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Analysis of Making Shredded Carp (*Caprinus Carpio Sp.*) with Giving Heart of Banana as Additional Material

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Abstract:

The research aims to know nutritional value of carp based on the results of proximate shredded test of carp produced as well as the most favored results of processing of carp shredded based on organoleptic tests.

Research is an experimental research with Completely Randomized Design with three repetitions. The research variable is the addition of banana heart to the making of carp, namely A treatment comparison of carp meat and heart of banana respectively 55%: 45%, B treatment comparison of carp meat and banana heart each 50%: 50%, C treatment comparison of carp meat and banana heart each 45%: 55%, as well as the control of the making of carp shredded without the addition of banana heart. Test conducted consists of proximate and organoleptic test. The proximate test of fish carp was carried out on the parameters water content, protein content, fat content, and ash content. While organoleptic test done to know levels of pleasure panelist against carp produced. Panelists used was a semi-trained panelist consisting of 15 people with the range of preferred score used is 5-1. Furthermore, data is processed and analyzed by descriptive analysis.

The research result shows result of proximate shredded test of goldfish produced has the lowest water content in A treatment of 11.1%, the highest protein content obtained in B treatment of 19.86%, the highest carbohydrate content also occurs in B treatment of 40.76%, the highest fat content obtained in treatment A of 23.93%. The treatment that meets the SII standard requirement is a maximum of 9% only on A treatment and control. Furthermore, organoleptic test results shows the highest color organoleptic value lies in the C treatment of 4.07, the highest organoleptic value of texture was obtained at C treatment, the highest taste organoleptic value was obtained at C treatment of 4.2, and the best treatment of aroma was obtained at C treatment of 3.67.

Keywords: Fish shredded, carp, banana heart, proximate, organoleptic

1. Introduction

Fish is a source of animal protein is very useful for humans and consumed by almost the entire population of the world. Therefore along with the growth of world population, fish consumption is increasing from year to year. Currently approximately one-quarter of the fish consumed by the world population is derived from aquaculture and this percentage will continue to increase, while catches of marine products, and the lake will continue to decline due to overfishing and environmental damage (Kurnia, 2006). Shredded fish can also be used such as freshwater fish.

Shredded fish is one form of processed which are generally made from meat which is torn and spice is then added to the frying pan and pressed. Shredded fish can be used as an alternative to the presentation, in addition to the practical, also taste liked because added spices. As an alternative to the diversification of processed products primarily for food that is less desirable Flavor is the core of acceptance and rejection of cork shredded fish, which is usually caused by rancidity or fishy is still felt. Manufacture of shredded fish are relatively easy and can be used as an alternative source of family income. Also, it can be done on a small scale and industrial scale (Mustar, 2013).

One type of freshwater fish that has a high nutritional value, but not many developed into processed products, especially processed shredded fish is carp. Carp are widely developed in areas far from the coast.

Therefore, in this research have a carp to serve as one form of processed fish, namely, shredded fish.

2. Purposes

This study aims to determine the nutrient content of shredded carp based on the proximate test results as well as the results of processing carp, the most preferred panelist based on organoleptic tests.

3. Method

3.1. Research Design

This research is an experimental research with Completely Randomized Design (CRD) with three replications. The research variable is the addition of banana heart in the making of shredded carp, namely A treatment comparison of carp meat and the heart of bananas respectively 55%: 45%, B treatment comparison of carp meat and the heart of bananas respectively 50%:50%, C treatment comparison of carp meat and the heart of bananas respectively 45%:55%, and control namely the making of shredded carp without the addition of a banana heart. Each treatment consisted of three replications.

3.2. Time and Place of Research

Research has been conducted from May to September 2011 at the Laboratory Agricultural Technology Education Study Program, Faculty of Engineering, Makassar State University and Laboratory of Water quality, State Agricultural Polytechnic of Pangkep.

Materials and Equipment

The material used is the heart of banana aged \pm 8 weeks obtained from traditional market of Makassar. While carp obtained from breeders carp in Sinjai Regency. As additional material for the making of shredded namely: coconut milk, shallots, garlic, coconut oil, lemongrass, Brown sugar, chili and salt obtained from the nearest supermarket. Other than that, also used chemicals for analysis.

Equipment used in this research is the equipment for processing shredded, including fish bone separators and equipment for analysis.

Procedure

Banana heart cleaned by closing parts that cannot be eaten then washed finely sliced and boiled until cooked. Fish weeded then washed clean with water and steamed until cooked. Fish is ripe, then didicks the meat until they become fibers.

The heart of banana and fish meat mixed until homogeneous, then sauteed with coconut milk and seasoning (for 100 g of banana heart: coconut milk 50 ml, onion 3 g, garlic 5 g, 1 stalk lemongrass, brown sugar 20 g, chili 3 g) which has been mashed and fried until cooked. Shredded that has matured then pressed to closes the oil content when fried, and shredded ready to be analyzed (Aida *et al.* 2014 in Jusniati, 2016).

All formulas doing organoleptic test, including taste, smell, texture and color based on Indonesia National Standard 01-2346-2006 about the instructions of organoleptic testing and/or sensory. Assessment using a score of 1 to 5 with criteria do not like (1), less like (2), neutral (3), like (4), like very much (5) with the number of panelists 15 people.

Variable of research in this research includes proximate variables consisting of carbohydrate levels, ash, water content, protein, fat, and organoleptic test (panelist preferences level to color, texture, smell and taste).

Organoleptic tests were performed to find out panelist preferences level to carp produced shredded in research. Panelists that have been used are a semi-trained panelist consisting of 15 people. Tests performed without rehearsal before testing, testing is done in a closed room. Assessment criteria in this favorite test using the scoring technique. The range of preferred scores used is 5-1 with the following description.

- Very like: 5
- Likes: 4
- Quite like: 3
- What she Dislikes: 2
- Strongly dislike: 1

Proximate test shredded carp done to the parameter of water content, protein, fat, and ash content. Furthermore, data is processed and analyzed by descriptive analysis.

4. Results and Discussion

4.1. Proximate Test Results

4.1.1. Water Content

Analysis of water content in the shredded done to know water content contained in the shredded banana heart and carp made. The lowest water content lies in treatment A as big as 11.1%, following treatment B 12,4%, control 18,1% and the C treatment is equal to 18,5%.

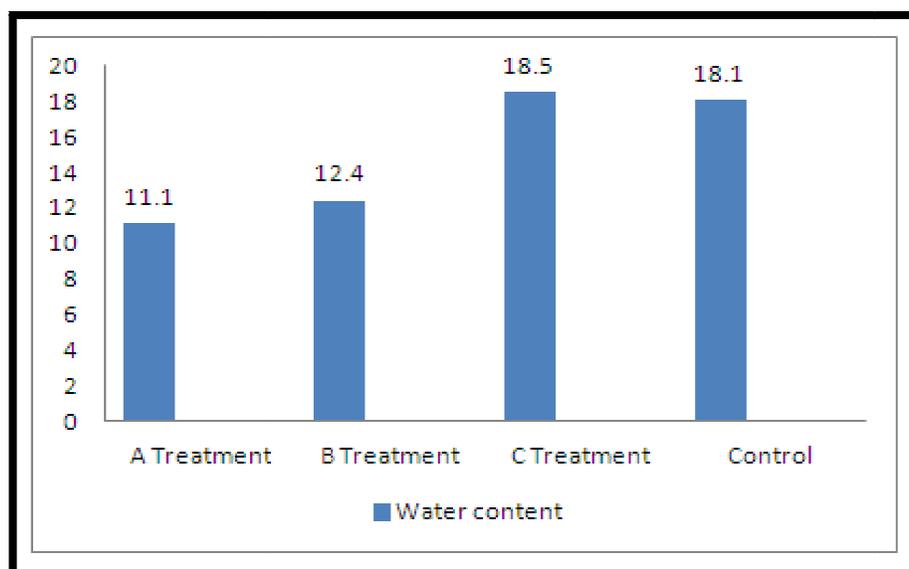


Figure 1: Water Content of Shredded Carp

The water content in the samples of shredded still relatively high which ranges 11,1-18,5%, while according to the standard SII that is max 10%. The water content of the shredded the result is influenced by processing process that is in stage frying, because to the water contained in the material evaporated or out when fried material. This is due to the free water contained in the material instantly vaporized by the hot griddle and oil as an intermediary medium, so that some of the free water contained in the material network can evaporate or diminish (Winarno, 2008).

4.1.2. Protein

The heart of bananas has many health benefits, especially for those who want to run a diet program, because the heart of bananas contains high fiber and only a little fat and low protein (Kusumaningtyas, et al. 2010). The purpose of protein analysis in food is to keep the amount of protein in the food ingredients, specify level of protein quality viewed from the perspective of nutrition, and studying proteins as one of the chemicals (Sudarmadji et al. 2007).

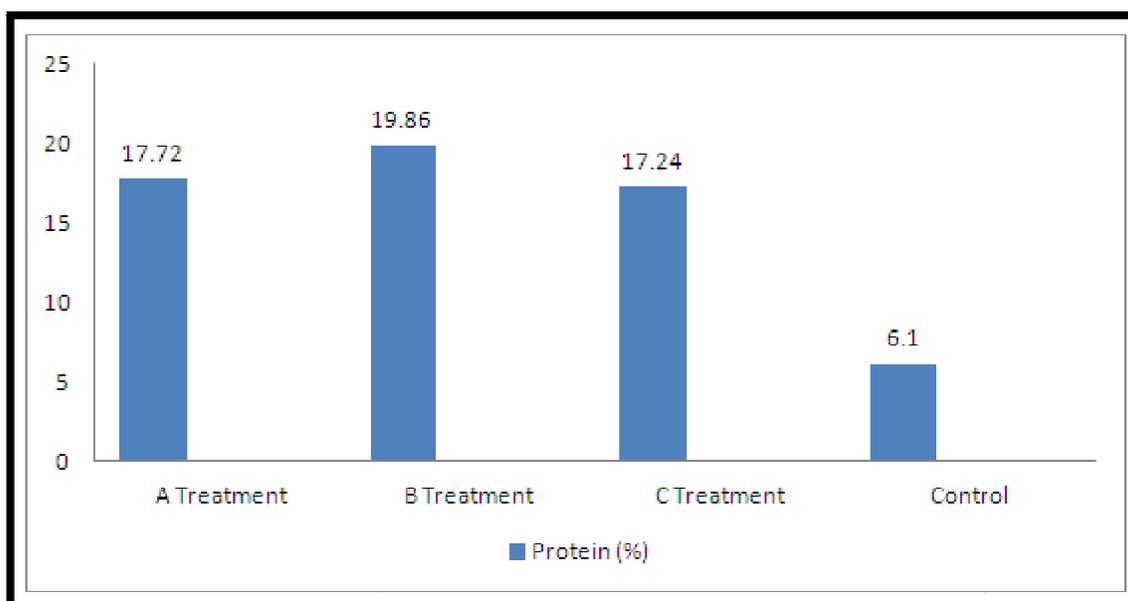


Figure 2: Protein Content Value of Shredded Carp

According to Indonesian Industrial Standards for Shredded (Abon) No 0368-80,0368-85 the maximum protein content is 20%, while in this research the highest protein content obtained at B treatment of 19,86% i.e. treatment 50% Carp and 50% heart of banana. The lowest protein content A further lies in the A treatment of 17,72% namely the carp treatment 55% and the heart of bananas 45%, and lowest in the control treatment of 6,1%. According Putro and Rosita (2006), the content of banana heart protein is 1, 26. Thus the protein content in the banana heart in this study, still higher than the results

of research Putro and Rosita (2006). The high content of protein in this research allegedly caused due another addition in the form of spices and so on.

4.1.3. Carbohydrate

Figure 3 shows that the carbohydrate content Shredded Carp on the treatment tested in the range of 37,9-40,76% with the highest carbohydrate content occurred in B treatment of 40,76% following A treatment 39,14%, A C treatment 37,83% and the lowest on the control treatment 37,9%.

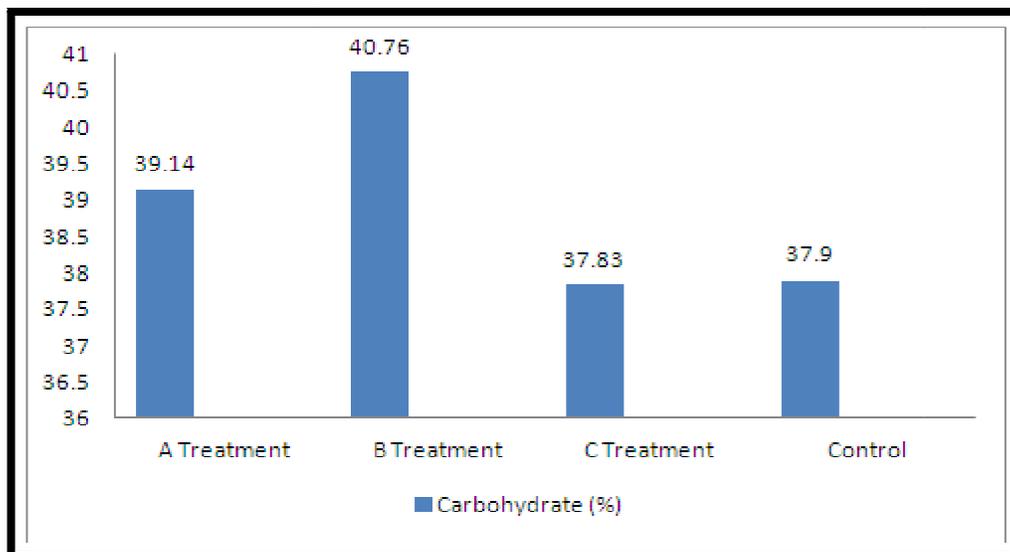


Figure 3: Carbohydrate Level Value of Shredded Carp

4.1.4. Fat

Fat is an important food substance for the health of the human body. Other than that, fat is also present in almost all foods with different contents (Winarno, 2008). According to Sudarmadji et al. (2007), fat extraction of dry matter can be done intermittently or continuous.

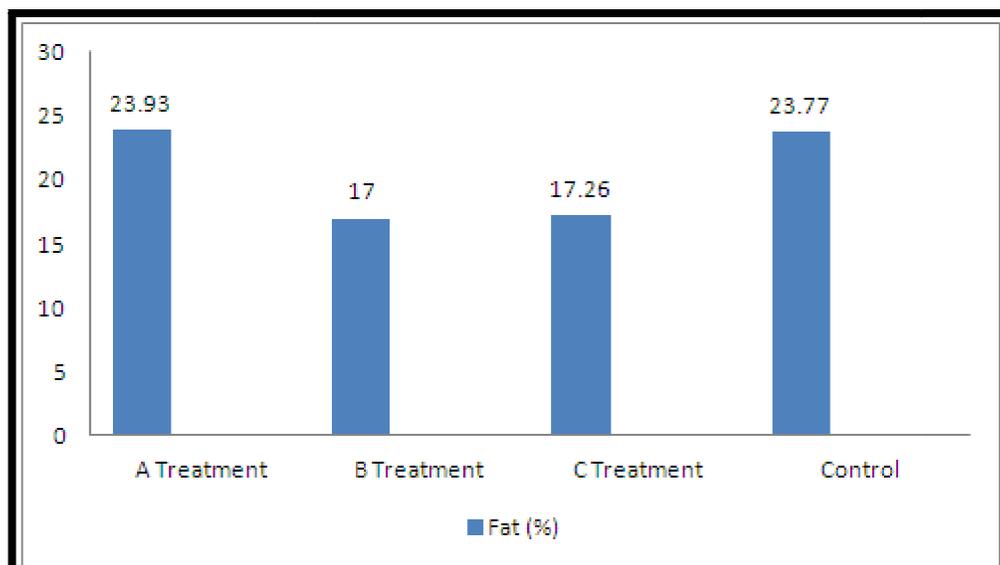


Figure 4: Fat Rate Value of Shredded Carp

Fat content of shredded heart of banana obtained at around 17-23, 93% with the highest fat content was obtained in A treatment of 23,93% i.e. treatment 55% carp and 45% heart of banana, following the control treatment of 23,77%, C treatment of 17,26% and the lowest on B treatment of 17% i.e. treatment 50% carp and 50% heart of banana (Figure 4). Therefore, these results still meet of standard SII of shredded i.e. 30%. High levels of fat in shredded allegedly caused by the addition of carp and spices.

4.1.5. Ash

The resulting ash content in this research the highest in B treatment of 9,98% i.e. treatment 50% carp and 50% heart of banana, then C treatment of 9,17% i.e. treatment 45% carp and 55% heart of banana, A treatment of 8,11% i.e. treatment 55% carp and 45% heart of banana and the lowest is the control of 6,1% (Figure 5).

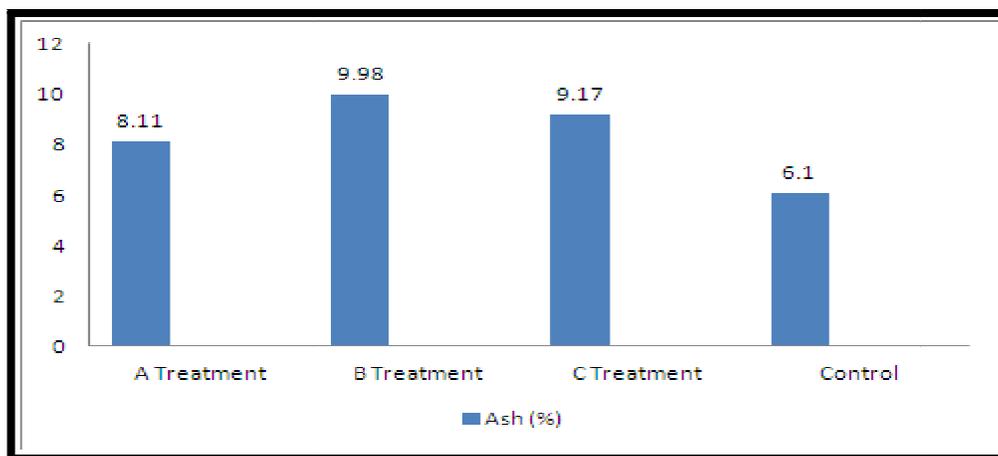


Figure 5: Value of Ash Content of Shredded Carp

Thus, the treatment of eligible SII standard i.e. maximum 9 only on A treatment and control. The high value of this ash content due to the high mineral contained in the abon, and according to Andarwulan et al. (2011), the effect of processing on the material can affect the availability of minerals for the body.

4.2. Organoleptic Test

4.2.1. Color

Frying process and oven affect the color of Shredded Carp the resulting (Brown) (Winarno, 1993). Further stated the color change caused by the reaction of non enzymatik browning (browning reaction due to oxidation).

Result of organoleptic test to taste of Shredded banana heart with 3 formulas, it was found that the panelist's favorite level to the Shredded Carp color of 2.73-4.07. The result of the test of Shredded of banana heart can be seen in Figure 6 namely the highest color organoleptic value contained in the C treatment of 4, 07 i.e. treatment 45% carp and 55% banana heart, following B treatment of 3, 93 i.e. treatment 50% carp and 50% banana heart abd Lowest to A treatment of 2, 73 i.e. treatment 55% carp and 45% banana heart.

The results of this research are different from the results of research conducted by Yuannita et al. (2014) that finding the best treatment related to color fish; Shredded is the best treatment; 25% banana heart and 75% fish float (*Decapterus* sp.).

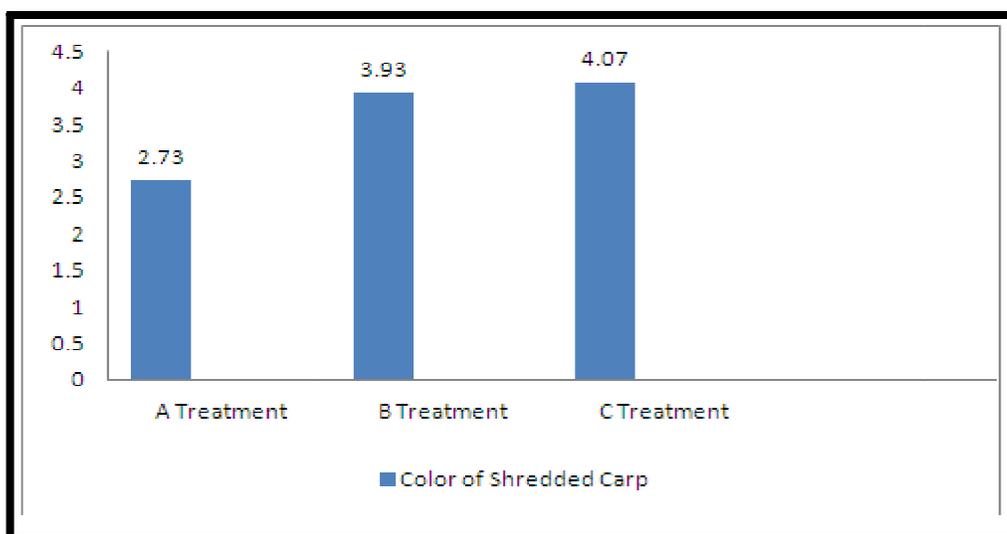


Figure 6: Color Value of Shredded Carp

4.2.2. Texture

For fried products, crispness refers to freshness and high quality. The food was crispy preferably hard, easy to bite, and give a crisp sound (Moreira et al., 1999).

The results showed Shredded texture value is in the range of values 2,47-3,87 with the highest organoleptic value obtained at the C treatment i.e. 45% carp and 55% banana heart, following B treatment of 3,27 i.e. treatment 50% carp and 50% banana heart, and lowest at treatment A equal to 2,47 i.e. treatment 55% carp and 45% banana heart.

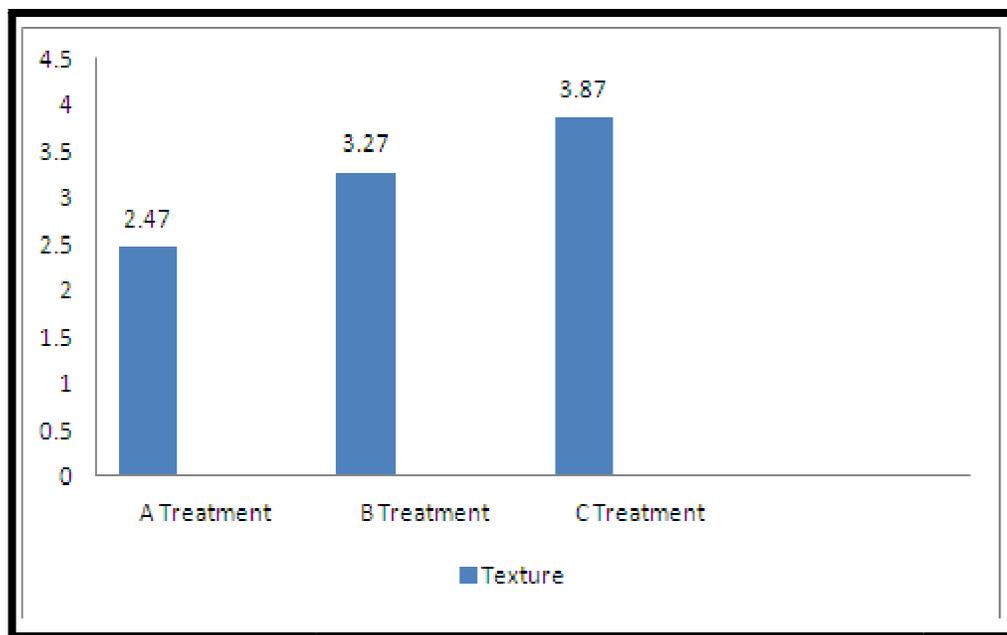


Figure 7: Texture Value of Shredded Carp

The results of this study differ with results of research conducted by Yuannita et al. (2014) who found the treatment that had the highest level of texture preference 50% fish float and 50% banana heart.

4.2.3. Flavors

Result of organoleptic test to taste the banana heart Shredded with 3 formulas, it was found that the panelist's favorite level to taste shredded ranges 2, 8-4,2 where the highest organoleptic value obtained in the C treatment of 4,2 i.e. treatment carp 45% and banana heart 55%, following B treatment of 3,8 i.e. treatment carp 50% and 50% banana heart and lowest at A treatment is 2,47 i.e. treatment carp 55% and 45% banana heart.

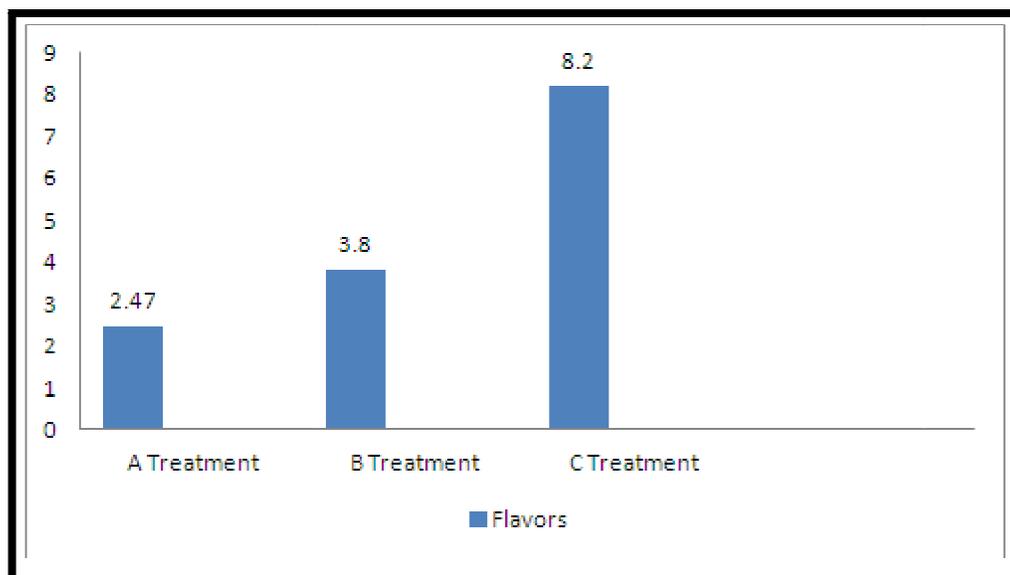


Figure 8: Value Flavors of Shredded Carp

The results of this research differ with results of research conducted by Yuannita et al. (2014) who find the treatment that has the highest level of preference flavor 50% fish float and 50% banana heart.

4.2.4. Smell

According to Winarno (2008), smell of food generally determine the delicacy of foodstuffs and much in contact with the sense of smell. Organoleptic analysis of the results has been done against the smell banana heart Shredded obtained the range of values that is between 2.33-3.67 .

Organoleptic test results on smell to Shredded Carp can be seen in Figure 9, where the best treatment of the smell is obtained in the C treatment of 3,67 i.e. treatment with 45% carp and 55% banana heart, following B treatment of 3,33 i.e. treatment 50% carp and 50% banana heart, and lowest at treatment A are 2,33 i.e. treatment 55% carp and 45% banana heart.

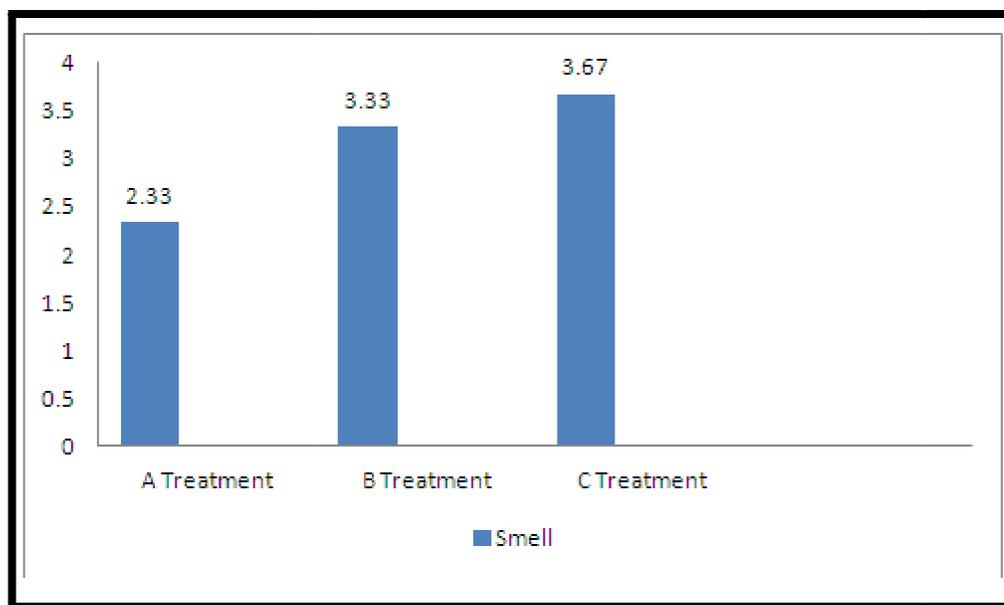


Figure 9: Smell Value of Shredded Carp

The results of this research different from the results of research conducted oleh Yuannita et al. (2014) which found the treatment that has the highest smell preferences is 50% fish float and 50% banana heart.

5. Conclusion

Proximate test results of Shredded Carp which has been done shows the lowest water content on A treatment is 11.1%, the highest protein content obtained in B treatment is 19,86% i.e. treatment 50% carp and 50% banana heart, the highest carbohydrate content also occurs in B treatment is 40,76%, the highest fat content is obtained in A treatment is 23,93% i.e. treatment 55% carp and 45% banana heart, following the control treatment of 23,77%, qualified treatment SII i.e. maximum 9% only on A treatment and control.

Organoleptic test results show highest color organoleptic value located at C treatment amounting 4,07 i.e. treatment 45% carp and 55% banana heart, the highest texture organoleptic value obtained at the C treatment i.e. 45% carp and 55% banana heart, highest taste organoleptic value obtained in the C treatment of 4,2 i.e. treatment of carp 45% and banana heart 55%, Furthermore, best treatment related to smell obtained in the C treatment of 3,67 i.e. treatment of carp 45% and 55% banana heart.

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