CHAPTER II
LITERATURE REVIEW

2.1. The Information of Cassava

Cassava is one of the most strategic crops throughout the tropical world. It is an essential part of the diet of more than half a billion people and it 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, 2004)

Table 1: Major cassava producing countries in the world in 2006

Region	Country	Production (thousand t)	Area (thousand ha)	Average yield (t/ha)
Africa	Nigeria	45,721	3,810	12.0
	Congo(ex Zaire)	14,974	1,846	8.1
	Mozambique	11,458	1,105	10.4
	Ghana	9,368	790	12.2
	Angola	8,810,	757	11.6
	Tanzania	6,500	670	9.7
	Uganda	4,926	379	13.0
	Benin	2,524	173	14.5
	Madagascar	2,359	389	6.1
	Cameroon	2,100	350	6.0
Asia	Thailand	22,584	1,071	21.1
	Indonesia	19,928	1,223	16.9
	Vietnam	7,714	475	16.2
	India	7,620	242	31.4
	China	4,318	266	16.2
	Cambodia	2,182	96	22.6
	Philippines	1,757	204	8.6
	Malaysia	375	38	9.9
	Sri Lanka	226	24	9.6
	Myanmar	207	16,5	12.5
America	Brazil	26,713	1,902	14.0
	Paraguay	4,800	300	16.0
	Colombia	2,000	180	11.1
	Peru	945	86	11.0
	Venezuela	489	41	11.7

	Cuba	450	80	5.6
	Bolivia	374	37	10.1
	Haiti	327	71	4.6
	Argentina	176	18	10.0
	Ecuador	100	23	4.4

Source: www.fao.org (2007)

Cassava (*Manihot esculenta*) first became known in South America, and then developed in Brazil and Paraguay. Cassava is grown commercially in Indonesia during the reign of the Dutch East Indies around 1810 after previously introduced by the Portuguese in the 16th century to the archipelago. In plant systematic, cassava including class *Euphohorbiaceae Dicotyledonae* and includes family, genus *Manihot* which has 7,200 species. (Salim, 2011).

2.2. Flour

According to Pauli (1979), there are several flour which often used in the manufacture of pastry and bakery products, such as:

2.2.1. Bread Flour

Bread flour is hard-wheat flour with about 12 percent of protein. Bread flour is used for a yeast-raised of bread dough because it produces more of the gluten than the dough which made with other flour. Enough gluten can produce shiny bread with good volume. Products that produced by this flour are French bread, sweet bread, doughnut etc.

2.2.2. Cake Flour

Cake flour is soft-wheat flour that contains 7.5 percent of protein. Low of gluten causes the product has a soft and crumbly texture. The products that produced by this flour is marble cake flour, lapis Surabaya, rainbow cake etc.

2.2.3. All-purpose Flour

All-purpose flour is flour containing 10.5 percent of protein. It is medium protein flour, which can be used for all purposes baking. The products that produced by this flour are Pancake, roll cake, waffle etc.

2.2.4. Rice Flour

Rice flour has about 6.5 -7 percent of protein and does not form a gluten. For people who are allergic to gluten, rice flour is an acceptable substitution. The products that produced by this flour are rice channa flour, Chinese pancakes, spring roll etc.

2.3. The Information of Brownie

2.3.1. Definition of Brownie

Brownie cake is a cake that has a somewhat hard and dense-textured. It is brown blackish and has a taste of typical dominant chocolate (Sari, Lukman and Aisman, 2012). Brownie is a kind of cake made of chocolate, and can be made through steamed and baked process. In this study the author choose to conduct research with the steamed Brownies.

2.3.2. Kinds of Brownie

Brownies can be categorized into two, namely baked brownies and steamed brownies. Based on research from Saragih (2011), generally there is no the differences between them. The difference is in the content of water in it. Steamed brownies have higher water content than baked brownies. When viewed in the terms of taste, a baked brownie is more savory. However, in the terms of health, steamed brownies is healthier because it does not form of free radicals as a result of baking process.

According to Yuliastuti (2014, p. 09), Baked brownie is a brownie that has dry texture and dense but still soft when enjoyed. A steamed brownie is a brownie that has more porous texture, moist and soft when enjoyed. It is use a creaming technique.

2.3.3. Recipe of Brownie

Hj. Sumiwiludjeng is a founder and the owner of brownies Amanda. Hj. Sumiwiludjeng states that there are the best ingredient to make brownie such as, wheat flour, sugar, eggs, condensed milk, margarine, chocolate paste, chocolate powder, vanilla extract, and salt.

2.4. The Ingredients of Brownie

2.4.1. Wheat Flour

Wheat flour is an important ingredient in making a pastry product. Flour can produce a large amount of the cake. Include bread, cake, and biscuit. Many home-based chefs rely on a product called all-purpose flour, but a professional baker has more knowledge about the type of flour that has different qualities and characteristics. (Wayne, 2009).

2.4.2. Sugar

Sugar serves as a sweetener of the cake batter. Sugar is also useful to smooth the cell structure, to give color of the crust, keep the moisture, to extend the shelf life, and to softening the cell structure (Faridah, 2008). Sugar used in the manufacture of cake is refined sugar or granulated sugar. Using refined grains sugar produces flat and soft cake. The sugar can be used of applying creaming or sponge technique. (Hamidah, 1996, p. 117).

2.4.3. Egg

According to Figoni (2008), the egg has an important role in the culinary field, especially in the manufacture of pastry. It has function to maintain and provide the structure of pastry products. It can thicken cream and custard such as pastry cream, crème anglaise, and custard. It also act as leavening agent. It can produce can produce foam with the aim to develop the batter when baking in the oven. Egg also

function as emulsifier. Egg yolk can keep the fat and water from the separation or rupture.

According to Sudaryani (2003), the egg has high protein content and has a complete protein composition, but the fat is also high.

2.4.4. Condensed Milk

Condensed milk, or more commonly called sweetened condensed milk is a kind of milk which removed the water and added sugar. It is very sweet milk and durable for a year if it is not opened. Sweetened condensed milk is often added to desserts, such as iced drinks and cake. (Achmadi, 2012)

2.4.5. Margarine

Margarine is a blend of butter. It is made from vegetable fats. Margarine can be used in the same amount of butter as long as the water content is noticed. Margarine is used to make a durable cake. It can add a nutritional value content, and provide flavor and also to create a soft and delicious taste.

2.4.6. Chocolate Paste

Chocolate paste is a paste shaped food products made of a mixture of cocoa powder, sugar, and cocoa butter with or without the addition of other foodstuffs. This paste is added to the cake with the aim of improving the taste and more powerful to the aroma. Such as chocolate cake. Uses a block of chocolate or cocoa powder, with added a chocolate paste then the color will be brown and the aroma more powerful.

2.4.7. Chocolate Powder

Chocolate powder has strong scent and not moldy. Dark chocolate powder serves as dough dryer.

2.4.8. Vanilla Extract

Vanilla extract which is added to the cake dough is used to give a flavor to the cake. (Bogasari, 2011)

2.4.9. Salt

Salt is used to generate the taste of other ingredients of cake. Instead of having to reduce the sugar in cake recipes, salt can be used as a regulator of sweet if cake is too sweet. It can hold the moistness of cake and can lower the temperature of cake batter. Salt can help to attain good cake's crust.

2.5. The Quality of Food

The quality of food is influenced by appearance, taste, aroma, texture, temperature at the time served, food color, and character meals. Pauli (1979, p. 11) states that the quality of food is influenced by:

2.5.1. Presentation

An attractive presentation of food will raise the appetite, so that there will be a desire to enjoy it.

2.5.2. Taste and flavor

The aroma of delicious foods can cause a desire to taste the food. Flavor and aroma of the food that served should be in accordance with the main ingredient, seasoning and sauces that used in processing.

2.5.3. Texture

Good texture of food is accordance by the types of food. The method of Cooking can affect the texture.

2.5.4. Temperature

Temperature of serving the food should be in accordance with the food's type temperature, for example hot food was served hot or cold food was served cold.

2.5.5. Color

An interesting food's color, fresh and natural will create the appetite than a burnt or pale food.

2.5.6. Character

To distinguish the type of one food with the other, each food should have the distinctive character or characteristics, such as flavor, aroma of the food, garnish, sauces, as well as the texture of the food.