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Characteristics of Gurame Meat Meal (*Osphronemus Goramy*)

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Abstract

This research aims to analyze the characteristics of carp meat powder obtained from the process of steaming, boiling and without heating before the carp meat is dried. This research starts from March 8 2023 to April 10 2023 at the Fisheries Product Processing Technology Laboratory, Faculty of Fisheries and Marine Sciences-Padjadjaran University, Jalan Raya Jatinangor KM 21, Sumedang-Indonesia. The method used was experimental with three treatments, the method of heating carp meat before the drying process in making carp meat flour. The carp meat meal obtained was then observed or measured for its water content, water absorption, pH and organoleptic properties (aroma, texture and color). Observations were made three times (triplo). The data obtained were analyzed descriptively. Based on the results of research on the

characteristics of carp meat flour obtained from the steaming process on fish meat before drying are as follows: 9.23% moisture content, 0.90% water absorption, pH 5.90 and an organoleptic description of creamy color, savory aroma and fine texture. The characteristics of carp meat meal obtained from the boiling process of fish meat before drying were as follows: 9.95% moisture content, 0.97% water absorption, pH 6.00 and organoleptic description of white bone color, savory aroma and fine texture. The characteristics of carp fish meal obtained from the process without heating the fish meat before drying were as follows: 11.35% moisture content, 0.89% water absorption, pH 5.9 and pale yellow organoleptic description, savory aroma and slightly rough texture.

Keywords: Moisture Content, Organoleptic, Heating, Savory, Quality

Introduction

Gurame fish is a type of freshwater fish that is cultivated in ponds and is a native Indonesian fish that has a very high economic value. According to Nugroho *et al* (2014)^[6], the demand for carp is quite large and the price is relatively higher.

Compared to other freshwater fish, such as carp, tilapia, catfish, and catfish. This fish is seen as one of the prestigious fish and is usually served at events that are considered important.

According to Putra *et al* (2019)^[7], the edible portion of carp depends on the size of the fish, for carp 1 kg/head the edible portion is around 53.4%. The chemical composition of carp meat includes 72.69% water content, 20.88% protein, 2.70% fat and 0.88% ash. The taste of carp meat is very liked by the people of Indonesia, especially in the Province of West Java.

Gouramy meat quickly undergoes a process of decreasing quality after the dead fish are caught (Hidayatullah *et al.*, 2022). Therefore, there needs to be a form of processing or preserving the gourami meat to increase its beneficial value.

Processing into the form of flour is an alternative that can be done. Research. This study aims to analyze the characteristics of carp meat meal obtained from the process of steaming, boiling and without heating before the carp meat is dried.

Research Method

Research starts from March 8 2023 to April 10 2023 in Fishery Products Processing Technology Laboratory, Faculty of Fisheries and Marine Sciences-Padjadjaran University, Jalan Raya Jatinangor KM 21, Sumedang-Indonesia. The method used was experimental with three treatments, the method of heating gutame fish meat before the drying process in making carp meat flour.

The material used was carp measuring 1 kg/head, obtained from the Jatinangor traditional market. The research procedure was as follows: The carp was weeded, that is, the entrails, gills and fins were removed, then cleaned and filleted. Next, 300 grams of fillets were weighed for each treatment which consisted of three treatments, namely steaming, boiling and without heating before drying. After that, the fillets for the steaming treatment were steamed in boiling water (100oC) for 15 minutes, and the fillets for the boiling treatment were carried out by boiling in boiling water (100°C) for 15 minutes and fillets for treatment

without direct heating cut into small pieces to expand the surface. The next stage, after the fillets are steamed or boiled, they are cut into small pieces to increase the surface area. Filets from each treatment were dried in a blower oven at 60°C for 5 hours after which it was ground using a grinder and then filtered through a 100-mesh sieve.

The carp meat meal obtained was then observed or measured for its water content, water absorption, pH and organoleptic properties (aroma, texture and color). Observations were made three times (triplo). The data obtained were analyzed descriptively.

Discussion Result

Water Content

Moisture content is the amount of water content in a material expressed in percent. According to Mikdarullah *et al* (2020) [4], water content is a very important characteristic of a material, because the water contained in a product can affect its texture, appearance and taste. The water content can also determine the shelf life of the product. The water content of carp meat meal obtained from 3 different treatments before drying can be seen in Table 1.

Table 1: Moisture content of carp meal from different heating methods before drying

S. No	Treatment	Water content (%)
1.	steaming	9.23% ± 0.97
2.	boiling	9.95 % ± 0.51
3.	Cock (No Warm Up)	11.35% ± 0.53

Based on Table 1, the water content of carp meal obtained from the heating treatment was below 10%. Based on this water content value, it shows that the carp meat meal which was treated by heating can be categorized into Standard I with a water content of 6 – 10% (Indonesian National Standard Agency). The highest content of carp meat meal was obtained from the treatment without heating (control), namely 11.35% (Table 1).

Water Absorption

Water absorption is one of the various factors that affect flour quality. Absorbency in flour is the ability of flour to absorb water. Particle size, water content and differences in chemical content of materials affect water absorption (Ntau *et al.*, 2017) [5]. Protein is the largest component found in fish meal. This protein absorbs water. The water absorption capacity of carp fish meal obtained from different heating methods before drying is shown in Table 2.

Table 2: Water absorption (%) of carp fish meal from different heating methods before drying

S. No	Treatment	Average Absorption (%)
1.	steaming	0.90 ± 0.06
2.	boiling	0.97 ± 0.09
3.	No Warm Up (Control)	0.89 ± 0.05

Based on Table 2, it shows that the water absorption capacity of carp meat meal is almost the same, which is below 1%. According to Tampubolon *et al* (2018) [10], the water absorption capacity of flour is inversely proportional to its water content, the lower the water content of flour, the higher its absorption power. Based on Table 1, the highest water content in carp flour was the treatment without heating (cock), so the water absorption was lower than the

other treatments.

Degree of Acidity (pH)

Potential of hydrogen (pH) is a measure that describes the degree of acidity or alkalinity of a solution, pH is measured on a scale of 0-14 (Noegroho, 2016). The pH value of a product indicates the level of acidity or alkalinity of the product (Sahril & Lekahena, 2015) [9]. The pH of carp meat meal obtained from different heating methods before drying is shown in Table 3.

Table 3: The pH of carp meat meal from different heating methods before drying

S. No	Treatment	pH average(%)
1.	Steaming	5.90 ± 0.00
2.	Boiling	6.00 ± 0.00
3.	No Warm Up (Control)	5.90 ± 0.00

Based on Table 3, the pH of carp meat meal obtained from all treatments was relatively the same, which was around 6. This was because there was no effect of cooking on the raw materials and because the initial raw materials used were the same. According to Rahman *et al* (2015) [8], basically pH is not affected by heat or high temperature but is influenced by media that is decomposed by high temperature which produces acids or bases.

Organoleptic

The first determinant of acceptance or rejection of a product by consumers is the organoleptic appearance of the product. Product organoleptic assessment is very easy to do, which only uses the five human senses to measure the acceptability of the product. According to Gusnadi *et al* (2021) [3], organoleptic assessment is also called a sensory test or sensory test.

Organoleptic descriptive of carp meat meal obtained from different heating methods before drying is shown in Table 4.

Table 4: Organoleptic description of carp meat meal from different heating methods before drying

Treatment	Color	Aroma	Texture
steaming	Beige	Tasty	Very smooth
boiling	White bone	Tasty	Fine
No Heating (control)	Pale yellow	Tasty	Bit rough

Based on Table 4, it shows that carp meat meal obtained from various treatments gave different colors. This is influenced by differences in the treatment of each flour, where the dark or brown color of the material processed by the steaming process will occur non-enzymatic browning reactions, namely carbohydrates will react with protein when there is heat (Fatmawati and Mardiana, 2014) [1]. Browning reactions can occur in fish meat meal which contains a high protein content which is heated at a temperature of more than 35°C. The white color of the carp meat meal obtained from boiling is due to the slightly brownish red flesh pigment that dissolves in water during boiling.

The results of research on carp fish meal with 3 treatments, namely steamed, boiled and control, the resulting aroma is the same, namely savory like the aroma of cooked fish meat and not overpowering. During the drying process, protein hydrolysis occurs. Protein hydrolysis is the breakdown of proteins into peptide compounds and amino acids. One of

the amino acids that gives a savory aroma is glutamic acid. Carp meat flour which is processed by boiling has fine texture and fish meal made by steaming has a very fine texture and without treatment has a smooth slightly coarse texture. The cooking process either by boiling or steaming can affect the organoleptic value of fish meal products, especially on texture. The purpose of cooking, both boiling and steaming, is to reduce the water content and maintain the quality of fish meat, namely a dense and compact texture so that when it is dried and floured, the texture of the flour becomes smooth.

Conclusion

Based on the results of research on the characteristics of carp meat flour obtained from the steaming process on fish meat before drying are as follows: 9.23% water content, 0.90% water absorption, pH 5.90 and organoleptic description of creamy color, savory aroma and smooth texture. Characteristics Gouramy fish meal obtained from the boiling process of fish meat before drying was as follows: 9.95% moisture content, 0.97% water absorption, pH 6.00 and organoleptic description of white bone color, savory aroma and fine texture. The characteristics of carp fish meal obtained from the process without heating the fish meat before drying were as follows: 11.35% moisture content, 0.89% water absorption, pH 5.9 and pale yellow organoleptic description, savory aroma and slightly rough texture.

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