

CHAPTER II

LITERATURE REVIEW

This chapter presents literature review of pempek, squid, tapioca, salt, water, the recipe for making pempek, and tips how to make delicious pempek.

2.1 Pempek

According to Astawan (2010), pempek is a traditional food product that can be considered as fish dough, as well as *otak-otak* or kamaboko in Japan. Pempek is made of sago flour and fish meat and processed in a suppressed way. But many people add pempek dough with the other main ingredients. This condition cause pempek have various types and flavors such as pempek *telok*, pempek *pistel*, pempek *tahu*, pempek *udang*, and others. The Process of making pempek uses boiling, burning, frying methods.

The first time, fish that is used to make pempek is belida fish (*Notopterus chitala*). However, because of the increasing scarcity of ancient fish that inhabit of the Musi river, so the fish is used for making pempek become more various, like other types of river fish, namely *Gabus* fish (*Channa striata*), *Putak* fish (*Notopterus notopterus*), *Toman* fish (*Channa micropeltes*), *Sepat siam* fish (*Trichogaster pectoralis*), and *Bujuk* fish (*Channa Lucius*). Some types of sea fish, such as *Tenggiri* fish (*Cybium commersoni*), *Parang-parang* fish (*Chirocentrus Dorab*), and *Kakap merah* fish (*Lutjanus argentimaculatus*) are also used as ingredient for making pempek. In principle, all river fishes and sea fishes can be used as main ingredient for making pempek, but the sea fish is fishy. However, in general, to make delicious pempek, common people in Palembang only use three types of fish, namely *belida*, *gabus*, and *tenggiri* (Anita 2014).

Pempek (100 grams) contains an energy of 182 kilocalories, 9.2 grams protein, 27.8 grams carbohydrates, 3.8 grams fat, 401 mg of calcium, phosphorus 116 mg, and 2.4 mg of iron. Pempek also contains as much as 13 IU of vitamin A,

vitamin B1 and vitamin C 0.16 milligrams. The results obtained from research on 100 grams pempek, it can be eaten as much as 100%. Retrieved from (<http://www.organisasi.org>)

2.2 Squid

A squid is one of marine animals of loliginidae family, class of cephalopods. In latin, squid known as loligospp. In Indonesia, squid is known by several terms, such as *enus*, *nus*, or *sontong bunga*.

The squid is an animal of cephalopod group or type of mollusks that lives in the sea. Cephalopod (in Latin, chepalo = head, podos = leg) are mollusks that have legs in the head. This is because the legs are separated into a number of hands wrapped around its head. Like all cephalopods, a squid is separated by having different head. (Sarwojo, 2005).

(Suklim, 1998) stated that a squid or calamari is a cephalopod which is one of the three groups of mollusks: (1) univalves having a single shell; (2) bivalves having two shells; and (3) cephalopods. There are almost 1,000 species of Cephalopods; however, some species commercially caught are squid, cuttlefish, and octopus. Cephalopods are marketed in various forms which include fresh, frozen, canned, dried, salted, and smoked. The most commercially important group of all cephalopods is squid.

While (Prabawati 2005) argued a squid (*Todarodes pasificus*) commonly known as devil fish belonged to mollusks (mollusks), cephalopods class that is used head as a tool for moving. At the head, there is a mouth surrounded by 10 hand-catchers that has a rounded vacuum. All the organs of the body are covered by a membrane on coat. The characteristics of squid; it has ink sac located on top of the large intestine and empties near the anus. When the squid is attacked by the enemy, the ink sac will work or react through a pipe. This thing causes like a black cloud around it and allows squid can avoid enemy attacks.

According to (Zaitsev et al 5, 1969) a squid contains 78.1 to 82.5% water, 0.2 to 1.4% fat, 14.8 to 18.8% protein and 1.2 to 1.7 % ashes, and the edible parts are the body, head and tentacles.

(Poerwadi, 1984) mentioned that protein content in the squid is quite high. Every 100 gr squid meat contains 15.3 gr protein, 1.0 gr fat, 79.3 gr of water, 1.8 gr of ash, 3 g of carbohydrates and produce energy 89 calories. Whereas, cholesterol is not found.

Recent data from (Andrew, 2012) argued a squid has a high protein content, it contains 17.9 g / 100 g. A squid meat has advantages compared with other marine products, namely a squid does not have the spine, easily digestible, has a distinctive taste and aroma, and contain all the essential amino acids needed by our body. Essential amino acids that dominant are leucine, lysine and phenylalanine.

Based on the three opinions of Zaitsev, Poerwadi, Andrew, the conclusion is the squid has a high nutritional protein in the range of values around 10 gr and below 20 gr protein.

2.3 Tapioca

Tapioca is made from cassava and has many uses such as a food thickener, the main ingredients such as meat sausage processing, pempek, and fish balls (Radiati and Agosto, 2008). Tapioca contains white starch granules, odorless and tasteless and has a shiny color. Tapioca easily expands in hot water, so it can produce the thickness desired (Haryadi, 1995). Tapioca is used in making pempek, because it easily expands in hot water to produce the thickness desired (Ratnawati, 1994).

2.4 Salt

Salt which is often used in everyday life called NaCl. It contains 0.2 g of water, 24 mg of calcium, 0.33 mg of iron, 1 mg of magnesium, 8 mg of potassium, 38 758 mg of sodium, 0.1 mg of zinc, 0.03 mg of copper, and 0.1 mg

of manganese. The functions of salt in food processing are to provide flavor, to make the raw material durable (Romans et al, 1994).

2.5 Water

Water is a very important ingredient for human life and its function can never be replaced by other compounds. Water is also an important component in food ingredients, because the water can affect the compactness, texture and taste of food. Characteristics of water that is used for food processing must be clean, colorless, odorless, limp, does not contain bacteriological. The water in the making pempek serves as a solvent. Water is used to bring together tapioca, fish, and seasoning, so shaped that homogeneous dough. (Andrew, 2012)

2.6 The recipes for making pempek

The recipes for making pempek use ratios between fish meat and tapioca flour. (Kesuma, 2008) stated that the ratios between fish meat and tapioca flour can be 1 : 1 or 1 : 3/4 or 1 : 1/2, adding more fish meat compared with tapioca flour will be more tasty in making pempek, but a maximum adding is 1 : 0.5 (1 kg fish meat : 0.5 kg of sago flour). These are 3 different recipes from 3 persons:

- a. The recipe for making pempek from Indiarni, (2014 p.12) using ratio of fish meat and tapioca flour (1,000 grams fish meat : 800 grams tapioca flour or 1 : 0.8). It is described in detail as follows :

Ingredients:

- 1 kg fish/mackerel fish already minced
- 800 grams of tapioca flour
- 500 cc iced water
- 3 tablespoons rice flour
- 2 tablespoons salt
- 4 eggs

- 2 tablespoons seasoning

The process of making pempek is described below:

1. First mixing minced fish meat, eggs, salt, and flavoring. Adding rice flour into them, stirring, and then pouring ice water little by little, stirring again until blended.
 2. After that adding the tapioca flour gradually, stirring slowly, and kneading as necessary until the dough is really blended and easy to shape.
 3. Then taking a handful of dough, shaping according the needed.
 4. And then boiling the pempek that have been shaped in a pan.
 5. After that while boiling, pouring 2 tablespoons cooking oil.
 6. Then wait until pempek float then remove and drain.
 7. Finally frying pempek with heated oil until golden brown color, removing and serving with cuko. For people who don't like fried, after boiled they can be directly edible pempek.
- b. The recipe for making pempek retrieved from (Dapurbunda recipe) in her/his website using ratio of fish meat and tapioca flour (500 grams fish meat : 250 grams tapioca flour or 1 : 0,5). It is described in detail as follows:

Ingredients:

1. 500 grams of fresh fish meat
2. 10 tablespoons ice water
3. 2 1/2 tablespoons wheat flour
4. 150 grams of tapioca flour
5. 2 teaspoons salt

The process of making pempek is described below:

1. Firstly mincing the fish meat until smooth.

2. Then pouring the iced water, and salt. Stirring until the dough is not sticky.
 3. Adding wheat flour and tapioca flour.
 4. Stirring until the dough is not sticky in the hands.
 5. Shaping the dough according to the type pempek.
 6. Finally boiling pempek in boiling water
- c. The recipe for making pempek retrieved from (Indriani, 2011) in her website, she used wheat flour to make pempek that has smooth texture. She used ratio of fish meat and tapioca flour (1 : 0,75 or 1,000 grams fish meat : 750 grams tapioca flour). It is described in detail as follows :

Ingredients A:

- 50 grams of wheat flour
- 200 cc of water
- 2 tablespoons salt
- 2 tablespoons sugar
- 4 cloves garlic, crushed
- 2 tablespoons cooking oil

Ingredients B:

- 1 kg of mackerel meat (meat only / fillet), minced, better after the minced, fish meat is frozen in the freezer first, when it will be used, then it is placed at room temperature
- 200 cc of water
- 2 eggs, stir them, optional if you want a softer texture pempek

Ingredients C:

- 1 kg of tapioca flour, it is usually not used all, sometimes it is only used about 700-800 grams.
- Lots of water to boil pempek

- Oil for frying
- Eggs for tilling of Pempek

The process of making pempek is as following:

1. First ingredients A: Mixing the wheat flour, water, salt, sugar and garlic finely. Stir well. Cooking them in pan with low heat, stir until blended. Pouring cooking oil, stir until blended and store freezer about 30 minutes.
2. Then taking the minced mackerel from the freezer, let it thaws and meat limp back in still cold condition, mixing the water and eggs. Mixing well manually until blended.
3. After that taking ingredients A from the freezer, mixing with ingredient B, and mixing manually until blended.
4. After that adding the ingredients C (tapioca flour) a half portion first, then stirring manually (finger), does not stir too long. Adding another portion, mix again. Stop adding sago if dough is enough and can be shaped.
5. After that the dough is ready to be shaped
6. The last boiling pempek that already shaped in boiling water with a little oil (to prevent sticking to each other)
7. Finally waiting until pempek floating. Remove and drain. Pempek ready to be fried.

2.7 Tips how to make delicious pempek

- a. **According to** (Kesuma, 2008) adding more fish meat than with tapioca flour will have more tasty of pempek, but a maximum adding is 1 : 0.5 (1 kg fish meat : 0.5 kg of tapioca flour). Same as the statement of (Andriansyah, 2012) the use of more fish meat then tapioca flour will influence flavor and

aroma of pempek. The use of more fish meat also will increase the levels of fat, protein, and good taste, but of course the price is more expensive.

- b. According to (kumpulanbuatnanda.wordpress.com) when adding tapioca flour little by little in making pempek don't stirred strong, because it can make pempek have hard texture
- c. (Indriani, 2011) in her website, she used wheat flour to make pempek has smooth texture.