

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1 The Brief Description of Red Dragon Fruit Origin**

Red dragon fruit is a tropical fruit. According to Bowman (2008), red dragon fruit (*Hylocereus costaricensis*) or *pitaya* is one kind of cactus that is came from Mexico, United States, and South of America, then brought to Indochina (Vietnam) as ornamental plant because it has unique shape, beautiful flower, and red shiny fin fruit. Further, Rizal (2015) claims that red dragon fruit is suitable with the tropical climate, for example Vietnam and Thailand, they become the largest producer of dragon fruit. In Indonesia, red dragon fruit is not widely known because the plants is still less and difficult to obtain in traditional markets, it is also due to red dragon fruit is classified as new cultivation type (Winarsih, 2007). This fruit began to enter Indonesia around the year 2000 and imported it from Thailand, then it is cultivated into agriculture crops in some areas like Yogyakarta, Malang, Mojokerto, and Jember (Purba, 2007). Now, Red dragon is often cultivated in Indonesia because it has its own advantages, namely has a larger size, more attractive meat color, and many nutrients containing in it (Gusti, 2011).

##### **2.1.1 The Nutrition Fact of Red Dragon Fruit**

Red dragon fruit contains many nutrition. According to Cahyono (2009) and Kristanto (2009), the nutrition in every 100 gram of red dragon fruit contains 82,5-83 gram water, 0,21-0,61 gram fat, 0,15-0,22 gram protein, 0,7-0,9 gram fiber, 0,01 mg carotene, 8,8 mg calcium, 31,6 gr phosphor, 0,55-0,65 mg iron, 11,5 gram carbohydrate, 9,61 gram sugar, 60,4 gram magnesium, and also Vitamin B1, B2, and vitamin C. Not only that, red dragon fruit also contains high of antioxidant. All antioxidant compounds can act as substances that delay or prevent the oxidation of cellular oxidisable substrates because by reactive oxygen species (Ajila *et al.*, 2007). With this composition, red dragon fruit believed as beneficial fruit to balance blood glucose, prevent bowel cancer, protect oral health,

decrease cholesterol, strengthen kidney and bone function, prevent bleeding so that can increase endurance overall (Hardjadinata, 2010).

### **2.1.2 The Benefits of Red Dragon Fruit**

Since red dragon fruits rich in nutrients, it may deliver some great benefits to the body. Red dragon fruit has a sweet taste and tasteless. With a sweet taste, that makes many people captivated. Enjoy dragon fruit in various forms is exquisite for health and beauty. Based on Syakira (2016), there are six benefits of red dragon fruit for beauty:

#### *1. Smooth and Moisturize the Skin*

Red dragon fruit contains vitamin B3, which is very useful to moisturize the skin and make the skin smooth evenly.

#### *2. Preventing Premature Aging*

Benefits of the red dragon fruit for beauty in preventing premature aging. This sweet red fruit contains a lot of vitamin E and beta-carotene which serves as inhibiting the growth of malignant cells that are free from premature aging.

#### *3. Prevent and Eliminate Acne*

Benefits of red dragon fruit are also good for preventing acne and remove acne. The trick is to smooth the dragon fruit or blend. Enter half a glass of water and strain the pulp. Take the dragon fruit and apply on face and neck evenly. Perform this treatment regularly one time a week.

#### *4. Drug Burns*

Burned skin will remove your beauty if people are experiencing this problem immediately overcome with a red dragon fruit. Dragon fruit peeled and took the water. Add one tablespoon of honey and one tablespoon of lemon juice. Combine ingredients perfectly and apply on burns. Perform two times a day.

Red dragon fruit is not only good for beauty alone but also good for health. It is in line with Angie (2016) that have explained 21 benefits that provided by red dragon fruit:

#### *1. Promotes Healthy Digestion*

Red Dragon fruits contains some amount of fiber which can give benefit to the digestion. Benefits of promoting healthy digestion is common in most fruit but red dragon fruits certainly can maintain healthy digestion and prevent inflammation that happen in the digestion tract.

## *2. Prevent Constipation*

Fiber is not only make digestion system healthy but it also improve bowel movement and facilitating the stool to pass the large intestine easier. Fiber in red dragon fruits add more bulk to stool and prevent constipation.

## *3. Fight Cancer*

Red dragon fruit contains more antioxidant and pigments which greater than antioxidant in other types of dragon fruit. The red dragon fruit contains Vitamin C and lycopene which can prevent from certain disease such as cancer, especially prostate cancer. A study which published in the Asian Pacific Journal of Cancer Prevention reported that consumption of some amount of lycopene everyday can decrease the risk of prostate cancer.

## *4. Boost Immune System*

The red dragon fruits contain high amount of vitamin C which can boost immune system function. Consuming red dragon fruit provides the body not only with Vitamin C but also other phytonutrients and antioxidant that have significant effect in supporting immune system function especially in fighting disease and free radical damage.

## *5. Prevent Diabetes*

Benefits of Red dragon fruits contain fiber which can stabilize the blood sugar level in blood. It is also consider as food with low glycemic index. Consuming food with lower GI or glycemic index can give benefits to the body and it make the insulin can work properly while high GI food can promotes insulin resistance and trigger the development of diabetes.

## *6. Prevent Heart Disease*

Heart disease is number one disease that should be aware by all people. It is the first leading because of death based on World Health Organization (WHO) data. Red dragon fruit contain fiber that can reduce bad cholesterol amount in

blood and protect the blood vessel lining from cholesterol effect which can increase the risk of heart disease. The antioxidant in red dragon fruit also play important role in keeping the heart from oxidative stress that becaused by free radical damage.

#### *7. Slower Aging Process*

Everyone want have healthy and young life, by consuming red dragon fruit it won't be impossible. Red dragon fruit is completed by numerous amount of antioxidant that can slower the aging effect in the body. For information, aging that happen in human body is mostly becaused by free radicals effect.

#### *8. Maintain Cholesterol Level*

Cholesterol or also known as Low Density Lipoprotein (LDL) is type of fat which consider as bad fat. The excessive amount of cholesterol will because several problem such as atherosclerosis or arteries wall thickening. The cholesterol will enter the blood vessel lining and make the arteries narrower. When the arteries got thickened, the blood will flow in high pressure which is dangerous and can because stroke as well as heart disease. Red dragon fruits contains high amount of fiber that can lower the cholesterol level within the blood. The fiber will bind the cholesterol and get it rid of the body.

#### *9. Help in Weight Lost*

If people want to have snack but worry if they are gaining more weigh, they can just try to consume red dragon fruit. Red dragon fruit contain high fiber that will make the stomach feel full and satisfied. It prevent people from early hunger and reduce the fat cell in the body.

#### *10. Promotes Healthy Hair*

Red dragon fruit juice can enhance hair beauty. Just apply some juice of red dragon fruit on scalp and hair stem or use it as hair mask. Red dragon fruits contains high antioxidant and more nutrients that can enhance the color of the hair and make it smooth.

#### *11. Prevent Acne*

Acne is one of the most annoying thing that can be experienced by many people especially teenagers. Acne occur mostly on face and it is becaused by

the infection of P. Acne bacteria and clogging pores. Red dragon fruit flesh can be ground or mashed then used as face mask to prevent and treat acne. Red dragon fruit contains antioxidant and anti-inflammatory properties that can fight bacteria infection and cleaning clogged skin pores.

#### 12. *Maintain Healthy Skin*

Drinking red dragon fruit juice everyday not only will make you healthy but will make your skin glowing and firm. High antioxidant content in red dragon fruit can prevent the free radicals effect on skin which can because wrinkle and dullness. The vitamin C in red dragon fruit is also beneficial to brighten skin and get rid of dullness.

#### 13. *Treat Sunburn*

Red dragon fruit contain vitamin B3 that can help to moisturize the skin and release the heat which because by sunburn. If people are getting sunburn and feel pain just mix the red dragon fruit juice with some cucumber or aloe vera. This mixture will surely make skin feel better.

#### 14. *Repair Body Cell*

Red dragon fruit also contains protein that can help the body in regenerate and repair body cell. Protein is main building block of almost all body organ and lack of protein can because several problem such as slower healing process.

#### 15. *Prevent Anemia*

Iron is vital mineral which is required in keeping normal red blood cell number and function. Lack of iron can because anemia and it will make people weak whole day. Eating some amount of red dragon fruit flesh provides people with iron and prevent the body from anemia.

#### 16. *Maintain Strong Bones*

Red dragon fruit contain several number of calcium that can help to protect the bone mass and prevent from osteoporosis. Osteoporosis usually happen to elderly people especially women, this is why It is suggested that women who have experience menopause should consume red dragon fruit regularly

#### 17. *Reduce Arthritis Pain*

Arthritis is a common symptoms of autoimmune disease which affected the joint. Autoimmune disease is a condition where the body has greater amount of immune cells and those immune cells consuming healthy cells in the body. Red dragon fruit contain anti-inflammatory properties which can reduce the symptoms of arthritis and relieve the pain.

#### 18. *Improve Appetite*

It is believed that red dragon fruit can treat stomach upset and get rid of discomfort feeling in stomach also increase the appetite.

#### 19. *Improve Vision*

Red dragon fruit contains beta carotene and other plant pigment which can protect the eye from free radical effect and prevent eye from developing certain disease such as cataract and macula degeneration.

#### 20. *Improve Brain Function*

Brain is one of the vital organ in the body. It is known that red blood cells contains vitamin, mineral and other phytonutrients that can protect brain from damage and promote healthy nerve function.

#### 21. *Fasten Healing Wound*

Red dragon fruits health benefits is best for healing wound in fast ways. If people getting cut on skin or having wound, rubbing some red dragon flesh juice on skin can fasten the healing wound process. Drinking red dragon fruit also can help to heal the wound faster from inside.

Based on experts' opinions above, it can be conclude that red dragon fruit is a healthy food that can be eaten by everyone. It contains so many nutrients that has really good function for human body especially for beauty and health, such as smooth and moisturize the skin, prevent and eliminate acne, boost immune system, prevent diabetes, prevent heart disease, maintain cholesterol level, and improve brain function.

## 2.2 Information about Traditional Cakes

Indonesia is one country that has a wide range of traditional cakes simple. Various types of traditional Indonesian cakes taste good and tasty but it looks simple. Most traditional Indonesian cakes is using very simple ingredients, so it is quite easy to make (Respati, 2016). Each area in Indonesia have different variety foods, such as appetizer, dessert, snack, and main course. Besides the normally main course, Indonesia people also like to eat snack which in Indonesia often called as *gorengan* or *kue*. *Gorengan* is Indonesia fritter usually fried in ample hot cooking oil. *Kue* in Indonesian language is used to refer to not only these kinds of traditional snack, but also all types of cake and some types of pastries. *Kue* are more often steamed than baked and normally have sweet taste, but some are savory (Wita, 2015). However, there are so many traditional cakes in South Sumatera province especially in Palembang region like *maksubah*, *lapis legit*, *kue delapan jam*, *kue gandum*, *kue lumpang*, *srikayo*, and etc.

### 2.2.1 Kinds of traditional cakes from Palembang

There are kinds of traditional cakes from Palembang:

#### 1. Kue Gandus

*Kue Gandus* is one of traditional cake from Palembang. It has a basic ingredient of rice flour which is a sprinkling with dried shrimp, celery, fried onions, and red chili at the top (Anonymous, 2016). It is in line with Nasirullah as described that:

*“Kue gandum terbuat dari dari bahan tepung, sedangkan santan kelapa dan daun pandan untuk pewangi dan tambahannya sehingga kue gandum sangat cocok dihidangkan sebagai makanan pembuka (Nasirullah, 2014).”*

Translation:

*“Kue gandum is made from rice flour as base material, while coconut milk and pandan leaves for fragrance as additional ingredients. So this cake is very suitable served as an appetizer.”*



Picture 1. Kue Gandus

## 2. Srikaya

Selvi (2015) says that:

*“Srikaya dapat dikatakan makanan yang sangat lekat dalam kehidupan masyarakat Palembang. Panganan ini hanya terdiri atas gula, santan, dan telur ini selalu menjadi pelengkap dalam setiap prosesi adat.”*

Translation:

*“Srikaya is one of the characteristic food from Palembang and it contains only sugar, coconut milk, and eggs that always served in every custom procession.”*

*Srikaya* has a green color and the shape like a pudding. The basic ingredient of this cake are eggs and pandanus. Usually eaten with white sticky rice and delicious in a cool that has sweet taste (Riyanto, 2008)



Picture 2. Kue Srikayo

## 3. Kue Lumpang

Rahmawati (2016) explains that:

*“Kue lumpang juga memakai tepung beras dalam pembuatannya dengan campuran santan, gula pasir, garam, dan pasta pandan sebagai pewarnanya. Disebut lumpang karena bentuknya yang mirip lumpang yaitu wadah untuk menumbuk padi, kopi, dan biji-bijian lainnya tetapi memiliki tekstur yang lembut dengan rasa yang gurih dari tapuran parutan kelapa.”*



Translation:

“Kue Lumpang also uses rice flour as the basic ingredient with coconut milk, salt, and pandanus pasta that is made the dark green color. The cake called *lumpang* or mortar because it looks like a mortar to pound rice, coffee or other grains but it has smooth soft texture and sweet taste with savory coconut at the top.”

Besides the green color, Bernard (2017) have explained that *kue lumpang* are usually made with three different colors, such as white, brown, and also green. The white cake usually only use sugar, brown cake is using Javanese sugar, while the green cake using pandan leaves.



Picture 3. Kue Lumpang

### 2.2.2 Basic Ingredients of making Traditional Cakes

Making traditional cakes can not be separated from materials that contain traditional elements as the basic ingredient. There are several ingredients which often used in manufactured of traditional cake products, such as:

#### 1. Rice Flour

This flour is made from rice and has white color. It has two kinds of rice flour such as glutinous rice flour and glutinous free rice flour. Baking Bites (2012) have explained that rice flour is commonly use in gluten free baked goods to give them structure and substances, but it is also popular addition for non gluten free baked goods because of its unique and slightly sandy texture. For instance, a small amount of white rice flour in buttery shortbread extra tender and crumbly. The use of rice flour is usually as base ingredients for making *rice vermicelli*, *mochi*, *sumsum*, etc. (Food Service Today, 2014)

## **2. Coconut Milk**

According to Ekanayaka (2013), coconut is consumed in two main forms in Asian countries, such as grated coconut and coconut milk. Grated coconut is used mainly in the preparation of “salad” of the “sambol” type and coconut milk is used extensively in preparation of curries. In cake manufacture, the use of coconut milk as a liquid ingredients can be used in room temperature or to hot. Coconut milk is replacing milk in producing bakery or pastry, which is a reduction in production costs and wider the customer segmentation (Pakaroti.com, 2015). The fat in every 100 ml coconut milk contains 34,3 gram in thick coconut milk and 10 gram in coconut milk.

## **3. Pandanus Leaves and Paste**

Pandan (Scientific Name: Pandanus, also known as screw pine or palm pine) is known as “fragrant plant” because of its unique, sweet aroma. Scmidth (2016) says that Pandan leaves are used to lend a unique taste and aroma to some savory dishes, but mainly it is used to flavor desserts and some drinks and also can be used to wrap foods. While pandan paste is used in cakes and dessert and also imbues foods with a bright green color which is not all natural because food coloring is usually added inside it.

## **4. Egg**

According to Sudaryani (2003), eggs are the farm products contributed most to the achievement of community nutritional adequacy. Eggs are easy to digest and have excellent nutrition so eggs become an ingredient that affects the result of bread and pastry dough. The function of egg in the dough can add color and nutritive value, provide structure, aeration, flavor, and moisture (Alfarizi, 2016).

## **5. Glutinous Rice Flour**

Glutinous rice requires the least amount of water to cook. Because it breaks down easily, it is often soaked and then steamed instead of boiled. Although it

does not sweet, it is called sweet rice because it is often used to make dishes in Asia (Christine, 2014).

## **6. Javanese Sugar**

In Indonesia, there are two kinds of sugar such as granulated sugar and *gula merah* or *Javanese sugar*. Javanese sugar is often used as sweetener of healthy foods and drinks. It contains fewer calories than granulated sugar. This sugar only exist in Indonesia and made from processing *nira*. *Nira* is a liquid that comes out of palm type trees (Dyah, 2016).

## **7. Margarine**

The function of margarine in pastry is how the pastry becomes light and crunchy. As the butter or margarine is folded into the dough it makes pockets. Once the pastry is heated the butter melts out into the dough leaving the space it once occupied as a solid (Jssonger, n.d.).

## **8. Salt**

Salt is usually only added in very small amounts to baked products, but it has a noticeable effect on the flavor of baked products. It not only provides its own flavor of baked products but brings out the natural flavor of other ingredients. It is also a good preservative as it absorbs water so there is less free water for bacterial and fungal growth (Bakeinfo.co.nz, 2016).

## **2.3 Recipe Book**

Recipe is the knowledge of how to cook by knowing the obstacle and the way how to do it. It can be also define as the instruction about how to cook complete with the ingredients and the amount of them, how to cook them at how to serve them (Leoni, 2015). The main point of recipe book is as the complete instruction of cooking including the way of choosing, preparing, cooking and the nutrients of the ingredients. To make a recipe according to Destia (2016), there are six formula of designing recipe book; Write the dish, tools, the ingredients, the steps or

instructions how to cook clearly and concisely, and how to serve it. It is similar with Suhaerik (2015) mentioned three purposes of recipe book such as to know the basic processing food, whether for daily cuisine or occasional cuisine, to develop the current recipe with the new one, and to add the knowledge about food by looking the differences and similarity. In conclusion, recipe book must contains the name of the dish, the ingredients, the tools, the process step by step and the serving. Not only that, recipe book must contains complete guidance about the proper ingredients and the clear and complete steps.

## **2.4 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:

### **1. Presentation**

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

### **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.

### **3. Texture**

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

### **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.

### **5. Color**

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

## **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.