

CHAPTER II

LITERATURE REVIEW

2.1 Ingredients Review

2.1.1 Pork Meat

Pork as one of the most consumed meat in the global food market is considered an important commodity in international trade. In Asia, especially East Asia and Southeast Asia, pork is considered as important in food culture even in the Moslem-majority countries like Indonesia and Malaysia. Although its commodity price is considered low in the international trade, the demand of pork is relatively stable. Pork is the second highest consumed meat in the world behind chicken. Asia has become one of the biggest markets of pork with China, Taiwan, and South Korea as the major consumer. Their total consumption per capita combined is more than 36 kilograms per capita which is among the top six of pork consumer (National Hog Famer, 2018).

Indonesia is one of the countries that should capitalize this opportunity. But, the current production of pork is only sufficient to fulfill domestic demands. Pork ranked second most consumed meat in Indonesia with consumption per capita of 2.25 kilogram per capita (OECD 2018). However, this commodity barely developed to enter the international trade. Despite this condition, Indonesia still able to exports pork to Singapore and Vietnam. The export value reached around \$59 million in 2016 (Adam, 2017). This output means pork from Indonesia has good quality since Singapore have strict rules regarding health issues and may pass other countries standard. Look into pork farm in Indonesia, pork was classified into different categories. Pork that has weight above 150-200 kg is prioritized to be delivered into the company who run the export of pork from Indonesia to Singapore (Hardjianto, 2017).

The need for pork in Indonesia has always increased from year to year, especially in the province of Bali. The pig population in Indonesia in 2019 was 8,922,654 heads and the total consumption in 2018 per capita was 0.253 kilograms (Badan Pusat Stasistika Provinsi Bali, 2019). The book *Livestock Statistics and Animal Health (2019)* states that the development of the pig population has reached 850,870 heads and the number of slaughtered pigs is 315,957 heads in the Province of Bali. Apart from being used to fulfill the need for animal protein and for food processing, pork is also used for religious ceremonies in various regions in Indonesia. Several ethnic groups in Indonesia who still carry out their original traditions besides the Chinese-Indonesian tribe still eat pork as a daily meal, such as the Balinese, Toraja, Papua, Batak, Christian Dayak and Manado people.

Pork contains nutrients such as carbohydrates, protein, vitamins and minerals, and has the advantage of containing a lot of thiamin (Vitamin B1) which is needed by the body to digest carbohydrates and support the work of the nervous system (Aman et al, 2014). The chemical composition of pork consists of 56% water, 22% protein, 24% fat, and 3.5% non-protein substances which include carbohydrates, organic salts, dissolved nitrogen substances, minerals, and vitamins (Putra et al, 2018). pork includes fats, carbohydrates, vitamins, proteins and minerals contained in the meat, while the contribution of meat calories in a limited amount is more protein, B vitamins and certain minerals (Suardana and Swacita, 2009).

The chemical composition of pork is different for each individual, this is caused by differences in the nation or race of each individual. The chemical composition of pork has a fairly high water content (\pm 68-75%), rich in nitrogen-containing substances with different complexities, rich in minerals and completeness of other nutrients (Soeparno, 2011). Pork

has a characteristic that is used as a differentiator from other livestock meat, pork is more supple and easily stretchable, the color of the meat is rather pale, the fiber is finer than beef, the smell of the meat is also distinctive, the fat is white and looks thick (Naibaho et al., 2013)

The selection of the pork portion for the Pa'Piong sausage is also carried out. With the aim to produce sausage products that are soft, chewy, and not dry. Therefore, the writer chooses the part of the quadriceps pork (*satean*). This meat has fat so that a fragrant smell appears when cooked or grilled, the meat also has a texture that is easily tender so it is widely used for Steak, Sate, and Cha sio barbecue.

The author also uses pieces of lard to give the sausage a chewy texture. The chemical composition of pork includes a water content of 60-70%, fat of 6-11%, and protein of 20-28% (Veerman, 2013). The content of saturated fat and cholesterol in lard is lower than butter (Hilda, 2014). Hermanto (2008) identified fatty acid content in cattle and pigs which provided information that the saturated fatty acid content of beef fat extracted with n-hexane maceration method was higher than that of lard samples with a percentage of content in beef of 68% and in samples pork by 21%. In addition, the unsaturated fatty acid content of pork is greater, namely 25%, while beef only contains 1.2% unsaturated fat.

2.1.2 Miana Leaf



Figure 2. 1 Miana Leaf

In addition to its medicinal properties, the Miana plant is also used as a basic ingredient for cooking in some regions of Indonesia. One example is the traditional Torajan dish called Pa'piong, which is made by inserting pork and miana leaves, wrapped in banana leaves, inserted into a bamboo and cooked over hot coals. The Miana plant is added as a component to enhance the flavor and aroma of the dish. (visittoraja.com, 2018)

The use of miana leaves in this Pa'Piong dish is not a form of application of miana leaves around the Toraja area. Empirically, the juice of miana leaves is used by the Toraja people to treat coughs with phlegm (Prasetya, 2021)

The chemical properties of the miana plant are that it smells good, tastes a bit bitter, is cold and has many useful chemical constituents including the leaves and stems of megadung essential oil, phenols, tannins, fats, phytosterols, calcium oxalate, peptic substances, alkaloids, ethyl salicylate, methyl eugenol, thymol carvacrol and minerals (Hardiman, 2014). Miana leaves contain phenolic and flavonoid compounds which can function as antioxidants and counteract free radicals. In addition, miana leaves also contain vitamin A and vitamin C which can boost the immune system. (pertanian.go.id, 2021)

2.1.3 Katokkon Chili



Figure 2. 2 Katokkon Chili

Katokkon chili is a type of red chili originating from North Toraja Regency, South Sulawesi. This chili has a shape that resembles a paprika with its own characteristics, namely a mini, fat, round shape with a normal size ranging from 3-4 cm. This chili has good potential to be developed because of its spicy taste, shape and has been registered with the Center for Plant Variety Protection and Agricultural Licensing. The large chili group in North Toraja Regency is dominated by 80% by the Katokkon chili variety. (Panggula, 2018). Of course it can be substitute by using other chilies, such as cayenne pepper or bird eye chili. But back again to keep the taste authentic. The use of Katokkon chili here is very important because it has characteristics that are quite different from other chili.

Katokkon chili also has a fragrant aroma and a high level of spiciness, therefore this chili has an attraction for spicy fans among the Toraja people. The hot taste sensation given by the katokkon chili makes this chili one of the most popular chilies among the Toraja people. The use of Katokkon chili can be developed by mixing this chili in several types of dishes. One of the uses of katokkon chili in cooking is in a Toraja regional specialty called Pa'piong.

Based on the level of spiciness, katokkon chili has a very high level of spiciness, which is around 400,000–691,000 SHU (Scoville Heat Units), cayenne pepper can reach 50,000-100,000 SHU and curly chili around 30,000–50,000 SHU. Capsaicin levels (which give chilies a spicy taste) in chilies affect the maturity level of the fruit. The more ripe the fruit (red) the higher the capsaicin level. The capsaicin content varies for different types and varieties and is influenced by the maturity level of the chilies (Amaliah N, 2018).

Besides containing vitamins A and C, as well as antioxidants that protect the body from cancer-causing free radicals, the efficacy of Katokkon chilies is very much. The benefits or properties that are

obtained when consuming this Kotokkon pepper are increasing appetite, a youthful medicine because it can slow down aging, anti-stress, helping to overcome joint problems, lowering cholesterol, improving blood flow, preventing strokes, relieving coughs with phlegm, relieving nasal congestion, and relieve migrants (Ranteallo, 2019).

Tentunya bisa menggunakan cabai yang lain, seperti cabai rawit. Tetapi kembali lagi untuk menjaga rasanya yang otentik. Penggunaan cabai katokkon di sini sangat penting karena memiliki ciri khas yang cukup berbeda dengan cabai pada umum

2.2 Pa’Piong Sausage

Pa’Piong sausage is an innovation from Pa’Piong which is a special food from Toraja, South Sulawesi. Usually Pa’Piong consists of 2 main ingredients, namely Pork itself and Miana leaves. But in this Pa’Piong sausage, the innovations by adding katokkon chili (Toraja chili) directly into the sausage. This is what makes this Pa’Piong sausage different from traditional Pa’Piong, it doesn't take away the authentic taste of this Pa’Piong itself. By still carrying out the traditional cooking process, namely by inserting this Pa’Piong sausage into the bamboo before it is grilled over coals. The ingredients are directly sent from Toraja, South Sulawesi to maintain the authentic taste of Pa’Piong itself.

This, Pa’Piong sausage itself has a striking advantage, which is practical for consumption by customers. Because the shape itself is in the form of a sausage, customers can combine this product into various dishes or even just as a side dish which is very suitable. The ingredients used in making this Pa’Piong Sausage do not use preservatives, so it is very safe for consumption. However, it can be stored up to 3 months inside the freezer. Selection of meat for sausage production is important in achieving good quality products. All the formulations of sausage production are based on meat and also all additives

used in sausage production must be based on weight rather than percentage (Abdolghafour, 2014).

2.3 Process Review

In making this Pa'Piong sausage, the process can be categorized as an easy product. Because in the manufacture of this sausage does not require special skills. Only the ground spices are cooked separately by sautéing until cooked and fragrant before being added to the sausage mixture. The katokkon chilies and miana leaves are cut using a knife into smaller shapes so they can easily fit inside the sausage casings. The meat is mixed first with spices and corn starch. The using corn starch as a binder in sausage dough.

Then after that all the ingredients such as the meat mixture, katokkon chilies, and miana vegetables are mixed until they are evenly distributed into one dough. It should be noted that in the process of stirring the ingredients, the writer only stirred the dough in one direction. The goal is to maximize the natural starch from the pork. Then it is put into a piping bag and then manually pumped into the pig intestine casing. Previously, the pork intestine sleeves had been soaked in plain water so that they would not stiffen, and they could be used easily. Furthermore, if the casing is fully loaded and the ends are tied. The writer is obliged to pierce the sausage using a needle so that the air trapped inside the sausage can come out. This process is very important so that the sausage skin does not tear during the cooking process.

Pa'Piong sausages that are ready to be cooked are put inside the bamboo. Previously, the inside of the bamboo was covered with banana leaves so that the sausages would not stick to the bamboo walls. The process of burning Pa'Piong sausages uses charcoal, coconut shells and fibers. Meanwhile, besides being used as fuel, coconut shell is also one of the activated carbon materials whose quality is good enough to be used as activated charcoal (Mentari, 2017). The purpose of using the coconut shell and palm fiber is to

produce the smoke needed to smoke this Pa'Piong sausage. The charcoal needed doesn't need too much because the writer wants to cook this sausage at a low temperature. The reason for this is to prevent tearing of the sausage skin, and to keep the texture of the sausage itself firm. The process of smoking and burning Pa'Piong is included in the slow cooking technique which takes quite a long time (3-4 hours) (Risaranti, 2014).

Smoking is the process of curing meat using a combination of heat and chemicals produced by burning hardwood wood. According to Soeparno (2011), hardwood produces good quality smoke and produces a lot of smoke, and generally contains 40–60% cellulose, 20–30% hemicellulose and 20–30% lignin. Lawrie (2003) explained further that the contents contained in smoke are formic acid, acetic, butyric, caprylic, vanillic and syringic acid, dime toxiphenol, glyoxal metal, furfural, methanol, ethanol, octanol, acetaldehyde, diacetyl, benzinpyrene.

The chemical compounds contained in smoke have bacteriostatic, bacteriocidal effects and inhibit fat oxidation. Purnomo (2012) states that phenol has an effect resembling the antioxidants BHA (Butyl Hidroksianisole) and PG (Profilgalate) which inhibit oxidation reactions. Swastawati (1997) stated that in the smoking process, phenol can affect the durability, color and taste of a product. Phenol elements and organic acids are the two most abundant elements attached to smoked products and produce a distinctive color in meat.