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ORGANOLEPTIC CHARACTERISTICS OF FRESHNESS VANAME SHRIMP (Litopenaeus vannamei) IN RANCAEKEK, RESIK JATINANGOR AND TANJUNGSARI TRADITIONAL MARKET

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Abstrak

This study aims to determine the level of freshness from vaname shrimp (Litopenaeus vannamei) in Rancaekek, Resik Jatinangor and Tanjungsari traditional markets. The writer used survey research method and the level of freshness of the sample is determined using a scoring test through organoleptic observation and the degree of acidity (pH). The samples were observed organoleptically including appearance, aroma, and texture. Based on the results of observations from the vaname shrimp appearance, aroma and texture parameters, it shows that the shrimp marketed by the Rancaekek market obtained a score of 7 with a degree of acidity (pH) of 6.4 which means that they are in the fresh category, the shrimp in the Resik Jatinangor market get a score of 7 with The degree of acidity (pH) is 6.6 which means it is in the fresh category, and the shrimp in Tanjungsari market gets a score of 8 with a degree of acidity (pH) of 6.2 which means that it is in the fresh category.

Kata kunci: *Derajat keasaman (pH), Kesegaran Udang, Pasar Rancaekek, Pasar Resik Jatinangor, Pasar Tanjungsari, Skoring, Udang vaname*

Preliminary

Vaname shrimp is a shrimp that is developed in Indonesia. The need for vaname shrimp is increasing along with the increasing of the population. Based on data from the Directorate General of Aquaculture (2016), production of vaname shrimp in Indonesia 2016 reached 488,019 tons compares from 2015 which reached 413,079 tons.

Shrimp has a water content of 78.2% and 18.1% protein (Hadiwiyoto 1993). This can lead to deterioration of quality in shrimp, because of the higher the water content, the more microbes that grow will increase (Jannah et al. 2014). The quality of vaname shrimp can be seen organoleptically by looking at the appearance, aroma, and texture of the shrimp. According to Hadiwiyoto (1993), freshness of shrimp can be divided into four quality classes, namely shrimp that have prime quality (prime), shrimp that have good quality (fancy), medium quality shrimp (medium, black and spot) and shrimp that are of low quality (bad and broken). Quality and freshness of shrimp must be maintained properly so that the shrimp keeps fresh until it reaches

the consumers. Neither traditional market facilities nor handling and storage procedures are based on standard compare from modern market. The difference comes from how the market handling their shrimps. The traditional markets shrimp handling is stacked in containers in the other hand modern markets are using cooling and sanitation methods.

Based on observations of traditional markets around Jatinangor including Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market, it was found that the handling of vaname shrimp in the three markets was almost the same. Vaname shrimp handling did not comply with HACCP standards which were stacked in containers without using the cooling method. . Vaname shrimp without cooling method is resulted in a change process that led to the destruction process of shrimp "peeling time" in only about 8 hours since the shrimp was caught and landed (Nan Xu 2018).

The research objective was to determine the freshness level of vaname shrimp (Litopenaeus vannamei) in the traditional markets of Rancaekek, Resik Jatinangor, and Tanjungsari based on organoleptic characteristics and degree of acidity (pH).

Methodology

The test material which was shrimps that obtained from 3 different traditional markets. they are Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market. There were 25 shrimps for each market. The test materials are brought in the morning at 05.00 WIB using a cool box and given a curai ice with a ratio of 1: 2 between shrimp and curai ice used as a cooling medium. All test equipment and materials are collected at the Fisheries Product Processing Laboratory, Faculty of Fisheries and Marine Sciences, Padjadjaran University where shrimp became research material begins at 08.30 WIB - 09.30 WIB.

This research was carried out by 15 semi-trained panelists with each panelist testing 3 shrimp from different markets. The organoleptic characteristics observed included appearance, aroma and texture. The panelists scored the organoleptic observations on the prepared scoresheet. The fresher the observed shrimp, the higher the score. Score range 1 - 9 Scoresheet freshness level of shrimp.

Parameters observed using scoring test through organoleptic observation, pH test on fresh shrimp.

a. Organoleptic Test

Organoleptic test is a subjective test method that uses five senses. Organoleptic testing was shown on the eyes, meat, aroma, and texture. Organoleptic testing in the form of appearance, aroma and texture. Organoleptic testing uses a score sheet based on SNI 01-2346-2006 (Attachment 1).

b. PH Value Test

According to Apriyantono et al (1989) pH measurements were carried out using a pH meter. The pH meter used for testing the pH value is calibrated first using a standard buffer of

pH 4 and 7. 10 grams of shrimp meat are crushed and homogenized with 90 mL of distilled water using a homogenizer. Then the homogeneous meat was measured using a pH meter that had previously been calibrated.

Data analysis was taken from the results of the scoring test, the pH test which was analyzed descriptively. The scoring test data was obtained from the scoring sheet. The scores were tabulated and the quality value was determined by looking for the mean results for each panelist at the 95% confidence level. To calculate the interval of the mean quality value for each panelist, the SNI formula (01-2346-2006) is used as follows:

$$\overline{\boldsymbol{x}} = \frac{\sum_{\boldsymbol{i=1}}^{\boldsymbol{n}} \boldsymbol{x_i}}{\boldsymbol{n}}$$

$$\boldsymbol{s} = \sqrt{\frac{\sum_{\boldsymbol{i=1}}^{\boldsymbol{n}} (\boldsymbol{x_{i-}}\ \overline{\boldsymbol{x}})^{\boldsymbol{2}}}{\boldsymbol{n}}}$$

$$\boldsymbol{P}\left(\overline{\boldsymbol{x}} - \left(\boldsymbol{1,96}.\frac{\boldsymbol{s}}{\sqrt{\boldsymbol{n}}}\right)\right) \leq \boldsymbol{\mu} \leq \left(\overline{\boldsymbol{x}} + \left(\boldsymbol{1,96}.\frac{\boldsymbol{s}}{\sqrt{\boldsymbol{n}}}\right)\right) \cong \boldsymbol{95\%}$$

With the following formula details:

$\overline{x}$ is avarage quality of value;

X_i is quality of value from panelist to i, where i = 1,2,3.....n;

n is the number of panelists;

S^2 is the diversity of quality values;

s is the standard deviation of the quality value;

1.96 is the standard coefficient of deviation at 95% level;

P is the value interval.

Fresh Shrimp Assessment Criteria (SNI 01-2346-2006):

Organoleptic values range from 7 - 9 in the fresh category

Organoleptic values range from 5 - 6 in the category of less fresh

Organoleptic values range from 1 - 4 in the category of not fresh.

Results and Discussion

Organoleptic Characteristics of Vaname Shrimp (Litopenaeus vannamei)

Appearance

Based on the results observations of organoleptic the appearance parameters of vanamei shrimp from Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market can be seen in table 1:

Location	Average	Median	Description
Rancaekek Market	7,8	8	Intact, less clear, the light begins to fade, original color, solid between the segments
Resik Jatinangor Market	7,2	7	Intact, the color is dim, slightly pink, between the segments starting to stretch a little
Tanjungsari Market	8,4	9	Intact, less clear, the light begins to fade, original color, solid between the segments

Table 3.Average Appearance Value of Vaname Shrimp from Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market

The highest value shrimp was found in the Tanjungsari market due to seller uses a lot of ice cubes and using a basket container in the storage so that water is not collected and the shrimp is not submerged in water. The lowest value is found for shrimp from the Jatinangor resik market due to the seller uses a little ice block and the container that can hold water which causes the shrimp submerged in water. The freshness level of shrimp in the three markets is still fresh. According to (SNI 01-2346-2006) the organoleptic value ranged from 7 to 9 categorized as fresh.

Scent

Based on the results of organoleptic observations, the aroma parameters on vaname shrimp from Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market are presented in Table 2.

Table 4.Average Value of Vaname Shrimp Aroma from Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market

Location	Average	Median	Description
Rancaekek market	7,6	7	Specific fresh scent
Resik Jatinangor market	7,2	7	Neutral scent
Tanjungsari market	8	8	Specific fresh scent

The highest value was found in the shrimp from the Tanjungsari market and the lowest in the Jatinangor Resik market. The results of research in the three markets showed that vaname shrimp was fresh. According to (SNI 01-2346-2006) the organoleptic value ranged from 7-9 categorized as fresh. From the existing average value, it shows that organoleptically the aroma in the Rancaekek Market and the Tanjungsari Market is in the condition of a specific type of fresh aroma, and in the Jatinangor Resik Market the smell is neutral because it does not smell.

Texture

The results of organoleptic observations based on texture parameters on vaname shrimp from Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market are presented in Table 5.

Location	Average	Median	Description
Pasar Rancaekek	7,6	8	
Pasar Resik Jatinangor	7,8	8	Elastic, Compact and Thick
Pasar Tanjungsari	8,1	8	

Table 5. Average Texture Value of Vaname Shrimp from Rancaekek Market, Pasar Resik Jatinangor, and Tanjungsari Market.

The highest value was found in the shrimp from the Tanjungsari market and the lowest in the Jatinangor Resik market. The results of research in the three markets are showed that vaname shrimp was fresh. According to (SNI 01-2346-2006) the organoleptic value ranged from 7 to 9 categorized as fresh.

According to Hadiwiyoto (1993), microbial activity can cause damage to the constituent components of the binding tissue and the threads of shrimp meat so that they lose strength to support the structure of the meat to make it compact. Damage to the tissue structure of the meat will cause the meat to lose its elasticity and elasticity then becomes soft.

Freshness Level of Vaname Shrimp (Litopenaeus vannamei) at Rancekek Market, Jatinangor Resik Market, and Tanjungsari Market

The organoleptic test results of vaname shrimp from Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market are presented in Table 6.

Table 6. Value of Freshness of Vaname Shrimp in Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market

Parameter	Average		
	Rancaekek	**Resik**	**Tanjungsari**
Appearance	7,8	7,2	8,4
Scent	7,6	7,2	8
Texture	7,6	7,8	8,1
Value	7	7	8
Interval Number	$7{,}3 \leq \mu \leq 8$	$7{,}2 \leq \mu \leq 7{,}7$	$7{,}9 \leq \mu \leq 8{,}5$

Note: The average quality value is at the 95% confidence level

The condition of vaname shrimp found in Rancaekek Market has 7 value score, the Jatinangor Market has value score 7 and the Tanjungsari Market has 8 value score. According to (SNI 01-2346-2006) the organoleptic value ranges from 7 - 9 categorized as fresh. The results of research in the three markets show that the vaname shrimp is fresh.

The condition of the vaname shrimp in the three markets is still good for consumption even though it has undergone several changes in the body of the shrimp. The process of changes depend on the handling given when the shrimp is just caught until the shrimp is in the consumers hands. Shrimp freshness can be preserved by providing freezing treatment to prevent damage to shrimp in a short or long time. According to Afrianto and Liviawaty (2003) the freezing process aims to preserve the natural properties of fish by inhibiting bacterial activity and enzyme activity.

Test Result of Degree of Acidity (pH)

The value of the degree of acidity (pH) is an indicator that can be used to determine the freshness level of fishery products chemically. The results of the acidity level (pH) test of vaname shrimp from Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market are presented in Table 7.

Table 7.The results of the acidity level (pH) test of Vaname Shrimp at Rancaekek Market, Jatinangor Resik Market, and Tanjungsari Market

Sample	Acidity (pH)
Rancaekek market	6,4
Resik Jatinangor market	6,6
Tanjungsari market	6,2

The acidity level (pH) test results of vaname shrimp at Rancaekek Market has 6.4 pH value, the Jatinangor Resik Market has 6.2 pH value and the Tanjung Sari Market has 6.2 pH value. The highest value is found in the Jatinangor resik market with 6.6 pH value and the lowest is in the Tanjungsari market with a pH value of 6.2. The pH value of the Tanjungsari market is lower than the Rancaekek market and the Jatinangor Resik market, so it can be

concluded that the freshness level of shrimp in the Tanjung Sari market is superior to other markets. The results of research by Sipahutar et al (2020) that the longer the storage time for shrimp, the pH value will increase. Vaname shrimp from Rancaekek Market, Resik Jatinangor Market, and Tanjungsari Market are still good for consumption. According to Shamshad (1990) in Septiana (2019), shrimp products have good quality and are acceptable at pH ≤ 7.5.

Conclusion

Based on the results of this research, it shows that the vaname shrimps (Litopenaeus vannamei) which is sold at Rancaekek Market is in the fresh category with the score of 7 and it has 6.4 pH value. The vaname shrimps which is sold at the Jatinangor Resik Market are in the fresh category with the score of 7 and it has 6.6 pH value. The vaname shrimp marketed at the Tanjungsari Market is in the fresh category with the score of 8 and it has 6.2 pH value.

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