoleptic tests. Organoleptic test defined as testing on a fish through action observation with seeing, smelling, and touching in a way straight to medium fish observed. Traditional market Pucung become one of the markets that provides various type need material food like sea fish. Sea food Lots liked the people of Depok City, in particular area Kalimulya because the location near with this market (Woniman *et al.*, 2023) ^[11]. His height interest public for consume sea fish so need is known method fish handling, level freshness of the fish being sold, and characteristics damage physical in fish. This matter works for know quality the freshness of the fish matters to fish quality, value selling, and security fish food. The condition of the fish being sold must can confirmed Still in fresh condition or not experience damage until purchased by consumers so that as seller must notice factors that can prevent setback fish quality (Wati & Hafiludin, 2023) ^[9]. Research purposes this is for analyze level freshness and damage physical sea fish sold in traditional markets Pucung, Depok City through organoleptic tests.

Research Methods

Study this apply approach in a way qualitative with use method studies case. Study methods case defined as method used _ with do observation based on opinion man. This method followed with survey method for observe in a way direct to field and do interview to source person. Study this held on July 1 2023, 08.00 WIB to 10.00 WIB Research location located in a traditional market Pucung, Depok City. Source person study this that is fishmonger accordingly _ with type fish samples required. Type of sample used in study this consists from tuna (*Thunnus albacores*), tuna (*Euthynnus affinis*), shrimp vannamei (*Liopenaeus vannamei*), snapper red (*Lutjanus sp.*), mackerel fish (*Scombridae*), squid (*Loligo sp.*), and skipjack tuna (*Katsuwonus pelamis*).

Testing freshness of fish in research this using organoleptic tests for evaluate quality quality and damage physical fish sold through four stage. First, do observation and seeing condition of the fish, especially the parts apparition physical, gills, eyes, and there are or or not mucus on the fish's body. Second, touching the fish is needed for know the condition of the fish, especially mucus, fish flexibility, and so on. Third, give the pressure on the fish flesh is aimed for get assessment of fish texture. Fourth, use senses smell for observe fish smell (Masinambou *et al.*, 2022) [6].

Results and Discussion

Characteristics Freshness of Fish

Characteristics freshness of fish in research this is known with using organoleptic tests through observation of appearance eyes, gills, texture and smell of fish. Organoleptic test research at the Pucung market in Depok City was carried out from 08.00 to 10.00 with use samples of tuna (*Thunnus albacores*), tuna (*Euthynnus affinis*), shrimp vannamei (*Liopenaeus vannamei*), snapper red (*Lutjanus sp.*), mackerel fish (*Scombridae*), squid (*Loligo sp.*), skipjack tuna (*Katsuwonus pelamis*) and pomfret fish white (*Pampus argentus*). Testing organoleptic this use six panelists. Score results assessment of organoleptic tests on these fish can seen in (Table 1).

Table 1: Organoleptic Test Assessment Score Results

S. No	Type of Eye Fish	Gill		Smell Texture	
1	Mackerel	5	5	5	5
2	Tuna	5	7	5	5
3	Snapper _ red	5	7	5	3
4	Tuna fish	5	5	5	3
5	Skipjack tuna	5	5	5	3
6	shrimp vannamei	5	7	5	5
7	Squid	5	5	5	5
8	Pomfret _ white	5	7	5	3

Source: Analysis Primary Data, 2023

According to Woniman *et al.* (2023) [11] fresh fish has characteristics brilliant eyes, bright, cornea _ clear, and eye stand out. Research result through observation organoleptics in marine fish sold at Pucung Kotak Market, Depok show happen decline quality quality and availability damage physical fish that can seen in Fig 1. According to SNI 2729:2013 fish is said to be have quality good quality _ when fulfil a number of condition.

First, the eyes prominent, bright, and corneal clear. Second, gills colored red brilliant and without mucus. Third, texture solid, elastic when pressed with use fingers, flesh difficult

torn from part bone behind. Fourth, the smell is very fresh and specific kind. Fifth, the mucus on the surface of the fish's body is clear, transparent and shiny bright. Sixth, fish meat when slashed very brightly colored, specific type, no there is reddish all over bone part back, and meat stomach meat intact No experience disabled (Mardiana *et al.*, 2020) [5].



Source: Primary Data, 2023

Fig 1: Condition of Fish in the Market

This is different from the results of organoleptic observations in this study which do not comply with SNI 2729:2013, where the minimum assessment limit is a score of 7. The results of the observations showed that the average fish was at a score of 5, which is classified as poor and is considered less fresh because it has experienced a decline in quality. quality and physical damage of fish.

Eye appearance

Table 1 shows the results of the eye quality scores for tuna (*Thunnus albacores*), tuna (*Euthynnus affinis*), vannamei shrimp (*Liopenaeus vannamei*), red snapper (*Lutjanus sp.*), mackerel (*Scombridae*), squid (*Loligo sp.*), skipjack fish (*Katsuwonus pelamis*), and white bottom fish (*Pampus argentus*) overall have a score of 5. A score of 5 means that the eyeball looks slightly sunken, the pupil is grayish, and the cornea is slightly cloudy. The statement of the score results can be said to be not in accordance with SNI qualifications so that it is categorized as having experienced a decline in quality and is not suitable for consumption. This decline in quality is thought to be caused by the *handling process* being carried out incorrectly. According to research by Litaay *et al.* (2020) [3], poor fish *handling processes will cause collisions during the catching or storage stages of the fish*. The risks that arise in this process include physical damage to the fish during the *handling process*.

Gill

Gills are defined as a tool that helps fish breathe by having a labyrinth that functions as a filter for water waste that enters the fish's body. Gills are one of the factors that cause fish to decline if not handled properly. Improper handling of fish will have an impact on the freshness of the fish, one of which is the gills (Al Fatich *et al.*, 2023) [1]. Table 1 shows the observations of gill organoleptic tests in this study using samples of mackerel (*Scombridae*), tuna (*Euthynnus affinis*), skipjack tuna (*Katsuwonus pelamis*) and squid (*Loligo sp.*) at 08.00 WIB to 10.00 WIB in the score. 5, which means there is starting to be discoloration, brownish red, there is a little mucus. Fish in this category are not good for consumption by the public because their quality has deteriorated. The gills of tuna (*Thunnus albacores*) and red

snapper (*Lutjanus sp.*), vannamei shrimp (*Liopenaeus vannamei*), and white bottom fish (*Pampus argentus*) are at a score of 7, which means the color is slightly dull red and without mucus. Fish in this category are still suitable for consumption because they have not experienced a significant decline in quality. According to Patang (2014) [8], the color change that occurs in fish gills from red to brownish is a sign that the fish is in a phase of decay or deterioration in quality.

Texture

Texture is a characteristic that shows the surface of the fish's body which can be used as an object for evaluating organoleptic tests to determine the level of freshness and damage to the fish. Organoleptic testing through texture is carried out using the sense of touch. Results of organoleptic analysis of the texture of tuna (*Thunnus albacores*), tuna (*Euthynnus affinis*), vannamei shrimp (*Liopenaeus vannamei*), red snapper (*Lutjanus sp.*), mackerel (*Scombridae*), squid (*Loligo sp.*), fish Skipjack tuna (*Katsuwonus pelamis*) and white bottom fish (*Pampus argentus*) overall have a score of 5. A score of 5 means that the texture of the fish is rather soft, less elastic when pressed with a finger, and it is quite easy to tear the flesh from the spine. Table 1 shows that the results of the organoleptic texture test in this study do not comply with the minimum limit determined by SNI 2729:2013, namely texture with a score of 7. Fish that have a non-compact texture are caused by bacterial activity which has contaminated the fish. This is because fish is a preferred medium for bacterial growth because fish has a high water content, making it easier for bacteria to reproduce quickly (Wati & Hafiludin, 2023) [9].

Smell

The smell that appears on the fish is a sign of the decline in the quality of the fish. This causes consumer interest to decrease when they want to buy or consume fish. Odors can be caused by the activity of spoilage microorganisms or chemical bacterial activity such as fat oxidation. Poor handling methods can cause an unpleasant odor to appear and cause flies to like to approach and stick to the fish. Table 1 shows the organoleptic odor results in this study for mackerel fish (*Scombridae*), tuna (*Thunnus albacores*), and vannamei shrimp (*Liopenaeus vannamei*) with a score of 5, which means the smell of ammonia in the fish is starting to smell and has a slightly sour smell. The condition at this score is that the fish is not suitable for consumption because the quality has decreased. red snapper (*Lutjanus sp.*), tuna (*Euthynnus affinis*), skipjack tuna (*Katsuwonus pelamis*), and white bottom fish (*Pampus argentus*) are found at a score of 3, which means the smell of ammonia in the fish is strong, there is the smell of H₂S, and the smell of clear and foul sour. The condition at this score is very unfit for consumption because the fish has experienced a significant decline in quality.

Physical Damage

According to research (Litaay *et al.*, 2020) [3], physical damage to fish causes bruising and wounds due to rough treatment during the catching and storage process. This rough treatment includes throwing the fish violently into a storage container, dragging the fish into a storage container, slamming the storage container which can cause pressure and impact on the fish's body, especially on the eyes. The

treatment carried out from the first time the fish is caught has a big impact on food safety and the quality of the fish.

Table 2: Types of Physical Damage to Fish

Types of Fish	Damage Fish Physique
Mackerel _	Bruises and wounds
Snapper _	Bruises and wounds
Mackarel tuna	Bruises, wounds and so on object abnormal foreign inside __ body
Skipjack Fish	Bruises, wounds and so on object abnormal foreign inside __ body
Shrimp	Wound
Squid _	Wound
Sea Pomfret Fish	Bruises and wounds
Tuna fish	Wounds and existence object abnormal foreign inside __ body

Source: Primary Data Analysis, 2023

Table 2 shows that there is damage physical phenomena that occur in mackerel fish form bruises and cuts on his body, damage physique snapper also experienced bruises and wounds, damage physical characteristics of tuna and skipjack fish exist in the same conditions that is experience bruises, wounds and so on object incoming foreigners _ to body, the damage that occurs to shrimp and squid also occurs in the same situation that is experience wounds on his body, damage to pomfret fish sea is bruises and wounds, and in tuna fish suffer wounds and presence object incoming foreigners. _ Damage fish physically _ whole experience bruises, wounds, and so on object abnormal foreign substances in the fish's body. This shows _ _ that has happen decline mark fish nutrition and quality.



Source: Primary Data, 2023

Fig 2: Fish Sales Conditions

According to study Maraja *et al.* (2017) [4] influencing factors _ damage Fish physique is caused by various condition handling.

First, the arrest process is not correct will causing the fish to suffer setback quality. *Second*, the process of transporting fish from less ships _ appropriate will causes the fish to tend fast experience decay or damage physique when trampled and knocked over. *Third*, method fish handling above boat rough so that experience possible collision _ result scratches on the fish's body. *Fourth*, the fish storage process is lacking good no notice temperature and cleanliness so the fish is easy damaged, yes seen in Fig 2 fish only put on table aluminum without given ice. *Fifth*, the packing process is not appropriate cause accumulation moment fish storage so give pressure one each other which has an impact on damage fish physique.

Conclusions and Recommendations

Conclusion

Quality level freshness of fish in research this through organoleptic tests obtained dominant at a score of 5 which means outline __ Not yet in accordance with provisions of SNI 2729: 2013, where the minimum assessment limit is a score of 7. Results of research conducted in Traditional Markets Pucung There are 8 types of quality fish the quality tested organoleptic namely tuna (*Thunnus albacores*), tuna (*Euthynnus affinis*), shrimp vannamei (*Liopenaeus vannamei*), snapper red (*Lutjanus sp.*), mackerel fish (*Scombridae*), squid (*Loligo sp.*), skipjack tuna (*Katsuwonus pelamis*), and bottom fish white (*Pampus argentus*). Organoleptic test assessment results quality quality of these fish classified not enough good and rated less fresh because has experience decline quality quality and damage fish physique. Decreased fish freshness be one _ reason damage physical in research this. Research result this explained damage physical fish occurs in a way whole like a fish experiences bruises, wounds, and so on object abnormal foreign inside __ fish body. Damage this caused by various factor like method catching, transporting, handling, storage. And packing.

Suggestion

Quality level freshness and damage fish physique can minimized when fishermen, distributors and sellers can understand with Good method proper fish handling. Study this expected can become reference for readers, especially seller for guard quality freshness of fish and avoid damage the physical condition of the fish so that it is suitable consumed by consumers.

References

1. Al Fatich, MFN, Setyastuti, AI, Kresnasari, D., Sarmin, S. Identification of the Freshness Level of Tuna Fish (*Euthynnus sp.*) at Bumiayu Market, Brebes Regency. *Journal of Marine Research*. 2023; 12(3):511-518. Doi: <https://doi.org/10.14710/jmr.v12i3.40444>
2. Deni S. Characteristics quality of fish during handling on KM ships. Skipjack tuna. *Agrikan: Journal Agribusiness Fisheries*. 2015; 8(2):72-80. Doi: <https://doi.org/10.29239/j.agrikan.8.2.72-80>
3. Litaay C, Wisudo SH, Arfah H. Handling of skipjack tuna by fishermen. *Journal Indonesian Fishery Products Processing*. 2020; 23(1):112-121. <http://journal.ipb.ac.id/index.php/jphpi/article/view/30924>
4. Maraja MK, Salindeho N, Pongoh J. Handling Tilapia Fish (*Oreochromis niloticus*) Living with using Ice as Preservative. *Fisheries Products Technology Media*. 2017; 5(3):80. Doi: <https://doi.org/10.35800/mthp.5.3.2017.16849>
5. Mardiana R, Lidyawati L, Zulfikri M. Identification of Formalin in Fresh Fish at Idi Rayeuk Fish Landing Port East Aceh Regency. *Journal of Pharmaceutical and Health Research*. 2020; 1(3):77-82. Doi: <https://doi.org/10.47065/jharma.v1i3.597>
6. Masinambou CD, Mentang F, Montolalu LADY, Dotulong V, Montolalu RI, Reo AR, *et al.* Testing Content Histamine and Organoleptic Quality of *Thunnus Albacares* Tuna Raw Materials can. *Fisheries Products Technology Media*. 2022; 10(3):143-149.
7. Metusalach, Kasmiasi, Fahrul, Jaya I. Influence method arrest, facilities handlers and methods fish handling _ quality of fish produced. *PSP Science and Technology Journal*. 2014; 1(1):40-52.
8. Patang P. Analysis of Freshness Level of Flying Fish (*Decapterus sp*) In Place Makassar City Eagle Fish Auction. *Journal Agrisystems*. 2014; 10(1):34-39.
9. Wati SM, Hafiludin. Analysis quality of kurisi and swangi fish results catch fishermen on site Mayangan fish auction, Probolinggo. *Journal Indonesian Fisheries Product Processing*. 2023; 26(1):25-38. Doi: <https://doi.org/10.17844/jphpi.v26i1.42366>
10. Wijayanti NS, Lukitasari M. Analysis Formalin Content and Organoleptic Tests of Salted Fish Circulating in the Madiun Big Market. *Florea: Journal Biology and its Learning*. 2016; 3(1):59. Doi: <https://doi.org/10.25273/florea.v3i1.789>
11. Woniman, Lesmana, I, Ali Busro, M. The Influence of Location and Price on Consumer Purchase Interest in Traditional Markets Pucung Raya, Jatimulya, Depok City, West Java. *Journal Scientific Management Prophetic*. 2023; 1(1):31-36.