

## CHAPTER II

### LITERATURE REVIEW

In this chapter the writer presents about the information of layer cake, the information of cassava, the information of rice flour, recipe of rice flour layer cake, the function of the ingredients, information of taste, information of texture and information of aroma.

#### 2.1 Layer Cake

Indonesia has many kinds of famous cake such as *Kue Pancong*, *Onde-onde*, *Bika Ambon*, *Kue Cucur*, *Apem*, *Bakpia*, *Lapis Surabaya*, and *Kue Lapis*. Octaviani (2013) said that layer cake (*kue lapis*) is traditional food or cake of Indonesia. Layer cake has layers with many color variation and also interesting taste. The process of making layer cake needs a patience to make layer in every layer levels to be sheer layers of layer cake. Layer cake is easy to find in traditional event of Indonesia, for example, *yasinan*, *syukuran*, wedding party and etc.

Layer cake has different types and ingredients. There are Rice layer cake and Legit layer cake. Bloem in Sompotan (2011) said that *spekkoek* is the first name of layer cake which means layers in Dutch. Indonesian societies make cake by using rice and it is called rice layer cake. Then they do combination to layer cake by put spices and flours and it become legit layer cake.

In addition Yuono (2013) stated that legit layer cake or thousands layer cake in English has original name *spekkoek* which means layer of lard in Dutch, but actually legit layer cake does not contain lard in its main ingredient. Many people love legit layer cake because it has typical taste and unique process of making.

Moreover Kiostips (2012) explains that rice and legit layer cakes have different characteristic. Rice layer cake made of rice flour which also has two or more variation colors and shows rubbery texture. Besides, legit layer cake made

of wheat flour and eggs as main ingredients. Generally, the color is brown and yellow as the layers.

## 2.2 Rice Flour

Rice contains a lot of calories. Suhartiningsih in Ngabito (2014) stated that rice contains 360 calories per 100 grams, 6.8 grams protein per 100 grams. Rice is staple food of almost the entire population of Indonesia. Position of rice as balance food is still high, so someone consumes rice in sufficient quantities definitely has high carbohydrate.

In addition, rice can be processed to be rice flour for cake or food ingredients. Rice flour is main ingredient of rice flour layer cake. Figoni (2008) stated that rice flour is made of the mill rice and can be purchased at specialty stores. Rice flour do not contain gluten, because of that it is often used in making cakes especially traditional cake.

Moreover, Bogasari (2011) explained that rice flour will show good reaction if using steam method, elastic characteristic of rice flour produce cake with soft texture. The other way, cooking by using bake method is not appropriate for cake, it mixed with yeast which is make dough rise, it cause dried texture. Specification of rice flour is as the following:

Table 2.2

### Specification of rice flour

Characteristic	Unit	Regulation
shape	-	Fine powder
Smell	-	Normal
Color	-	White, typical rice flour
fineness (80 mesh)	%	Min. 90
Water contain (b/b)	%	Max. 13
Ash contain (b/b)	%	Max 1.0
Silicate	%	Max 0,1

Ph	-	5-7
Cadmium (Cd)	mg/kg	Max 0,4
Mercury (Hg)	mg/kg	Max 0,05
Arsenic contamination (As)	mg/kg	Max 0,5
Number of total slab	Colony/g	Max. $1 \times 10^8$
Escherichia coli	APM/g	Max 10
Bacillus cereus	Colony/g	Max $1 \times 10^4$
Mold	Colony/g	Max $1 \times 10^4$

Source: (SNI 3549: 2009)

### 2.3 Cassava

Cassava is one of the most strategic crops throughout the tropical world. Cassava provides livelihood for millions of farmers, processors and traders around the world. Cassava, despite its importance as a staple crop and industrial raw material, and its contribution in fighting hunger and poverty in developing countries, has often been neglected in agricultural development policies. (Food and Agriculture Organization of United States, 2001)

Cassava has known in Indonesia with name *Ketela Pohon*, *Singkong*, *Kasepe* or *Ketela*. Cassava also known as staple food because has high carbohydrate and cassava leave can be vegetable. Cassava is the nature local resources in Indonesia. Rukmana (1997) stated that position of cassava in systematic is kingdom *plantae*, divison *spermatophyte*, Subdivision *angiospermae*, Class *dicotyledonae*, Family *euphorbiaceae*, Genus *manihot*, Species *esculenta crantz*.

Cassava has known as the ingredient of traditional food, such as *kripik singkong* and *gethuk*. One of the reasons is because cassava has a lot of nutrition. Nutrition content of cassava per 100g is as the following:

Table 2.3  
Nutrition of cassava

Nutrition	White cassava	Yellow cassava
Calories (kal)	146.00	157.00
Protein (g)	1.20	0.80
Fat (g)	0.30	0.30
Carbohydrate (g)	34.70	37.90
Calcium (mg)	33.00	33.00
Phosphorus (mg)	40.00	40.00
Zinc (mg)	0.70	0.70
Vitamin A (SI)	0	385.00
Vitamin B1 (mg)	0.06	0.06
Vitamin C (mg)	30.00	30.00
Water (g)	62.50	60.00
Edible parts (%)	75.00	75.00

Source: Directorate of nutrition, Healthy Department of Indonesia (1989)

#### 2.4 Recipe of rice flour layer cake

Rice flour layer cake has several ingredients which each ingredient has its own function in order to produce delicious cake. Dony (2014) from his website <http://infooresep.blogspot.com/2014/10/resep-kue-lapis-tepung-beras.html> stated that making rice flour layer cake is easy and price of ingredients is cheap.

Rice flour layer cake ingredients:

- 200 gram rice flour
- 100 gram tapioca flour
- 750 cc coconut milk
- ¼ teaspoon of salt
- 2 leaves of pandan leave
- 250 gram of sugar
- 3 colors of food coloring

Furthermore Dony (2014) explains procedure to make rice flour layer cake are firstly, prepare ingredients such as coconut milk, salt, pandan leave. Then, boil those ingredients and stir slowly. After that, mix rice flour, sugar and tapioca flour in another bowl, then pour the coconut milk bit by bit until the batter get smooth. After that, separate the dough in three parts different bowls, give different color of food coloring for each part, then stir. After that, prepare a cake pan, grease with oil to prevent sticking. Next, pour the first batter into the cake pan, then steam the batter. After that, continue to the second and the third layers one by one and then steam. If all the layers are in the pan, steam one more time until completely cooked. Last, serve layer cake in the plate.

The writer uses Dony's recipe as the reference to write this report. However, the writer adds grated cassava in to the ingredient and finds the composition of rice flour layer cake with additional grated cassava.

## **2.5 Function of the ingredients**

### **2.5.1 Rice flour**

Rice flour has about 6.5-7 protein and does not form gluten. For people who do not tolerate gluten, rice flour is an acceptable substitute for wheat, barley, rye or oat flours.

### **2.5.2 Tapioca flour**

Tapioca contains white starch granules, odorless and tasteless and has a shiny appearance. Tapioca has properties that easily expand in hot water so as to produce the desired viscosity. Tapioca flour made of cassava starch. It is similar with sago flour that made of the starch of sago trunk, but sago flour is drier. Tapioca is also widely used as thickeners, fillers and materials binder in the food industry, such as in puddings, soup, baby food, ice cream, sausage meat processing, etc.

### **2.5.3 Sugar**

Sugar gives cakes and other baked products sweetness and is used in many forms and many ways. In yeast raised products, sugar acts as food for the yeast. In cakes, sugar assists with the aeration and stabilizing of batters. Sugars improve the

crust color of baked products, improve flavor and help to retain moisture, keeping products softer for longer and so reducing staling. Examples of sugar forms are granulated sugar, castor sugar and icing sugar. Sugar also comes in liquid forms such as syrup, treacle, corn syrup, honey and caramel.

#### 2.5.4 Salt

Salt is used to enhance the flavors and sweetness of other ingredients in food. If salt is omitted or reduced, other spices or flavorings in the recipe should be increased slightly. In yeast dough, salt slows yeast fermentation. Omitting or reducing the amount of salt in yeast dough can cause the dough to rise too quickly, adversely affecting the shape and flavor of bread.

#### 2.5.5 Coconut milk

Coconut milk is made from soaking shredded coconut in water and straining through cheesecloth to separate. Coconut milk is commonly used in Asian and tropical recipes and drinks. For recipes that call for milk or cream, you can substitute coconut milk. Using coconut milk is an option when cooking for someone lactose intolerant. It is also an option for those seeking to impart a coconut flavor to baked goods and cream sauces. Because of the coconut flavor, substituting coconut milk in all recipes is not feasible.

#### 2.5.6 Pandan leaves

Pandan leaves derived from fragrant pandan plant, member's screwpine genus native to Southeast Asia. These plants are perennial shrub has a fan-shaped cluster of long, with narrow leaves and produce a strong odor when wilt. Fresh pandan leaves only have a slight scent. Pandan leaves have been widely used in the world of cooking, even in the household. Pandanus trees also allows for growing in pots, to decorate the yard. Pandanus plant leaves have a sweet taste, aroma when used in cooking produces sweet. Cooking pandan leaves tied into a knot and put in the soup to cook or cut for use in, puddings, beverages and other foods. Furthermore pandan leaves are often used together coconut milk, lemongrass, glutinous rice and sugar. Pandan leaf extract is available at specialty food stores ethnic beyond the reach of the original leaf.

### 2.5.7 Food coloring

Food coloring, or color additive, is any dye, pigment or substance that imparts color when it is added to food or drink. They come in many forms consisting of liquids, powders, gels, and pastes. Food coloring is used both in commercial food production and in domestic cooking. Due to its safety and general availability, food coloring is also used in a variety of non-food applications including cosmetics, pharmaceuticals, home craft projects and medical devices.

## 2.6 Taste

Soekarto in Puspita (2014) stated that the taste is one of the factors determining the quality of food related to the sense of taste. The taste of delicious food is the attraction of food for consumption

Moreover Civile and Szczesniak (1973) taste is the sense by which certain properties are perceived through taste buds on the surface of tongue. The four basic tastes are salty, sweet, and bitter

## 2.7 Texture

Busyro (2013) stated that texture is one of the properties of materials or products that can be felt through the skin touch or tasting. Some properties of texture can also be estimated by using the eye (blinking) such as smoothness or hardness of the surface of the material or fluid viscosity. While the voice / sound can be estimated texture of crackers (crisp food). Basic types of textures are real texture and visual texture.

Real texture is a texture that is real and can be felt by touch. Visual texture is a texture that is only visible to the eye.

Food texture properties include:

- Smooth-strong-rough
- hard-crisp-fragile
- Soft-chewy-tough
- Sandy-gummy
- Watery-viscous

- Sticky
- Soft-sandy-coarse-grained
- Moist-dry-wet-aqueous
- Fatty-oily

Moreover Civile and Szczesniak (1973) explained that texture is the sensory manifestation of the structure or inner make-up of foods. It perceives in the sense of the skin (tactile) and muscles (kinesthetic).

Szczesniak in Civile and Szczesniak (1973) Texture characteristics have been divided into three groups:

- a. Mechanical characteristics related to the reaction of the food to stress. These are measured by the sense of kinesthetic which is the sensation of position, movement, and tension of parts of the body perceived through nerve end organs in muscles, tendons, and joints.
- b. Geometrical characteristics related to the arrangement of the physical constituents of a food such as size, shape, presence of fibers, and soft lumps or hard particles. These are perceived by the sense of touch (tactile) in the skin of tongue, mouth cavity, and throat.
- c. Other characteristics related to the moisture and fat content of the product and the manner of release. These are perceived by the tactile nerves in the mouth cavity

## **2.8 Aroma**

Aroma is one of the fascinations of foodstuffs for consumption, compounds that produce aromas must be vaporized and the molecules of the compound are in contact with the receiver. The aromas that evaporate will be accepted by the olfactory cells in the nose and followed to the brain in the form of electrical impulses (Setiyaningsih et al., in Agusandi : 2014).

Moreover Moehyi in Puspita (2014) explained that aromas incurred each food are different. The emergence of the food aroma is caused by the formation of volatile compounds. In addition, different cooking methods will lead to different scents



According to Kartika in Puspita (2014) there are some classifications of aroma based on mixture of aroma, which main aroma are fragrant, sour, rancid, and charred.

The classifications are as following:

1. Aroma of herbs (cloves, cinnamon, nutmeg)
2. Aroma of flowers (jasmine, rose, jasmine)
3. Aroma of fruits (orange, strawberry)
4. Aroma of resin (turpentine)
5. Aroma of foul (rotten protein)
6. Aroma of roasted (burnt objects)