

Comparison of Organoleptic Aspects and Germs Between Healthy Broiler Chicken Meat with Raised Broiler Chicken Meat (Syringe Meat or Wet Meat)

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Abstract

The trade of raised broiler chicken meat (syringe meat or wet meat). Is traded in major city markets and traditional markets in almost all parts of Indonesia. Ambitious traders achieve greater profits, while the community (consumers/buyers) is less knowledgeable, cheap-oriented price, consume to meet the needs of the origin of the stomach satiety. Traders and communities do not pay attention to the risks of raised broiler chicken meat (syringe meat or wet meat). The aim of research is to process organoleptic aspects and germs between healthy broiler chicken meat with raised broiler chicken meat (syringe meat or wet meat). This type of research is detailed with an observational approach. Population includes unclear or uncertain population, primary data with organoleptic test and laboratory compared with the quality standard Decree of the Directorate General of Drug and Food Supervision Number 03726/B/SK/VII/1989 on the maximum limit of contamination microbes, analysed using table analysis, are then disanalysed. The results of the study organoleptic healthy broiler chicken Meat: white-yellowish color, bright, shiny, clean, when the touch feels moist and not sticky, specific smell typical of the flesh, the consistency of chest muscle and thighs supple, elastic, the inside of carcasses and fibers white muscles are somewhat pale, blood vessels in the neck and wings there is no blood remnants. raised broiler chicken meat (syringe meat or wet meat). Wet, water is on the lower part of the skin, mushier, when lifted in water, when sliced transverse out the water. The amount of healthy broiler meat germ figures averages 185,333 cabbage/gram, not exceeding quality standards, qualified and well worth consuming. The total number of meat bacteria raised broiler chicken meat (syringe meat or wet meat). Averages 1,388,333 colony/gram, exceeding the quality standards, not qualified, not worth the consumption. It is recommended to be further researched about the behavior of chicken sellers raised broiler chicken meat (syringe meat or wet meat) and the type of microbes contained in chicken raised broiler chicken meat (syringe meat or wet meat).

Keywords: Raised Broiler Chicken Meat (Syringe Meat or Wet Meat), Organoleptic, Number Germs

1.0 INTRODUCTION

Information about chicken is important for general public. Chicken is a protein source containing amino acids, surely it is indispensable to create an intelligent and healthy Indonesian's pupil also avoid "lose generation". Chicken meat is a commodity that is relatively cheap and easy to get and accepted by all circles, so by study, research, counseling is expected to increase public awareness to consume food that highly nutrition (Tjandra Yoga Aditama, 2010). Since chicken (Tjandra Yoga Aditama, 2010). Since chicken is relatively cheaper than other meat, so that more is consumed by communities of varying economic levels. Safe, healthy, perfect, and has halal legitimation are the chicken meat that every consumer wants. Healthy chicken meat should not contain pathogenic microbes and if they contain, the number must be slightly. Microbial growth in chicken meat is closely related to the quality of fresh chicken meat (Tjepy D. Soedjana, 2010). Business people involved in the process of cutting broiler chickens (chicken chop) until the meat trade (marketing), there are a lot of various educational background, so often be possible there are many aberrations in handling and trade (marketing) at food industry, super market, large market, traditional market, slaughterhouse, home industry, peddler and etc. (Caroline, 2008).

The emergence of sales raised broiler chicken meat in (syringe meat or wet meat) the market, is causing public anxiety because this could be dangerous for health also violating the law such as Law Number (No). 7 of 1996 on Food and Law Number (No). 8 of 1999 on Consumer Protection. The ignorance of the community will spread the raised broiler chicken meat (syringe meat or wet meat) to cause a fret/feat to buy it is thought to contain bacteria. In theory raised broiler chicken meat (syringe meat or

wet meat) not a carcass has been banned by Indonesian Ulema Council. The raised broiler chicken meat (syringe meat or wet meat) has excessive fat and bacteria contained in it will be much more. The fat found in raised broiler chicken meat (syringe meat or wet meat) can cause humans to suffer from intramuscular pain, impotence and heart disease. In addition moisture content is also susceptible to infected bacterial disease. High water level inside meat will be easily overgrown by germs (Tjandra Yoga Aditama, 2010).

Sales cases of raised broiler chicken meat (syringe meat or wet meat) booming in Jakarta. Expensive meat prices as well as high demand in the fasting period and surrounding eid mubarak become trigger (M. Didien Ridhotulloh, 2008). Department animal husbandry and fisheries of Sumedang District, West Java, found and detected a lot of raised chicken meat (chicken that has been injected with water) sold in the traditional market. Found about 80% of chicken meat sold by traders in the market of high water-rated injections (Cecep Hidayat, 2008). Department animal husbandry and fisheries of Karanganyar District, Central Java, found the chicken meat injected in the Palur Market. Meat injected with high water content, pH above 5.5. Such pH levels are immoderate/morbid. Used injections are found on the surface of chicken meat and consequently the chicken meat is easily rotten (Muhammad Hatta, 2009). In the market of Legi Songgolangit, Ponorogo District, East Java. found raised broiler chicken meat (syringe meat or wet meat) with different colors and traits than chicken meat generally, looks very wet and when the meat is lifted enough a lot of water of chicken also broiler meat to be mushy because of the amount of moisture.

It was not that the circulation of raised broiler chicken meat (syringe meat or wet meat) had spread everywhere, because the data only represents a small part of the actual data that in every region of Indonesia already have a similar case. Preliminary observation as a preliminary study effort in Legi Songgolangit Market Ponorogo District, obtained information or recognition from a number of non-permanent chicken trader (seasonal), that the former hair removal tool is not a result of raised broiler chicken meat (syringe meat or wet meat) and high water content in broiler chickens that are sold due to the storage process because are soaked in water to keep them fresh.

2.0 METHODOLOGY

2.1 Types and Designs of Research

This type of research is a detailed research with an observational approach, to describe comprehensively covering organoleptic aspects including colour, smell, texture and flavor, also the number of germs present in the healthy chicken meat and raised broiler chicken meat (syringe meat or wet meat) (Soekidjo Notoatmojo, 2010).

2.2 Population

The research subject identified were healthy chicken meat and raised broiler chicken meat (syringe meat or wet meat), analysis and compared to the organoleptic aspects also the number of germs. Overall research subject is called the research population. Each research subject is a member of the research population. The condition of subject is called research object. Population in this study including it's unclear or uncertain, because the presence and number of traded raised broiler chicken meat (syringe meat or wet meat) is not known for certain or unclear. Considering the sale of raised broiler chicken meat (syringe meat or wet meat) is somewhat difficult to know its existence because not every day traded. The process of sale tends to be hidden, chicken meat sold is also uncertain in number, including the number of trader, then not may take a sample of the population fairly, giving each member the same opportunity to be sampled (probability sampling) or taking the sample randomly (random sampling). Because it doesn't provide a fair (equal) opportunity for each member of the population to be sampled, the sampling techniques are grouped in nonprobability sampling clumps i.e. sampling that doesn't give the same opportunity to each member to be taken as a sample or nonrandom sampling (non-random way of sampling).

The nonprobability sampling technique used in this study is purposive sampling, i.e. intentionally taking samples according to requirements (traits, characteristics, criteria) samples reflecting the population or in the Javanese language is called "njujug" sampling technique, heading directly to the place (area, region, location) that many population members are located, no need to use sampling area techniques (geographic and or administrative areas). Purposive sampling is also known judgmental sampling, i.e. sampling based on "judgement" (judgement) researchers on decent chicken (fulfilling

requirement) to be sampled. I order not to be very subjective, researchers already have a background knowledge of the population and samples, so that it can actually obtain a sample that is appropriate to the requirements or research objectives (obtaining accurate data). The number of purposif samples taken, the formula as much as is deemed adequate enough to obtain the research data reflecting the (representative) state of the population. Data from purposive samples are deemed to have described (answered) the objective and problems of the research. In such a way 1) The demands of researchers get a suitable sample can be achieved. 2) By "deliberately" (planned/purposive) looking for members of the population "njugug" directly to the market, because it is obviously more effective and efficient, than searching for anywhere that does not necessarily find the sought (Amirin, Tatang M., 2011).

2.3 Variables

Independent variables such as healthy chicken meat and raised broiler chicken meat (syringe meat or wet meat). Dependent variables are aspects of organoleptic (colour, smell, texture and flavor) and the number of germs on healthy chicken meat and raised broiler chicken meat (syringe meat or wet meat). The confounding variables are water, inorganic salts, minerals, nitrogen sources, CO₂, growth factor (yeast extract, blood and B complex vitamins, vitamin E complex), oxygen (O₂), oxidation-reduction potential, temperature and pH.

2.4 Place of Study

Samples of broiler meat are taken from Legi Songgolangit Market, Ponorogo City of East Java with consideration "allegedly" encountered raising broiler chicken meat (syringe meat or wet meat). The number test of germs conducted in microbiology laboratory Study Program Diploma III Environmental Health, Magetan Campus.

2.5 Data Collection Technique

Direct Observation: I.e observation directly on the object / location of research to know the aspect of organoleptic aspects of healthy chicken meat and raised broiler chicken meat (syringe meat or wet meat) "allegedly" sold by "stealth trader" (merchants are not permanent) in Legi Songgolangit Market, Ponorogo Distric of East Java.

Sampling and Sample Transmission: Samples taken are healthy chicken meat and raised broiler chicken meat (syringe meat or wet meat) because to compare the number of germs for both with quality standards.

Laboratory Inspection: That is how the data collection by conducting laboratory tests on healthy chicken meat and raised broiler chicken meat (syringe meat or wet meat), intended to know the number of germ numbers. The investigation into the number of germ is reviewed and carried out by staff in microbiology laboratory Study Program Diploma III Environmental Health, Magetan Campus.

2.6 Data Type

Primary data: data obtained from observations or direct observations of the organoleptic aspects of healthy chicken meat and raised broiler chicken meat (syringe meat or wet meat) are "suspected" for sale of "stealth" trader (non-permanent merchants) in Legi Songgolangit Market, Ponorogo Distric and the results of laboratory examination. Secondary data: data derived from the result of other research's researcher, book, journals, offices or realted agencies, reference in library and internet.

2.7 Data Processing and Analysis

In this research, researchers process and analyze the data obtained from the observation and laboratory tests in the following way: 1) Editing, i.e. reresearching collected data to determine if the data is ready processed in the next process. 2) Coding, which is the grouping of data that has been edited according to its corresponding content and to distinguish data. 3) Analysis, data on the field of observation compared with realted reference and laboratory data in comparison with the quality Standards of Decree Directorate General of Food Medicine Supervision Number 03726/B/SK/VII/1989 on the Maximum Limit of Microbial Contamination in Food Carcasses and Meat Without Frozen Bones. How to analyze using table analysis, the data that has been collected analyzed is done in the form of table analysis, then described.

3.0 RESULTS

3.1 Organoleptic Observation Result Analysis

The observation result of healthy broiler chicken meat with raised broiler chicken meat (syringe meat or wet meat) using organoleptic method can be seen in Table 1.

Table 1. The observation result of healthy broiler chicken meat with raised broiler chicken meat (syringe meat or wet meat)

No	Variable	Healthy chicken meat	Raised broiler chicken meat
1	Colour	The flesh is yellowish white bright, not dark, not pale, not bluish, not too red, looks fresh.	Pale brownish, shiny, look more wet (watery).
		Yellowish white skin, bright, shiny, clean fresh, no bruising, no watery.	Shiny, clean skin, there are traces of injections under the wings and watery on the chest and chicken thighs.
		White fat is yellowish evenly under the skin with a soft consistency.	White fats evenly under the skin with a soft consistency.
		The inside of the carcass and muscle fibers are slightly pale in colour, the scars are large and uneven.	The inner part of the carcass and the muscle fibers are pale white.
2	Smell	Special smell typical of chicken meat (no pungent smell, no smell fishy, no foul smell), fresh odorless foreign.	Changed from the typical smell of chicken meat (a fishy smell pungent).
3	Texture	When touched, the meat feels moist and not sticky (dry).	When touched, the meat feels moist and sticky (not dry).
		When pressed the flesh will elastic/back like the original and not chewy.	When pressed the flesh is not elastic and chewy.
		The consistency of chest muscles and thighs is supple, elastic (no softening), less dense consistency.	Consistency is like balloons that contain water/wind, because it has a high water content.
4	Others	Blood vessels in the neck and wings are empty (no blood remnants).	Blood vessels throughout the body are not visible (no blood remnants).
		Fine meat fibers, among meat fibers are no fat.	It was mushy because there was water at the bottom of the chicken skin layer.
		Conformation is perfect, there are no defects, no signs of bruising or other suspicious signs.	Meat/carcasses look thicker, big/fat, unusual than normal chicken size.
		There is no needle in chicken carcasses.	In the wings visible traces of the injection.
		When fried not much splash.	When fried like frying water (many sparks).
		Not until the flies.	There were flies.

Based on table 1. Healthy broiler chicken meat, from:

Aspect Colour: Bright yellowish white, not dark, not pale, not bluish, not too red, looks fresh. Yellowish white skin, bright, shiny, clean, fresh, no bruising, no watery. White fats are yellowish evenly under the skin with a soft consistency. The inside of the carcass and the white muscle fibers are somewhat pale, the scars of the cuts are large and uneven.

The smell aspect: specific typical chicken meat (no stinging smell, odorless fishy, no foul smell), fresh odorless alien.

Texture aspect: When it is touched and not sticky (dry), when pressed the fingers elastic/back like the original and not chewy. The consistency of chest muscles and thighs is supple, elastic (no softening), less dense consistency.

Other aspects: blood vessels in the neck and empty wings (no blood remnants), fine meat fibers, among meat fibers are no fat. Confirmation is perfect, no defects, no signs of bruises or other suspicious signs. There are no needles in chicken carcasses. When fried not much splash, not until the flies.

Based on table 1. Raised broiler chicken meat (syringe meat or wet meat)), from:

Aspect Color: Pale brownish, shiny, look more wet (watery). Shiny skin, clean, there is an injection of scars under the wings and watery in the chest and chicken thigh, white fat evenly under the skin with a soft consistency, inside the carcass and fibers of pale white muscle.

Smell aspect: change from the typical smell of chicken meat (stinky fishy smell).

Texture aspect: When touched and moist (not dry). When pressed the flesh is not elastic and chewy. Consistency like balloons is condensing with water/wind, because it has a high water content.

Other aspects: blood vessels in the whole body are not visible (no blood remnants), feels mushy because there is water at the bottom of the chicken skin layer, the meat/carcass look thicker, big/fat, unusual compared to normal chicken size, in Wing visible signs of injection scars. When fried like frying water (many sparks), there are flies.

3.2 Analysis Result of Number of Germs Assessment

Based on laboratory investigation obtained the average result of the number of numbers of germs in healthy broiler chickens amounting to 185,000 col/gram while in raised broiler chicken meat (syringe meat or wet meat) amounting to 1,388,333 col/gram. More results can be seen in table 2.

Table 2. Analysis of the test result of the number of bacteria in healthy Broiler chicken meat with raised broiler chicken meat (syringe meat or wet meat)

No	Investigation	The Amount of Germ Numbers in Chicken Meat	
		Healthy Broiler	Raised broiler
1	I	151.000 kol/gram	1.200.000 kol/gram
2	II	150.000 kol/gram	1.270.000 kol/gram
3	III	255.000 kol/gram	1.695.000 kol/gram
Average		185.333 kol/gram	1.388.333 kol/gram

4.0 DISCUSSION

4.1 Organoleptic Observation Result Analysis

Healthy broiler chicken meat: Based on the observation result of healthy broiler chicken meat in accordance with the characteristics of chicken meat is safe, fresh, healthy, intact and has halal legitimation. This is possible because the broiler chicken meat sold is derived from the chickens that are still alive, healthy and through the correct slaughtering process, so that the chicken broiler meat is declared qualified and feasible for consumer consumption (Community).

Raised broiler chicken meat (syringe meat or wet meat): Meat when contact with long-lasting air will cause the change of Ocsimyoglobin to Metmyoglobin (MMb) and the color of the flesh turns brown. When Metmyoglobin is contaminated with bacteria, the flesh turns green. This occurs due to the formation of Sulfmyoglobin and cholemyoglobin, due to oxidation and denaturation rapidly transformed into porpirrin with yellow to brown color (Arka, 2008). Many factors affect the color of meat including feed, species, nationality, age, sex, stress (activity level and muscle type), pH and oxygen. Changes in meat odor can be affected by the surrounding environment, temperature, way of storage, equipment and packaging used (Soeparno, 2005). The consistency of meat is usually expressed with clay, flabby, watery (firmness, softness, juiciness). Meat consistency is determined by the least of the connective tissues that compose muscles.

Generally, people cultivate food only to meet the needs of the origin of the stomach satiety, knowledge society is still minimal about raised broiler chicken meat (syringe meat or wet meat), just want to find the advantage because the price is considered cheap and the taste is still delicious when depleted and may also be limited to economic because the prices are getting up before fasting period, eid mubarak or religious and national holidays. Food quality control in Indonesia is less good due to limited energy and cost, so it is often utilized by traders and or seasonal traders. Traders and sellers of seasonal ambitions benefit more; traders are confident by making shortcuts is the best way. The way, the chicken is removed fur and separated from the innards, injected water on the arms of the wings, thighs, chest and back. The goal is to make the small chicken meat bubbles to be big and shiny.

The injection and the trade were carried out by the merchant, in a stealth manner, for fear of the inspection officers. But also some are frankly, because the trader is also not afraid to be inspected. Chicken meat size is also varied, weighing ranges from 700 grams 900 grams. Although there are also those sold with greater weight. The turnover in sales is also bigger and profitable, because one piece of chicken meat when injected will contain 1 ons of water. And the price of the chicken meat was average Rp. 10,000/kg. Although it is sold at a cheaper price, it can actually be more expensive than fresh meat. Because, about 30-40% of the weight of meat is water. If buying meat one kilogram means the actual weight is about 6 or 7 ounces only.

The meat of the raised broiler chicken meat (syringe meat or wet meat) has a high moisture content and consequently easily rotten. While in the process of research found a number of chicken meat especially in the lower part of the wing and chest holes used to be injected. However, when confirmed, the merchant said that the hole is a former fur-removal tool instead of an injection, the broiler chickens sold by his own cutting results, even when buying chickens, he chooses directly in the cage. When tested with water content gauge shows the number 5.9. Normally, with meat measuring instruments ranging from 5.0 to 5.5 until the broiler meat is suspected the results of raised broiler chicken meat (syringe meat or wet meat). The buyers/consumers/communities and traders do not know, what substances contained in the raised broiler chicken meat (syringe meat or wet meat), when it obviously contains excessive fat and contain a lot of moisture content.

Fat found in raised broiler chicken meat (syringe meat or wet meat) can cause humans to suffer from uric acid, nerves and impotence at the heart. Water content that is caused by a lot of meat carcasses have been injected with water or air containing germs and will breed in chicken meat. The presence of bacteria in chicken broiler meat derived from a lots water can accelerate the process of decay due to the presence of pathogenic bacteria, can cause intoxication when consumed the community, so that raised broiler chicken meat (syringe meat or wet meat). Is declared ineligible and not feasible for consumer (community) consumption.

4.2 Analysis Result of Number of Germs Assessment

Healthy Broiler Chicken Meat: Based on laboratory examination obtained result of germ examination in healthy broiler chicken meat on average of 185,333 cabbage/gram, while the standard requirement limit the quality of the decree of the Directorate General Food Medicine Supervision Number 03276/B/SK/VII/1989 on the maximum limit of microbial contamination in foods especially in healthy chicken meat that is 10⁶ colony/gram. As in the table below:

Table 3. Analysis of the test result of the number of bacteria in healthy Broiler chickens

No	Investigation	Quality Standard	The Amount of Germ Numbers in Chicken Meat
1.	I	10 ⁶ kol/gram	151.000 kol/gram
2.	II	10 ⁶ kol/gram	150.000 kol/gram
3.	III	10 ⁶ kol/gram	255.000 kol/gram
Average			185.333 kol/gram

This indicates that the number of healthy broiler chicken meat numbers does not exceed the quality standard of Decree of the Directorate General of Food Medicine Supervision Number 03276/B/SK/VII/1989

about the maximum limit of microbial contamination in meat carcass and meat without bones especially in healthy chicken meat that is 10⁶ colonies/gram, possible because healthy broiler chicken meat obtained from the chicken meat is still alive, healthy and through the right slaughtering process, so that the chicken broiler meat sold in the market is eligible to be traded and safe to consume consumers (Community).

Raised broiler chicken meat (syringe meat or wet meat): Based on laboratory examination obtained the result that the total number of germs in chicken broiler meat raised broiler chicken meat (syringe meat or wet meat) average of 1,388,333 colony/gram. From the average results are clearly the number of bacteria in raised broiler chicken meat (syringe meat or wet meat) more than the quality Standards of Decree Directorate General of Food Drug Supervision Number 03276/B/SK/VII/1989 about the maximum limit of microbial contamination in food Meat carcasses and meat without frozen bones especially in meat is 10⁶ colony/gram, As in the table below:

Table 4. Analysis of test result for number of meat germs in raised broiler chicken meat (syringe meat or wet meat)

No	Investigation	Quality Standard	The Amount of Germ Numbers in Chicken Meat
1.	I	10 ⁶ kol/gram	1.200.000 kol/gram
2.	II	10 ⁶ kol/gram	1.270.000 kol/gram
3.	III	10 ⁶ kol/gram	1.695.000 kol/gram
Average			1.388.333 kol/gram

Water media is good for bacterial growth, bacteria and viruses. An increase in the number of microbial/pathogenic microbes affects safety and endurance or the meat shelf life. The presence of bacteria in meat can accelerate the process of decay and the presence of pathogenic bacteria causing food poisoning disease when consumed by consumers, can also suffer damage to the liver, kidneys, heart and cancer that causes death. There are also diseases that can be transmitted by chicken meat is a salmonellosis disease that is transmitted from chicken meat to humans, because salmonella is some bacteria that exist in food-contaminated foods and also from foods that are less ripe from infected animals. In chicken meat there is also still a virus that has not been studied and identified the avian influenza virus that is known to pollute the chicken itself. The existence of such contamination will cause human infections if contact with poultry or consume meat. Here is the test result table of laboratory samples of the number of germs in healthy broiler chickens with raised broiler chicken meat (syringe meat or wet meat).

Table 5. Analysis of the test result of the number of bacteria in healthy Broiler chickens With raised broiler chicken meat (syringe meat or wet meat)

No	Investigation	Quality Standard	The Amount of Germ Numbers in Chicken Meat	
			Healthy Broiler	Raised broiler
1	I	10 ⁶ kol/gram	151.000 kol/gram	1.200.000 kol/gram
2	II	10 ⁶ kol/gram	150.000 kol/gram	1.270.000 kol/gram
3	III	10 ⁶ kol/gram	150.000 kol/gram	1.695.000 kol/gram
Average			185.333 kol/gram	1.695.000 kol/gram

5.0 CONCLUSION

Organoleptic observation: 1) Healthy broiler chicken meat is safe, fresh, intact, healthy and has halal legitimation. Qualified and eligible for consumer consumption (community). 2) Raised broiler chicken meat (syringe meat or wet meat) is not qualified/not feasible for consumer consumption (the community). Total number of germs: 1) Healthy broiler chicken meat does not exceed the quality standards of Decree of the Directorate General of Food Medicine Supervision Number 03276/B/SK/VII/1989. Qualified and worthy in consumer consumption (community). 2) Raised broiler chicken meat (syringe meat or wet meat)

exceeds the quality Standards of Decree Directorate General of Food Medicine Supervision Number 03276/B/SK/VII/1989. Not eligible for consumer consumption (community).

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