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THE EFFECT OF SUBJECTIVE ANALYSIS ON THE QUALITY OF RED SNAPPER BONE MEAL (*LUTJANUS SP)*

Nurainy kaliky[1]
[1]Muhammadiyah University Of Maluku,Indonesia
Corresponden Email: *lulukaliky01@gmail.com*

Abstract

Fishbones are fishery waste that can be processed and utilized into economic value products, namely fishbone meals. One fish whose bones can be used as a fishbone meal is the red snapper *(Lutjanus sp*). As the primary raw material for making fishbone meals, the bones of red snapper (Lutjanus sp) are rich in calcium mineral salts such as calcium phosphate and phosphorus. Calcium is a mineral that is needed by the human body. Calcium is perfect for babies, children, pregnant women, and the elderly. Calcium deficiency can cause osteoporosis. This study aims to utilize fish bone waste to have economic value and provide information to the public about fishbone meals rich in calcium minerals. This study used an experimental method with two replications. The results showed an increase in the color, texture, and odor of bone meal of red snapper *(Lutjanus sp)*. While the Diversity Analysis (ANOVA) test showed no significant effect on each parameter.

Keywords: Bone, Texture, Color, Fish

INTRODUCTION

Red snapper is one of the fish catches with crucial economic value and is classified as demersal fish. This fish is in great demand because it has a smooth texture and is white. The use of this fish is only on the meat and head while the fish bones are removed. Fishbones, if left unchecked, will cause environmental pollution. One alternative to increase the economic value of this fishbone is the manufacture of fishbone meal. Fishbones contain a lot of calcium needed by the human body (Maulida,2005). Fishbone flour can also prevent osteoporosis because it is rich in calcium. According to (Pratama et al. l 2014), a fishbone meal can be used as a supplement rich in calcium. In addition to preventing osteoporosis, calcium also functions as an aid in accelerating the process of blood clotting, maintaining blood pressure, maintaining healthy skin, and others.

This study aims to utilize red snapper (Lutjanus sp) bone waste to have economic value and provide information to the public about red snapper (Lutjanus sp) bone meal rich in calcium minerals.

METHOD

Methods

The method used in this research is the experimental or experimental method.

Research time

This research was carried out in January 2022 and took place at the THP. laboratory

Tools and Materials

The tools and materials used in this research are:

1. Material

   The ingredients used are fresh red snapper and lime

2. Tools.

   The tools used in this research are:

   - Steam Pot
   - Blenders
   - Digital oven
   - Tangkring Oven
   - Sieve
   - Basin
   - Knife
   - Dandang
   - Milling
   - Gauze

Research procedure

1. Prepare raw materials for fresh red snapper
2. Then do the cleaning, washing, or cutting the bones ± 4x4cm
3. Boiling for ± 6 hours (2 hours gradually) at a temperature of 110º C
4. Boiling the second stage for ± 2 hours
5. After that, washing and cleaning are done
6. To lower the amount of fat and protein on fish bones, soak them in lime juice.
3. After removing the fishbone from that, go to the next step: wash it with cold water.
7. then, do the heating using a steam pan for 2 hours at a temperature of 121º C.
8. After that, do the drying in the oven at a temperature of ± 120º C for 2 hours.

9. Then do the milling with a machine, and after that, it is sifted with a cloth measuring 100 smashes to get snapper bone meal

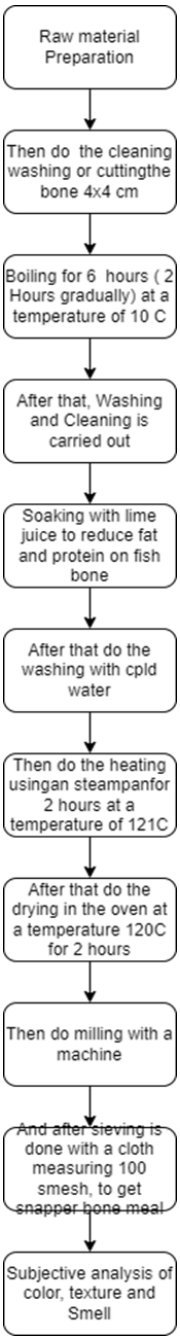

Figure 1 Research flow chart

Data analysis

Data analysis was carried out using a RAL (Completely Randomized Design) with two replications. Then a Test of Significant Difference (one-way analysis of variance) was carried out to determine whether or not the observed effect was genuine using SPSS software version 23 from IBM.

The mathematical formula is as follows:

$$Yij = + i + ij$$

Description:

Yij = Observation value from the j-th test that received the i-th treatment

μ = General mean value i = Effect of i-th treatment

ij = Effect of the j-th error that gets the i-th treatment

Subjective Parameters

Odor Procedure

The finely ground fishbone flour is put in a plastic paperclip and distributed to 15 panelists to be tested.

Table 1. Score sheet for assessing Odor parameters of Fishbone Flour

Treatment	Test	
	I	II

Information :

4. No Fish smell at all
3. Medium fish smell
2. Smell Of fish
1. Smell like fish

Texture Procedure

The finely ground fishbone flour is put in a plastic paperclip and distributed to 15 panelists to be tested.

Table 2. Score sheet for assessing Texture parameters of Fishbone Flour

Treatment	Test	
	I	II

Information:

4. Very Smooth
3. Smooth
2. A little smooth
1. Not Smooth

Color Procedure

The finely ground fishbone flour is put in a plastic paperclip and distributed to 15 panelists to be tested

Table 3. Score sheet for assessing color parameters Of Fishbone Flour

Treatment	Test	
	I	II

Information:

4. Pure white
3. Yellowish White
2. White
1. Yellow Milky

RESULT AND DISCUSSION

Fishbone meal is diversification of fishery waste in the form of fish bones which contain a lot of calcium. Fishbone meal can prevent osteoporosis and malacia.

Subjective Parameters

Smell

Based on the results of the research on the histogram in Figure 2. It can see that the odor value obtained in the first test was 3.8, which was the smell of medium fish, and the matter was 3.5 in the second test. The scent of medium fish is caused by protein content in fish bones which breaks down into glutamic acid (an amino acid), which can strengthen the smell of fish in the fishbone meal produced. Amino acids that enhance the aroma of food

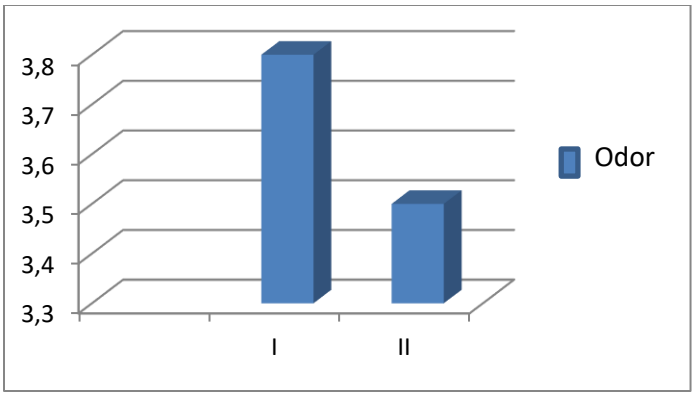

Figure 2 Histogram displaying the various odor parameters of red snapper bone meal

Based on the results of the analysis of variance (ANOVA), it can see that the calculated F (0.023) is smaller than the Table F (0.045) at an alpha of 0.05. This result indicates that there is no significant effect on the two tests. The fishbone meal produced has a moderate fish smell because, in the manufacturing process, there is soaking in lime juice so that it eliminates the fishy smell on the fish bones. After all, orange is a natural acid with a distinctive aroma that can cover other aromas in naniura, such as a fishy aroma (Okta et al. l,2016). Oranges contain essential oils that can cause a fragrant or distinctive odor. Terpenoids contained in critical oils cause an aromatic smell.

Texture

Based on the research results in the Figure 3 histogram below, it can see that the highest value is in the first test with a value of 4.0, which is very smooth. The fish bones are dehydrated in the drying process, so they are easily mashed and produce a wonderful fishbone meal when sifting. In addition, the smooth texture is caused by the boiling process at high temperatures resulting in the release of fat and water as well as vitamins (Khudhi1 et al. l,2016)

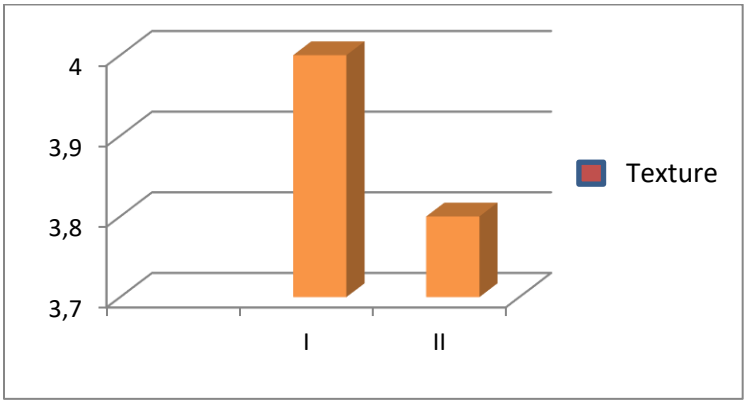

Figure 3. Histogram of bone meal from red snapper fish Texture parameters

The analysis of the above diversity test at alpha 0.05 shows that the calculated F is smaller than the F table, so it does not significantly affect all replicates. According to (Nabil,2005), fish bones' three-stage boiling process will produce fish bones with high calcium content and good texture.

Color

The research results obtained in the panelist test of the level of preference for the color of the red snapper bone meal produced can be seen in the histogram in Figure 4 below. In the histogram, it can see that in the first test, the color value is 4.0, which is the white color of the bones, and for the second test, the color value is 3.96, which is yellowish-white, and the panelists like the color of the fish meal. This result is due to the gradual boiling of the fish bones. By using high temperatures and also soaking in orange juice, and repeatedly washing before the fish bones are dried, resulting in a lot of protein and water in the bones is lost, and the protein is denatured during boiling at high temperatures, resulting in a browning reaction in the resulting product (Nabil, 2005)

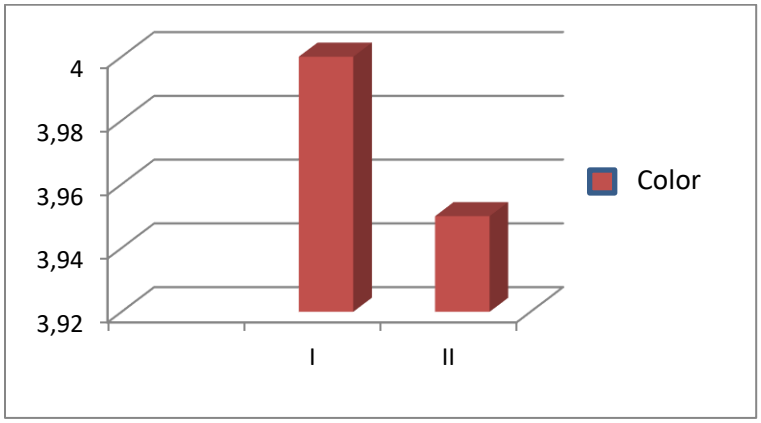

Figure 4. Histogram displaying the various color characteristics of red snapper bone meal

The variance / ANOVA test analysis shows that F Table (0.063) is more significant than F Count (0.052) at alpha 0.05, so it does not substantially affect all replicates. According to (Evawati,2017), processing involves color from fish bone meal produced.

CONCLUSION

1. The presence of heating and boiling at a specific temperature will produce a good color and texture odor from the fishbone meal.

2. Through this research, the community can utilize fishery waste in products with economic value.

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REFERENCES

Evawati, Diana. *Pemanfaatan Kerang Fortifikasi Kalsium Pada Krupuk Aneka Rasa Untuk Peningkatan Kandungan Gizi Dan Tingkat Penerimaan Konsumen*. no. 2, 2017.

Khuldi1, Ahmad, Indrati Kusumaningrumandi Noor Asikin. "Pengaruh Frekuensi Perebusan Terhadap Karakteristik Tepung Tulang Ikan Belida (Chitala Sp.)." *Journal Ilmu Perikanan Tropis*, vol. 21, no. 2, 2016, pp. 032–40.

Maulida, N. 2005. *No TitlePemanfaatan Tepung Tulang IkanTuna (Thunnus Albacares) Sebagai Suplemen Dalam Pembuatan Biskuit (Crackers).*

Nabil, M. (2005). *Pemanfaatan Limbah Tulang Ikan Tuna (Thunnus Sp.) Sebagai Sumber Kalsium Dengan Metode Hidrolisis Protein*.

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Pratama, R. I., Rostini, I., & Liviawaty, E. "Karakteristik Biskuit Dengan Penambahan Tepung Tulang Ikan Jangilus (Istiophorus Sp.)." *Akuatika*, vol. 5, no. 1, 2014, pp. 30–39.