ORGANOLEPTIC QUALITY OF LAMB MEAT USING BATAK'S ONION EXTRACT (*Allium chinense* G. Don) FOR RENDANG

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ABSTRACT

This study aims to determine the quality of lamb meat which will be processed into rendang by assessing the organoleptic meat soaked in 10% Batak onion extract (A. chinense G. Don). The samples used in this study were Batak onion (A. chinense G. Don) and lamb meat. Lamb meat is marinated in 10% Batak onion extract at room temperature. This research was conducted by observing lamb meat and analyzed descriptively. Parameters observed were lamb meat organoleptic. The results of the research conducted showed that soaking lamb meat in 10% Batak onion extract gave the color of the meat still looking fresh with a slightly brownish effect, the aroma smelled of Batak onions and the texture was still chewy. Based on the results of this study, lamb meat soaked in 10% Batak Onion extract (A. chinense G. Don.) is suitable for use in making rendang.

INTRODUCTION

Meat is an animal food that has high nutritional value such as water, fat, protein and amino acids. Complex nutritional value can affect product durability when stored at room temperature so that it can affect product quality. Storage at room temperature can affect the growth of microorganisms in the product. Storage of livestock products is usually done by storing at low temperatures such as refrigerators or freezers. In addition, to extend the shelf life can also be done with preservation.

Preservation is an action taken to extend the shelf life such as processing, curing, smoking, salting, cooling or by using natural and synthetic ingredients. One of the natural ingredients that can be used is Batak onion (*Allium chinense* G. Don). This tuber-type plant can be a natural preservative because it contains antimicrobial or antioxidant substances that aim to inhibit the growth of microorganisms so as to minimize product damage.

The research by Asmaq and Wibowo (2022) shows that the use of Batak onion extract (*A. chinense* G. Don) at different concentrations and storage times can affect the physical quality of lamb meat as seen from water content, cooking loss, pH value and total meat microbes. This research is the basis for conducting further research, namely to see the physical quality of meat from the physical organoleptic point of view.

LITERATURE REVIEW

Meat

Soeparno (2015) states that meat is defined as all animal tissues and all products resulting from the processing of these tissues that are suitable for eating and do not cause health problems for those who eat them. Based on the physical condition, meat can be grouped into: (1) fresh meat withered or without withering, (2) fresh meat withered and then chilled (cold meat), (3) fresh meat withered, cooled and then frozen (frozen meat), (4) cooked meat, (5) smoked meat, (6) processed meat. Soputan (2004) stated that meat as part of slaughtered animals used by humans as food, in addition to having an attractive appearance, is also a source of high quality animal protein. Meat is all parts of livestock that have been cut from the body

of livestock except the horns, hooves, bones and feathers. Thus the liver, spleen, brain, and stomach contents such as the intestines also include meat.

The nutritional content in meat has different benefits. Protein plays an important role in building tissues in the body, making natural antibodies for the body that work well so that it can prevent the body from disease, iron also plays an important role in the health of the body, which can prevent the body from symptoms of anemia, and vitamins (A, D). , and B) which provides assistance to the nervous system and is also good for eyesight, bones, skin, and teeth. The composition of meat varies and is influenced by the type of livestock, age, food while the cattle are still alive, and the breed of livestock (Soeparno, 2015).

According to Aberle et al. (2001) the chemical composition of meat is 65-80% water content, 16-22% protein and 1.5-13% fat. Protein is a chemical component that is dispersed from meat. According to Suhardi (1998), the protein content in meat is around 20-22%. The chemical composition of other meat 7 is fat with a composition of 1.3-13%. Differences in the characteristics of fat in meat are caused by the short length of the carbon chains that make up the fat and the level of saturation of fatty acids. The higher the level of saturated fatty acids, the tougher the meat will be (Burhan, 2003). The chemical quality of meat is influenced by factors before and after slaughter. Factors before slaughter that can affect meat quality are genetics, species, nation, type of livestock, sex, age, feed and additives (hormones, antibiotics, and minerals), and stress conditions. Factors after slaughter that affect meat quality are withering method, cooking method, intramuscular fat (marbling), acidity (pH) of meat, additives (including meat tenderizing enzymes), storage and preservation methods, type of meat muscle, and muscle location (Astawan , 2004).

Meat can be obtained from various types of ruminant and non-ruminant livestock. One of the meat-producing ruminants is sheep. Lamb can be distinguished based on weight, age of sheep, sex and level of fatness. Lamb meat has a weight of muscle tissue or tendon which ranges from 46-65% of carcass weight (Lawrie, 2003). The characteristics of quality lamb meat include fresh red color with fine fiber, yellow fat and tough (elastic) meat. The level of tenderness of lamb meat can be influenced by the method of cooking, freezing and withering time (Sahidi, 1998).

Assessment of the quality of lamb meat can be seen physically either before slaughtering or after slaughtering. An important factor before slaughter is that livestock are allowed to rest so they are not under stress. According to Aberle et al. (2001), livestock that are not rested will produce dark colored meat, hard textured, dry, pH value and high water holding capacity. Meanwhile, an important factor that is seen after the cut is withering. This withering process greatly affects the tenderness, flavor and water holding capacity. The physical quality of meat is the initial assessment in choosing meat. Meat color provides information on meat quality the first time, when looking at meat (Vipond, 2004). In addition, according to Soeparno (2005) specifications for meat quality are generally meat color, water binding capacity by protein, meat pH, cooking loss and tenderness.

Batak's Onion (*Allium chinense* G. Don)

Batak onion (*Allium chinense* G. Don) has a morphology like chives but with a longer stalk tip and tends to be white in color. So it looks like a small leek with long small leaves, and also looks like an onion, but its size is much smaller, but it is different from chives, usually used as a mixture of pickles or some dishes. Many people call this vegetable by the name of chive, but there are also those who call it Batak onion. This commodity is called Batak onion (*A. chinense* G. Don) because it is found in many Batak dishes, one of which is arsik. But along with the development of time. Lokio or Batak onions are also used in other dishes, such as ingredients for sauteing chicken, fish, or meat. Until now, Batak onions are only used in cooking (Septia, 2010).

Antioxidant

Antioxidants are substances that can neutralize or reduce the negative effects of free radicals. Free radicals are molecules that have an unpaired set of electrons in an outer circle. The benefits of antioxidants to ward off free radicals are what make antioxidants very widely studied by researchers. Various research results, antioxidants are reported to slow down processes that can be caused by free radicals such as the presence of tocopherols, ascorbate, flavonoids, and the presence of lycopene (Andriani, 2007).

Organoleptic

Organoleptic is a test of food ingredients based on preferences and willingness to use a product. Organoleptic test or sensory test or sensory test itself is a way of testing using the human senses as the main tool for measuring the acceptance of a product. Organoleptic testing has an important role in the application of quality. Organoleptic testing can provide indications of spoilage, deterioration in quality and other damage to the product (Dhingra and Jood, 2007). The conditions that must exist in the organoleptic

test are samples, panelists, and honest response statements. In the assessment of food ingredients, the characteristic that determines whether a product is accepted or not is its sensory properties. This sensory assessment has six stages, namely first receiving the material, identifying the material, clarifying the properties of the material, recalling the material that has been observed, and re-describing the sensory properties of the product. (Rifky. 2013)

Tenderness of Meat

Tenderness is one of the most important factors in attracting consumers to buy meat products. According to Lawrie (2003), consumer acceptance of meat is influenced by tenderness, juiciness, and taste. Tenderness is one of the main indicators and factors for consumers to consider in choosing good quality meat (Bredahl and Poulsen, 2002).

Based on sheep research conducted by Permatasari (1992), the shear force value of lamb on Longissimus dorsi muscle was 2.00 in local sheep. According to Lawrie (2003), species affects meat tenderness. Beef has large muscles and a coarser texture than lamb. Livestock that have a lot of activity will produce coarser muscles compared to cattle that are less active because of muscle contractions in the part that is active.

According to Fiems et al. (2000), the value of meat tenderness is strongly influenced by factors handling livestock before slaughter, animal feed, pH and fat. Aberle et al. (2001) added that the main components that affect tenderness are the connective tissue group, the meat fiber group, and the muscle-related fat group. The different tenderness of meat can also be caused by the influence of the kalpastatin and kalpain genes in livestock. Kalpain is a proteolytic enzyme that functions to degrade muscle cell proteins (myofibrils) in muscle tissue (Morgan et al., 1993).

Color of Meat

DeMan (1997) stated that color is an important factor in determining meat quality. Soeparno (2005) stated that meat color is influenced by feed, species, nation, age, gender, stress (activity and muscle type), pH and oxygen and the main factors that determine meat color are the concentration of myoglobin meat pigment, molecular type and chemical status of myoglobin. . Increasing the age of livestock will be followed by an increase in myoglobin concentration. Lawrie (2003) added that the most important chemical form in uncooked meat is oxymyoglobin which describes the red color pigment in meat.

METHOD

Materials and Methods

The research materials used were Batak onion extract (*Allium chinense* G. Don) and fresh lamb meat.

Research Procedures

Extraction of Batak Onion (*A. chinense* G. Don) (Naibaho Modification, Bintang and Pasaribu, 2015)

Batak onion bulbs (*A. chinense* G. Don) were cleaned of adhering dirt until clean. The tubers were sliced to a thickness of ± 5 mm, then dried in the oven at 50^{o}C for 6 hours until a constant final weight was obtained. The dried Batak onion bulbs were then mashed using a blender and filtered into powder (simplicia). The simplicia was extracted by maceration method using 70% (v/v) ethanol and distilled water for 3 days at room temperature. Then filtered and concentrated with a vacuum rotary evaporator at 60^{o}C. The extract is ready to use as a soaking treatment with fresh meat.

Marinating Fresh Meat with Batak Onion Extract (*A. chinense* G. Don)

After the extract is obtained, it is diluted using distilled water with a ratio of 1:10 according to the predetermined treatment. Fresh meat is washed thoroughly using running water until there is no dirt attached to the surface of the meat. The meat is marinated in 10% Batak onion extract (*A. chinense* G. Don).

Observed Parameters

Organoleptic tests were carried out on the color, aroma and texture of lamb meat.

Data Collection Techniques

Data collection techniques carried out during the study were qualitative.

Data Analysis Methods

Soaking lamb meat in 10% Batak onion (Allium chinense G. Don.) extract will be analyzed descriptively.

RESULTS AND DISCUSSION

Organoleptic test is a test that involves the human senses to measure the acceptance of a product. The recapitulation of the results of the research on the organoleptic of lamb meat is shown in Table 1 below.

Table 1. Recapitulation of the Results of Organoleptic Testing of Lamb Meat Soaked in 10% Batak Onion Extract (Allium chinense G. Don)

Organoleptic Parameters	Observations
Aroma	Scented with batak onions
Color	Red-brown
Texture	Supple

The results showed that the color quality of lamb soaked in Batak onion extract (Allium chinense G. Don).

Aroma is one of the organoleptic tests involving the sense of smell. Based on the research conducted, it shows that the aroma of lamb meat has a difference, namely the smell of Batak onions. Lamb meat has a distinctive aroma that is typical of lamb, but the aroma can be disguised when the meat is soaked using 10% Batak onion extract. This is due to the absorption of the aroma of Batak onions by the meat, so that the aroma of the meat changes. This is reinforced by Bintang and Jarmani (2010) who state that garlic with a spicy and fragrant aroma is widely reported as a food flavoring and cooking seasoning, where the sulfur component of garlic not only provides a distinctive flavor but also as a biologically active compound. The results of this study are the same as those of Patriani et al. (2020) which stated that marinating lamb using Pangium edule extract had a very real effect on the aroma of lamb.

In addition to aroma, color is an organoleptic test involving the sense of sight. Based on the research conducted, it shows that the color of lamb meat has a different color, namely brownish red. This is due to the treatment of soaking lamb in 10% extract of Batak onion (Allium chinense G. Don). This color change was caused during the process of soaking the lamb, there was an absorption of the brownish-colored Batak onion extract into the meat. this is reinforced by Mamuanja and Lumaindong (2017), that soaking meat in an extract can give a slightly browned effect, looks fresh and not pale. The results of this study are the same as those of Patriani et al. (2020) which stated that marinating lamb using Pangium edule extract had a very significant effect on the color of lamb.

Texture is one of the organoleptic tests involving the sense of touch. Observation of texture is done by pressing the lamb meat. Based on the research conducted, it shows that the texture of lamb meat is still chewy and fresh. This can be seen from the condition of the meat when pressed it will return to its original shape. This is due to the treatment of soaking lamb in 10% extract of Batak onion (Allium chinense G. Don). Another thing that causes this condition is the product's shelf life which is still within the tolerance time for meat storage, namely 1 hour. Based on the observations made, the longer the product is stored at room temperature, the softer the product texture will be. The results of this study are the same as those of Patriani et al. (2020) who stated that marinating lamb meat using Pangium edule extract had a very real effect on the texture of lamb meat.

CONCLUSIONS

The conclusion obtained in this study is that lamb meat soaked in 10% extract of Batak onion (Allium chinense G. Don) is meat with the aroma of Batak onions, red-brown in color and chewy in texture.

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