*Jurnal Pertanian Tropik* ISSN NO: 2356- 4725/p- ISSN : 2655-7576
Vol.7.No.2. 2020 (22) 168-173 DOI: 10.32734/jpt.v7i2.4309

# Hedonic Attributes of Mussels Sauce as Seasoning

Kajian Uji Kesukaan Saus Kerang sebagai *Seasoning*

***Marnida Yusfiani*, Ayu Diana, Ahyani Ridhayani Lubis, Muchsin Harahap, Abd. Syakura***

Politeknik Tanjungbalai
Jl. Sei Raja, Kel. Sei Raja, Kec. Sei Tualang Raso, Kota Tanjungbalai, Indonesia

**Corresponding Author:* marniday@yahoo.com

***ABSTRACT***

*North Sumatera east coastal, has an abundance of various type of mussels. The mussels processed is limited as daily consumption. Diversification is required the mussels process into mussels sauce. This study aims to determine the level of panellist acceptance of mussels sauce. The experimental method used in this research with 3 treatments of different types of mussels, namely A1, blood mussels (Anadara granosa); A2, green mussels (Perna viridis); and A3, fur mussels (Anadara cunearca) and 3 repetitions. The observation parameter is the hedonis test. Data analysis used SNI 01.2346-2006 the hedonic formulation and Analysis of Variance (ANOVA). The results showed that the product that can be accepted by panellists in the preference test is $A_{21}$ treatment, which score 4,79 at like level specification. In after taste parameter, and $A_2$ had significant effect ($p > 0,05$).*

***Keywords****: mussels, mussels sauce, hedonic, after taste, seasoning.*

**ABSTRAK**

Pesisir pantai timur Sumatera Utara, memiliki kelimpahan berbagai jenis kerang-kerangan. Olahan kerang terbatas sebagai lauk untuk dikonsumsi sehari – hari. Perlu dilakukan diversifikasi olahan kerang menjadi saus kerang. Penelitian ini bertujuan untuk mengetahui tingkat penerimaan panelis terhadap saus kerang. Metode eksperimen yang digunakan dengan 3 perlakuan jenis kerang yang berbeda yaitu A1, Kerang darah (*Anadara granosa*); A2, Kerang hijau (*Perna viridis*); dan A3, Kerang bulu (*Anadara cunearca*) dan 3 pengulangan. Parameter pengamatan yaitu uji hedonik. Analisis data menggunakan SNI 01.2346-2006 formulasi hedonik dan *Analysis of Varians* (ANOVA). Hasil penelitian diperoleh produk yang dapat diterima oleh panelis pada uji kesukaan adalah pada perlakuan $A_{21}$, dengan nilai 4,79 spesifikasi suka. Pada uji setelah rasa, $A_2$ memberikan pengaruh nyata ($p > 0,05$).

**Kata Kunci**: Kerang, saus kerang, tingkat kesukaan, setelah rasa, *seasoning*.

## INTRODUCTION

Tanjungbalai District known as "Kota Kerang", located on the east coastal and the second largest fisheries producer in North Sumatera province. The Malacca strait known as fisheries potential and borders with Tanjungbalai marine (Syahputra & Susetya, 2018). Tanjungbalai borders the Asahan Regency area, the majority of the population is fisherman. Aquaculture production, public sea in Tanjungbalai based on The Central Statistics Data Tanjungbalai District in 2017 is 44,767.87 tons (BPS, 2019).

The most abundance fisheries products are various type of fish, crab, shrimp, and mussels (Natalia & et.al, 2013) and (Pranowo & Hidayatulloh, 2015). Capture fisheries and mussels marketed in traditional markets in Tanjungbalai area.

Mussels is filter feeder. Filter feeding is a method of eating that is used by diverse organisms, including bivalve mollusca. By drawing in water from one side and pumed it out the other side. Mussels is bioindicator of marine quality. As one of fisheries and animal protein resources which are classified as complete protein (Elrica & et.al, 2015). Fisheries of mussels as necessities of life the most of fisherman in Tanjungbalai – Asahan regency (Nababan, 2020).

*Jurnal Pertanian Tropik* ISSN NO: 2356- 4725/p- ISSN : 2655-7576
Vol.7.No.2. 2020 (22) 168-173 DOI: 10.32734/jpt.v7i2.4309

The nutritional composition value of fresh mussels per 100 g with Edible Weight (BDD) is 100% (Data Komposisi Pangan Indonesia, 2018b), presented in Table 1.

Table 1. Fresh Mussels Composition

| | | |
|---|---|---|
| **Moisture** | : | 78.2 g |
| **Energy** | : | 101 Calories |
| **Protein** | : | 14.4 g |
| **Fat** | : | 2.6 g |
| **Carbohydrate** | : | 3.9 g |
| **Serat** | : | 0.0 g |
| **Fiber** | : | 0.9 g |

Recently people used meat of mussels (Fitriah & et.al, 2018). The selling range price of mussels are Rp. 7000,- – Rp. 20000,-. (Harianja, 2015) dan (Tarwiyah, 2017). Tanjungbalai mussels are the best quality and do not contain sand.

An abundance season of mussels and high production, there is an issue that low selling price and the seller faced the decreasing of quality because of improper handling and losses faced. Clams are widely used by the community as an alternative food source (Satrioajie, 2012). Diversification of clams into clam sauce is one of the solutions for shellfish processing. Mussels are generally processed by boiling, sauteing, frying, processing them into satay, and so on. Sauce is a liquid or paste that is used as a mixture when cooking food or served with food as a flavoring or flavor enhancer. Sauces made from several kinds of mixed ingredients have a unique and distinctive taste (Anonymous, 2017).

## MATERIAL AND METHODS

The ingredients used in this research are mussels, garlic, carrot, pepper, bay leaves, lime leaves, ginger, palm sugar, sesame oil, cornstarch, lemongrass, dan salt. The tools used are analytic balance, knives, cutting board, blender, basin, spatula, pan, sieve, bottle.

The procedur of making mussels sauce, namely: mussels that have been washed of sand and dirt are chopped into smaller size, and blend with garlic, ginger, and plam sugar with addition with water, and filtered. The filter cooked with bay leaves, lime leaves, when it start to shrink the leaves discarded. Then add the sesame oil, cornstarch, and salt.

This research method is an experiment method with raw materials from different types of mussels and used a completely randomized design (CRD) with 3 treatments and 3 repetitions. The different types of mussels as treatment presented in Table 2.

Table 2. Different Type of Mussels Treatment

| Treatment | Types of Mussels |
|---|---|
| $A_1$ | Blood Mussels (*Anadara granosa*) |
| $A_2$ | Green Mussels (*Perna viridis*) |
| $A_3$ | Scallop (*Anadara cunearca*) |

The parameters observed were sensory tests, the level of preference for the panellist to a product. The data processing used a mathematical model Completely Randomized Design (CRD):

$$Yij = \mu + Ai + \sum ij$$

Information**:**

Yij = The observed value of the frequency the-i from the -j repetitions that had the-j treatments.
μ = The general middle value
Ai = Effect of frequency -i
$\sum ij$ = The error effect of the -j which treatment – i.

According to SNI 01.2346-2006 the formula for calculating the level of preference for a panellist to a product are:

$$\bar{x} = \frac{\sum_{i=1}^{n} xi}{n}$$

$$S^2 = \frac{\sum_{i=1}^{n} (xi - \bar{x})^2}{n}$$

$$P(\bar{x} - (1{,}96.s/\sqrt{n})) \leq \mu \leq (\bar{x} + (1{,}96.s/\sqrt{s})) \cong 95\%$$

Information:

N = Number panellist
$S^2$ = Information on average qualitu value
1,96 = Standard deviation coefficient at 95%
$\bar{x}$ = Average value
$xi$ = Quality value of panellists/ number of panellists

Jurnal Pertanian Tropik ISSN NO: 2356- 4725/p- ISSN : 2655-7576
Vol.7.No.2. 2020 (22) 168-173 DOI: 10.32734/jpt.v7i2.4309

S = Standard deviation of standard values

Organoleptic testing aims to determine the level of preference for panelists a product of all sensory characteristics present in the product. The evaluation components of sensory tests in this study include *Appearance*, *Flavor*, *Odor*, and *After Taste*. Organoleptic - hedonic testing was conducted by 30 untrained panellists. Assessment questionnaire with criteria, namely: 1 = very dislike; 2 = dislike; 3 = neutral / ordinary; 4 = like; and 5 = really like it. The hedonic test results are displayed with mean values and standard deviations. The most acceptable product conclusion is by counting one of the most preferred products then presented.

Data processing using SPSS with statistical test of one-away anava analysis was carried out to determine whether there was an effect of treatment of different types of mussels at the 95% confidence level which was the sig value. > 0.05 then there is no significant difference between treatments and vice versa. Duncan's further test was carried out if the treatment of different types of shellfish had a significant effect.

## RESULTS AND DISCUSSION

### 1. Appearance

Quality assessed by visual properties such as shape, size, and color, appearance parameter determines the acceptance of the panelists. Determination of the quality of a food generally depends on several factors, including taste, texture color, and nutritional value (Winarno, 2004). The mean value of the appearance parameter in the hedonic test of mussels sauce presented in Figure 1.

The mean value of the panellists' preference level was obtained that $A_1$ = 3.1; $A_2$ = 3.4; and $A_3$ = 3,3 presented in Figure 1. Panellists from the appearance of mussels sauce prefer to the normal/ neutral range.

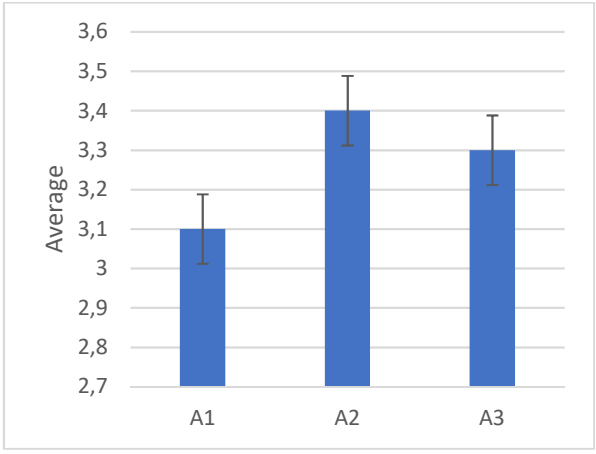


Figure 1. The average of panellist preference of Mussels sauce on Appearance parameter.

The statistical results showed that there was no significant difference of the different types of mussels on Appearance parameter ($p <$ 0,05). The mean value of the three treatments presented in Figure 2.

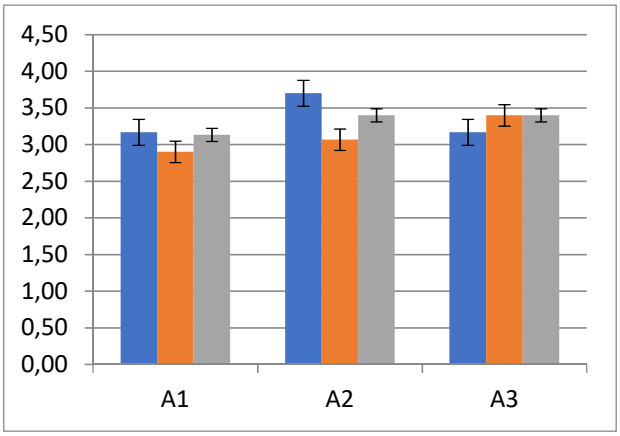


Figure 2. The Mean of Appearance Parameter

### 2. Flavour

Taste is one of the factors plays an important role in determining the final decision of consumers to accept or reject a food. The average value of the reception level panellist at the hedonic test on taste parameters, presented in Figure 3.

Jurnal Pertanian Tropik ISSN NO: 2356- 4725/p- ISSN : 2655-7576
Vol.7.No.2. 2020 (22) 168-173 DOI: 10.32734/jpt.v7i2.4309

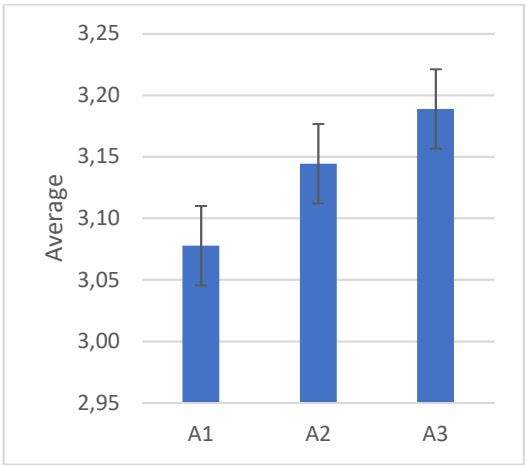


Figure 3. The average of panellist preference of Mussels sauce on Flavour parameter.

Based on Figure 3. The average value of the panellists' preference level on flavor were $A_1$ = 3.08; $A_2$ = 3.14; and $A_3$ = 3.19. Panellists rated flavour in the normal/ neutral category. The highest average flavour was $A_3$ = 3.19. This is in accordance with research starting that generally food does not consist of just one taste group, but is a combination of various integrated flavors to give rise to a delicious taste (Winarno, 2004).

The ANOVA statistical results showed that there was no significant difference for the taste parameters for the three treatments of different types of mussels in flavour parameter ($p$ <0.05). The mean value of treatment and repetition of flavour parameters presented in Figure 4.

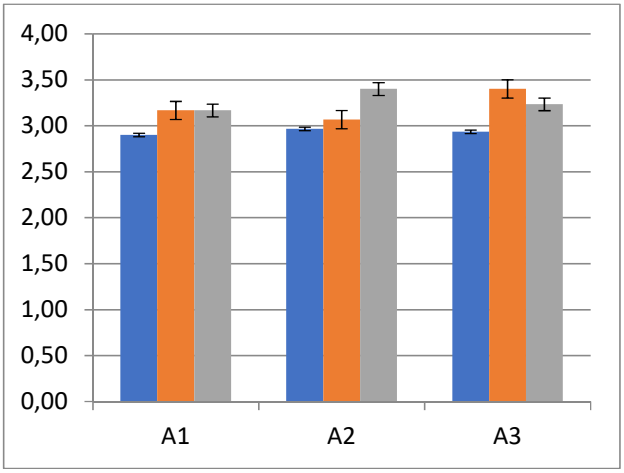


Figure 4. The Mean of Flavour Parameter

**3. Odor**

Aroma has its own charm to arouse appetites and determine the delicious taste of the food product itself. The mean value of aroma parameters in the hedonic test of mussels, presented in Figure 5.

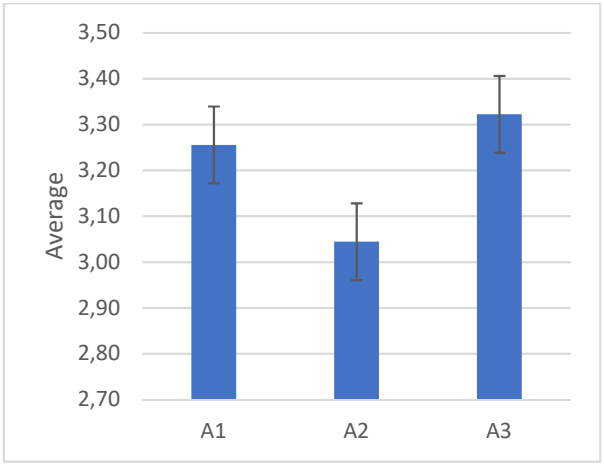


Figure 5. The average of panellist preference of Mussels sauce on Odor parameter.

In Figure 5., showed that the average value of the panellists' preference level on odor was $A_1$ = 3.26; $A_2$ = 3.04; $A_3$ = 3.32. Panellists rated odor in the normal/ neutral category. The is the highest is $A_3$.

The ANOVA test results on the odor of mussels sause showed that no significance difference ($p$ <0.05). The aroma of food determines the delicacy of food and taste (Winarno, 2004). The mean value of treatment and repetition of odor parameters presented in Figure 6.

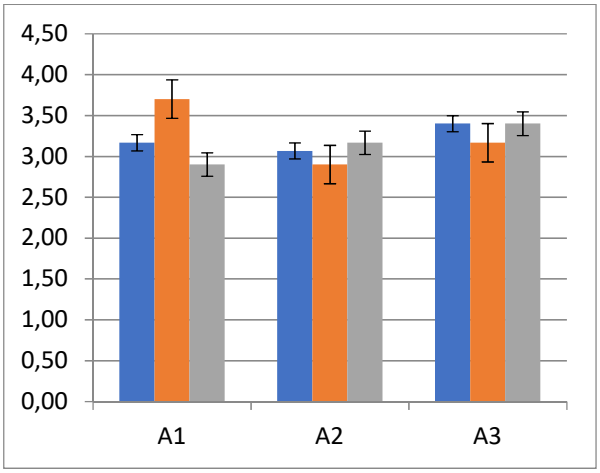


Figure 6. The Mean of Odor Parameter

Jurnal Pertanian Tropik ISSN NO: 2356- 4725/p- ISSN : 2655-7576
Vol.7.No.2. 2020 (22) 168-173 DOI: 10.32734/jpt.v7i2.4309

**4. After Taste**

After taste) is the long-lasting positive flavor (taste and aroma) that originates from the palate and persists or is swallowed. The average value of the aroma parameters in the hedonic test of clam sauce is presented in Figure 7.

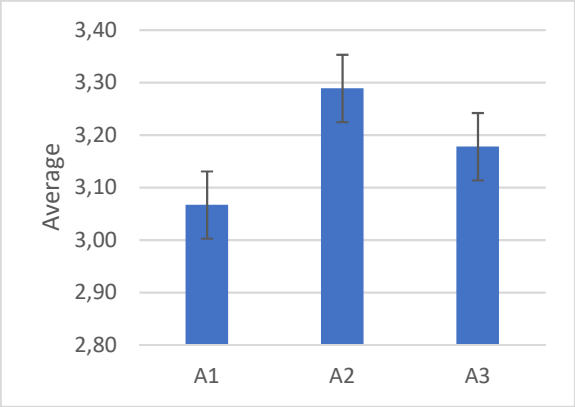


Figure 7. The average of panellist preference of Mussels sauce on After Taste parameter.

According to Figure 7., showed that average value of the panellist preference level on after taste were $A_1$ = 3.07; $A_2$ = 3.29; $A_3$ = 3.18. Panelists give the highest ratings to the treatment A2 = 3.29. In general, after taste parameter panellist only gave neutral/ oridinary choices. If after taste immediately disappears and is not good, it is given a low score (Coffeeland, 2020).

The results of the ANOVA analysis showed that after the taste parameters there were significant differences from the treatment of different types of after taste in clam sauce ($p$ > 0.05). The mean value of mussels sauce on the parameters after taste presented in Figure 8.

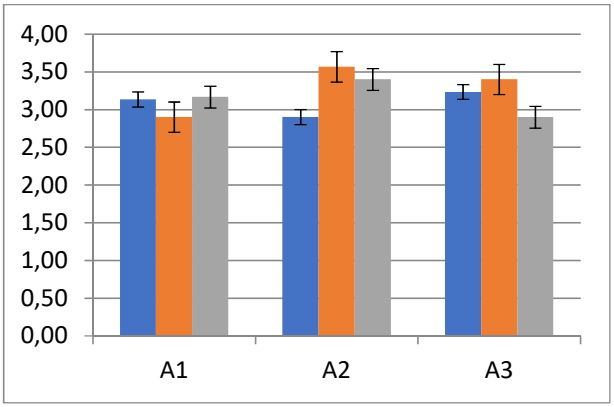


Figure 8. The Mean of After TasteParameter

The processed mussels products have a nutritional composition that can be considered. Nutritional composition of processed mussels value calculated per 100 g in weight Edible (BDD) 100% (Food Composition Data Indonesia, 2018a), presented in Table 3.

Table 3. Processed Mussels Composition

| | | |
|---|---|---|
| **Water** | : | 18.3 g |
| **Energy** | : | 357 Calories |
| **Protein** | : | 41.1 g |
| **Fat** | : | 10.0 g |
| **Carbohydrate** | : | 25.6 g |
| **Fiber** | : | 0.0 g |
| **Ash** | : | 5.0 g |

Panellist preference level based on calculation on hedonic interval in mussels sauce with different type of mussels, showed that on Appearance parameters, panellists accepted at $A_{21}$ with value 4.20 on like specification. Flavour can be accepted $A_{21}$ treatment by the panellist at 4.79 on like level specification. Odor parameter, the panellist accepted $A_{12}$ treatment with value 4.17 with like level specification. After taste parameter, panellist accepted $A_{22}$ treatment with value 3.98 with normal/ neutral level specification.

Statistical data processing with the ANOVA test, it was found that in the appearance parameter, flavour parameter, aroma parameter, there was no significant difference in treating different types of mussels sauce ($p$ <0.05). The significant difference was found in the after-taste parameter with different type of mussles sauce ($p$ > 0.05). In a further test showed that treatment a Duncan test there was significantly different in the treatment of $A_1$ and $A_3$.

## CONCLUSION

Mussels can be processed into mussels sauce for *seasoning*. The result of the preference level test accepted by the panelists was in $A_{21}$ treatment, with a value of 4.79 like specifications. In the test after taste, A2 significant difference ($p$> 0.05); but did not have a significant effect on the appearance, flavour, and odor parameter ($p$ < 0.05).

## REFERENCES

Anonim. (2017). Penjelasan Mengenai Saus, Bahan Penambah Cita Rasa Pada Makanan. Retrieved July 7, 2020, from http://www.martinrecords.com/food/penjelasan-mengenai-saus-bahan-penambah-cita-rasa-pada-masakan/

BPS. (2019). Produksi Perikanan menurut Asal Tangkapan di Kota Tanjungbalai 2010 - 2017. Retrieved March 23, 2020, from https://tanjungbalaikota.bps.go.id/dynamictable/2017/07/12/110/produksi-perikanan-menurut-asal-tangkapan-di-kota-tanjungbalai-ton-2010-2017.html

Coffeeland. (2020). Komponen Uji Cita Rasa Kopi. Retrieved from https://coffeeland.co.id/mengenal-cita-rasa-kopi-coffee-cupping/

Data Komposisi Pangan Indonesia. (2018a). Komposisi Gizi Kerang Olahan. Retrieved from https://www.panganku.org/id-ID/view

Data Komposisi Pangan Indonesia. (2018b). Komposisi Gizi Kerang Segar. Retrieved from https://www.panganku.org/id-ID/view

Elrica, R., & et.al. (2015). *Perancangan Promosi Produk Olahan Kerang UKM Bunda Surabaya*. 1–10. Retrieved from https://media.neliti.com/media/publications/76651-ID-perancangan-promosi-produk-olahan-kerang.pdf

Fitriah, E., & et.al. (2018). Pemanfaatan Daging dan Cangkang Kerang Hijau ( Perna Viridis ) Sebagai Bahan Olahan Pangan Tinggi Kalsium. *The 7th University Research Colloqium*, 412–423.

Harianja, S. (2015). Kerang Tanjungbalai Asahan yang Mendunia. Retrieved July 8, 2020, from https://www.sarihusada.co.id/Nutrisi-Untuk-Bangsa/Aktivitas/Jelajah-Gizi/Kerang-Tanjung-Balai-Asahan-yang-Mendunia

Nababan, B. (2020). *Pengawasan Penangkapan Kerang Dan Gurita Di Tanjungbalai Asahan Sumatera Utara*. Retrieved from https://kkp.go.id/djpsdkp/artikel/19473-pengawasan-penangkapan-kerang-dan-gurita-di-tanjungbalai-asahan-sumatera-utara

Natalia, R., & et.al. (2013). Distribution of the Abundance Fur Shell (Anadara inflata) in Intertidal Coastal Water of Tanjungbalai Asahan North Sumatera Province. Retrieved from https://media.neliti.com/media/publications/188830-ID-none.pdf

Pranowo, & Hidayatulloh, A. (2015). Perspektif dan Dinamika Nelayan terhadap Usaha Kesejahteraan Sosial. *Jurnal PKS*, *14*(1), 94–106.

Satrioajie, W. . (2012). BIOLOGI dan EKOLOGI KERANG BULU Anadara (Cunearca) pilula (REEVE, 1843). *Oseana*, *XXXVII*(2), 1–9.

Syahputra, I., & Susetya, I. E. (2018). Struktur Komunitas Moluska di Estuari Desa Bagan Asahan Kecamatan Tanjung Balai Kabupaten Asahan. *Aquacoastmarine*, *6*(4), 122–131.

Tarwiyah, A. . (2017). 1 Ton Kerang Per Bulan. Retrieved from https://medanbisnisdaily.com/news/read/2017/09/24/319784/1_ton_kerang_per_bulan/

Winarno, F. G. (2004). *Kimia Pangan dan Gizi*. Jakarta: PT. Gramedia Pustaka.