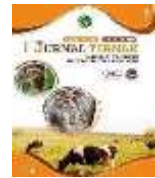




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Organoleptic Quality of Chicken Sausage with Different Brands in Kediri City

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ABSTRACT

Sausage is one type of processed chicken meat wrapped in a sleeve. Chicken sausage is a food that is in great demand by modern society, especially during the Covid-19 pandemic season because it is practical, affordable, cheap, durable, and can be found anywhere. Based on its population, the Kediri city is the third largest city in East Java. During the pandemic and after the pandemic, chicken sausage was one of the products that experienced an increase. The purpose of this study was to examine the organoleptic quality of chicken sausages in the Kediri city. The research was conducted in October-December 2020 at Universitas Brawijaya Kediri on five different samples chicken sausage. The composition of the sample was recorded and the organoleptic quality was analyzed by 50 semi-trained panelists. The results of the organoleptic test showed that the different types of chicken sausage had highly significant difference ($p < 0.01$) on the color, texture, aroma, chicken sausage taste, juiciness, ease of biting, ease of chewing, and hedonic chicken scale. Chicken sausage that has the best organoleptic score is sausage brand number 2 with the highest score on texture, aroma, chicken sausage taste, juiciness, ease of biting, ease of chewing, and hedonic chicken sausage, while the assessment of color, panelists prefer brand number 3. The conclusion of this study is brand 2 which is a sausage brand "Bernardi" has the best acceptance by consumers because this sausage is made from premium ingredients and paprika oleoresin with a natural taste.

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1. Introduction

One of the areas in Indonesia that has been affected by the pandemic is the Kediri City, East Java. In East Java, Kediri city is the third largest city after Surabaya and Malang by total population. Kediri is also a city that is experiencing development in the service, trade and industry sectors [1]. The coronavirus (COVID-19) pandemic affects all sectors resulting in changes in lifestyle including changes in food. During the pandemic, frozen food became popular because people chose to be more practical, comfortable and safe. People tend to be afraid to leave the house except in an emergency. Government's appeal to stay at home which resulted in people reluctant to go anywhere [2]. One of the frozen foods that has increased sales is sausage. Sausage is one of the oldest processed meat products. The history of sausage begins with the manufacture of sausages made from beef or pork. However, in line with consumer demand, sausages are produced using chicken meat. The most popular sausage in the community is sausage made from chicken. Poultry meat, especially chicken, continues to increase. Chicken meat is selected because it has low nutrition including quality protein, fat and saturated fat. In addition, poultry has B vitamins including (thiamine) vitamin B1, (riboflavin)

vitamin B2, (niacin) vitamin B3, (pyridoxine) vitamin B6 and (cobalamin) vitamin B12 as well as fat-soluble vitamins, such as vitamins A, D, E, K [3].

Sausage is a processed meat product that has many variations, this diversity is influenced by culture, religion, climate, and the availability of raw materials [4]. Various kinds of sausages were developed by various countries. Countries that have cold winters can store fresh sausages without refrigerator for a relatively short period of time. Fresh sausage means unfermented, unsmoked, undercooked sausage. Fresh sausages should be stored at cold temperatures and reheated before consumption [5]. Finding out the quality of sausages requires some quality testing. One of the tests that are often used to determine the quality of the product is organoleptic test. Organoleptic test is a test that relies on human sensing. The purpose of this test is to determine the differences and characteristics of a product/sample to examine its level of consumer acceptance [6]. This study aims to determine the best brand of sausage based on the organoleptic quality of chicken sausages from different brands in Kediri City, East Java.

2. Method

Time and place

The research was conducted in October - December 2020 at Universitas Brawijaya Kediri.

Chicken Sausage sampling

Sampling of sausages was carried out at several supermarkets in the Kediri city which is shown in Table 1. The sausages were analyzed and their composition recorded (Table 2). The sausages were stored in a freezer with a constant temperature (-18°C). The self-service used in sampling is purposive (intentionally). The obtained sample was placed in a cooler to keep the temperature cool. The samples obtained were then fried using a lot of oil or another name "deep frying". The deep-frying method used a large amount of oil so that the fried food submerged. The ratio of food and cooking oil used was 1: 6 [7].

Table 1. Research treatment: Types of sausage circulating in the Kediri city.

Treatment	Brand
Treatment 1	Brand 1
Treatment 2	Brand 2
Treatment 3	Brand 3
Treatment 4	Brand 4
Treatment 5	Brand 5

After knowing the best organoleptic quality of sausage treatment, then the sausage brand was revealed.

Organoleptic Test

Organoleptic test was scoring test on a scale of 1-5 on color, texture, aroma, ease of bite, ease of chew, chicken flavor, juiciness, and taste test using hedonic test. Organoleptic tests were carried out by 50 panelists to determine the characteristics of five different chicken sausage products. Before the test was carried out, the panelists were given briefing in the form of information on how to carry out a

good and correct organoleptic test. In addition to the filling sheet paper, work instructions were provided.

Table 2. Composition of chicken sausages of different brands

Composition	Brand 1	Brand 2	Brand 3	Brand 4	Brand 5
Chicken meat	✓	✓	✓	✓	✓
Water	✓	✓	✓	✓	✓
Modified tapioca starch	✓	✓	✓	✓	✓
Soy protein	✓	✓	✓	✓	✓
Salt	✓	✓	✓	✓	✓
Monosodium Glutamate	✓	✓	✓	✓	○
Pepper	✓	✓	✓	○	○
Nutmeg	✓	✓	✓	○	
Sodium Nitrite	✓	✓	✓	✓	✓
Special Flavours	○	Oleoresin Paprika	Black pepper Smoke flavor Powdered ginger Sodium lactate acidity regulator Garlic powder, premix, disodium 5 ribonucleotide, sodium benzoate, chicken seasoning	○	○
Vegetable oil	○	○	✓	✓	✓
Emulsifier	Natrium Diphosphate and Kalium Polyphosphate	Natrium Diphosphate Kalium Polyphosphate	Natrium Triphosphate	Natrium Ascorbate and Natrium Erythorbate	Natrium Triphosphate
Chicken skin	○	○	✓	○	○

The evaluation scales

In this study, the variables studied were as follows:

1. Appearance, color, texture, aroma, chicken sausage taste, and juiciness: the scale used is: Extremely Dislike = 1, Moderately Dislike = 2, Neither Like nor Dislike = 3, Moderately Like = 4, Extremely Liked = 5
2. Ease of biting and ease of chewing: the scale used is: Extreme Difficulty = 1, Moderate Difficulty = 2, Neutral = 3, Moderately Easy = 4, Extremely Easy = 5
3. Chicken flavor: Extremely no Chicken flavor = 1, Moderately no Chicken flavor = 2, Neutral = 3, Moderately Chicken flavor = 4, Extremely Chicken flavor = 5.

Statistical Analysis

The obtained data was analyzed using the Statistical Analysis System (version 9.3, SAS). Afterwards, if highly significant effect ($p < 0.01$) was found, the test would be continued with Duncan's multiple range test.

3. Results and Discussion

The research results show that different brands have a highly significant effect ($P < 0.01$) on the quality of color, texture, aroma, chicken sausage taste, juiciness, ease of biting, ease of chewing, and chicken flavor with hedonic scale test.

Table 3. Effect of differences in chicken sausages from different brands on Organoleptic quality.

Treatment	Color	Texture	Aroma	Chicken sausage taste	Juiciness	Ease of biting	Ease of chewing	Chicken flavor (Hedonic)
Brand 1	2.95 ^{bc1}	3.1 ^{b1}	2.81 ^{bc1}	3.05 ^{b1}	2.71 ^{c1}	3.43 ^{abc2}	3.43 ^{bc2}	2.95 ^{c3}
Brand 2	3.48 ^{cd}	3.71 ^{bcd}	4.1 ^{de}	4.19 ^c	3.9 ^{de}	3.9 ^{cde}	3.86 ^{cde}	4.14 ^{de}
Brand 3	3.62 ^{de}	3.67 ^{bcd}	3.52 ^d	3.86 ^b	3.71 ^{cd}	2.86 ^a	3.05 ^b	3.62 ^{cd}
Brand 4	2.38 ^b	3.24 ^{bc}	1.86 ^a	2.2 ^a	2.5 ^{ab}	3.76 ^{bcd}	3.81 ^{cd}	1.86 ^a
Brand 5	1.81 ^a	2.2 ^{aa}	2.24 ^{ab}	2.2 ^a	1.95 ^a	3.05 ^{ab}	2.86 ^a	2 ^{ab}

(^{a, b, c, d, e} Means with different superscripts within the same column are highly significant difference ($P < 0.01$)), (¹ Extremely Dislike = 1, Moderately Dislike = 2, Neither Like nor Dislike = 3, Moderately Like = 4, Extremely Liked = 5). (² Ease of biting and ease of chewing: the scale used is: Extreme Difficulty = 1, Moderate Difficulty = 2, Neutral = 3, Moderately Easy = 4, Extremely Easy = 5). (³ Chicken flavor: Extremely no Chicken flavor = 1, Moderately no Chicken flavor = 2, Neutral = 3, Moderately Chicken flavor = 4, Extremely Chicken flavor = 5).

This organoleptic test serves to determine the organoleptic quality of chicken sausages circulating in the Kediri city. In addition, organoleptic test of meat products serves to determine the overall quality of meat and determinants of purchasing decisions by consumers [8]. Based on the results of the study, it was stated that brand differences had a highly significant difference ($P < 0.01$) on the organoleptic quality of chicken sausages. This difference is influenced by each brand which has different compositions. A study involving panelists in organoleptic tests with the results of all samples was accepted because the product was made with a composition of meat, animal fat and other additives such as flavors and ingredients to improve volume and appearance [9].

Each chicken sausage has different taste and appearance. Chicken meat added to sausages is beneficial as a source of protein and determines the color and texture of sausages. Myoglobin protein in chicken meat is a heme pigment that contributes to determine meat color, texture, hardness,

suppleness, and compactness [10]. Each sausage has different additional ingredients such as spices, vegetable protein, the use of chicken skin and special flavors. The use of non-meat ingredients such as whey protein, fiber, vegetable protein, herbs, and spices are to improve product quality, reduce production costs, and improve consumer health. Current consumers demand sausages with low fat, cholesterol, general calories, salt characteristics, nitrate, as well as involving bioactive components added to sausages such as unsaturated fatty acids, carotenoids, fiber and sterols [11]. Sausages can be added with CMC and KGM to produce sausages that are low in fat and phosphate [12].

Based on the organoleptic results, the highest score was brand number 2 in terms of texture, aroma, chicken sausage taste, juiciness, ease of biting, ease of chewing, and chicken flavor with the hedonic scale. While the preferred color is brand number 3, each brand has its own advantages and disadvantages based on its price, taste, aroma, color, and overall acceptance. The concept of "brand image" determines purchasing decisions by consumers, brand image determines brand assets and brand performance [13]. Based on the composition used in the manufacture of sausages, it is known that each sausage has almost the same ingredients consisting of chicken meat, water, modified tapioca starch, soy protein, salt, monosodium glutamate, pepper, nutmeg, sodium nitrite, vegetable oil, and emulsifiers. The difference is the natural flavor used, brand number 2 has the best organoleptic value because it comes from premium ingredients and has the addition of Paprika Oleoresin flavor. Paprika oleoresin extracted from the *Capsicum annuum* or *Capsicum frutescens* plant is used for food coloring and flavoring [14]. The oleoresin obtained from extraction is a combination of resin and essential oil. Oleoresin is the method selected to keep spice compounds that are easily lost or evaporate easily. Paprika is added to food because it contains antioxidants, color pigments, spicy taste, and flavor properties with a water content of 10.7%, 5.8% ash, 10.6% lipid and 1.93% nitrogen [15].

4. Conclusions

The conclusion of this study is that brand 2, "Bernardi", has the best acceptance by consumers because this sausage is made from premium ingredients and paprika oleoresin with a natural taste.

5. Acknowledgment

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