CHAPTER II
LITERTURE REVIEW

2.1 Ingredients Review

According to (Sedoaoetama, 2010) vegetables are food ingredients derived from plants. Parts of plants that can be made into vegetables include leaves (most vegetables are leaves), stems (carrots are stem tubers), flowers (banana heart), young fruit (pumpkin), so that it can be said that all parts of the plant can be used as vegetable food.

Even though it doesn't taste as good as animal food, vegetables need to be consumed every day so that our bodies stay healthy because they contain not only nutrients that are important for the health of the body, such as various kinds of vitamins and minerals. Some vegetables also have tremendous benefits for the body, namely being able to lower cholesterol, sugar levels, prevent causes of cancer cells, heal stomach ulcers, as antibiotics, reduce rheumatic attacks, prevent diarrhea, cure headaches and so on (Sjahmien, 2017).

According to Carotene and vitamin C found in vegetables play an important role as antioxidants to overcome free radical attacks that cause cancer. Vegetables also contain high dietary fiber to prevent constipation, diabetes mellitus, colon cancer, high blood pressure and others (Yuliarti, 2008).

The main nutritional content of vegetables can be grouped into the following:

- Carbohydrate sources such as potatoes, corn and green vegetables.
- Fat sources such as ripe seeds, some nuts and cucurbits (pumpkin).
- Protein sources such as peas, beans, sweet corn, and cabbage.
- Sources of Provitamin A include carrots, sweet potatoes (yellow or orange flesh), red chilies, peas, green leafy vegetables, and green beans.

- Sources of Vitamin C such as cabbage, tomatoes, young bean seeds, and various leafy vegetables.
- Mineral sources such as cabbage and most other leaf vegetables. Vegetables can be processed into various kinds of food, from snacks to heavy meals, but many children still assume that vegetables are definitely related toheavy food when there are many innovations in making vegetable-based snacks, in this case the research will make vegetable candy products that become practical food for children so that they are more preferred. Besides healthy vegetables, practical vegetables are also becoming a trend. Vegetables that are practical really help consumers who have limited time. Product concepts such as fast and simple, take and out, grab and go, frozen food, bite size, to microwaveable are loved by busy people. Breakfast cereal products with the concept of meal to go, lunch to go, nutrition bar are not only practical but nutritious, besides that candy is a product that is liked by the general public, children to adults.

2.1.1 Carrots

Indonesia is an agricultural country that has very high yields of vegetables and fruits such as carrots (Daucus carota). Carrot (Daucus carota) is a vegetable plant that is grown all year round, especially in mountainous areas where the air temperature is cold and humid, approximately at an altitude of 1200 meters above sea level. Carrot plants need sunlight and can grow in all seasons. (Anonymous, 2010)

Carrots are famous for their high content of vitamin A in them. Apart from vitamin A, carrots also contain other vitamins such as vitamins B and E. Carrots contain vitamin A which helps maintain eye health. The other main ingredient of carrots is Beta-carotene, after you eat carrots, the beta-carotene that enters our digestion will be converted to vitamin A. Several studies show that beta-carotene can ward off cancer-causing free radicals.

Fresh carrots contain water, protein, carbohydrates, fat, vitamins (beta carotene, B1, and C). Beta Carotene has benefits as an anti-oxidant that maintains health and inhibits the aging process. Beta Carotene can prevent and suppress the growth of cancer cells and protect polyunsaturated fatty acids from the oxidation process.

Apart from being used as food and medicine, carrot tubers can also be used for cosmetic purposes, namely to treat facial and skin beauty, nourish hair, and so on. Carotene in carrot tubers is useful for keeping the skin moist, and slowing down the appearance of wrinkles on the face, so that the face always looks radiant (Cahyono, 2002). According to Aprilia (2011) the complete nutritional content of carrots can provide benefits for the treatment of various types of diseases, including:

- Good For Vision Carrots contain high beta carotene and are very good for eye health, help prevent night blindness and improve weak eyesight.
- Preventing Cancer The high content of beta carotene in carrots can prevent cancer because of its antioxidant properties which work against cancer cells.
- Preventing Stroke Anti-stroke properties arise due to the activity of beta carotene and fiber which prevent cholesterol deposits in the blood.
- Lowering Blood Cholesterol Carrots contain high fiber and are good for lowering cholesterol in the blood.
- Preventing Hypertension The high fiber content of carrots can reduce high cholesterol levels in the blood, which is the main factor causing hypertension. In addition, the potassium content in carrots also helps treat hypertension.
- Prevent Diseases of the Digestive Tract High fiber content in carrots is useful for preventing constipation (constipation), hemorrhoids, reducing the risk of colon cancer.

Based on the composition of the nutrients contained in carrots, each nutrient has benefits for the human body. These benefits include:

- Carrots contain high amounts of vitamin A, so this is very beneficial for maintaining healthy eyes. All of the visual pigments in the eye come from proteins that contain vitamin A.
- The nutritional content of carrots in the form of beta carotene has a very extraordinary function against free radicals which often cause dangerous diseases such as cancer. In addition, beta carotene is also very useful for reducing the risk of prostate cancer in men.

2.1.2 Mustard greens

Mustard greens contain quite high vitamins, Vitamin C and B, especially thiamine, niacin and riboflavin. Apart from that, it also contains Fe, Ca, P, and K. In 100 grams, the material contains 22 calories, so it is good for a low-calorie diet. Mustard greens are very useful in preventing various diseases, especially cancer because they contain phytochemical compounds, namely glucosinolates. The content of vitamin E, beta-carotene, and vitamin C in mustard greens is very good at preventing cholesterol and heart disease (Indrati, 2014).

Mustard greens are a group of plants from the Brassica clan whose leaves are used as food (vegetables), both fresh and processed. Mustard greens are also usually called mustard meatballs, caisim, or caisin.

Mustard greens are a type of vegetable that is preferred by the public because it provides many benefits and is also one of the leaf vegetables that has high economic value after cabbage and broccoli. Mustard plants as vegetable food ingredients contain quite complete nutrients so that when consumed they are very good for maintaining a healthy body. The nutritional content contained in mustard greens is

protein, fat, carbohydrates, Ca, P, Fe, Vitamin A, Vitamin B, and Vitamin C (Fahrudin, 2009).

The part of the mustard plant that has economic value is the leaf, so efforts to increase production are sought to increase vegetative products, so that to support these efforts, fertilization is carried out. Mustard plants require sufficient and available nutrients for their growth and development to produce maximum production. One of the nutrients that plays a very important role in leaf growth is Nitrogen. This nitrogen functions to increase vegetative growth, so that plant leaves become wider, greener in color and of better quality (Wahyudi, 2010).

Mustard greens have an important role in human nutrition, especially as a source of vitamins (A, B, C, E), minerals and dietary fiber. The nutritional value of vegetables varies according to environmental factors, varietal differences, cultivation practices, crop harvesting stages, methods of storage, processing, and preparation. One source of vitamins that are abundant in green vegetables is vitamin C. Vitamin C is the most easily damaged vitamin because it is easily oxidized and the process is accelerated by heat, light, alkali, enzymes, oxidizers and by copper and iron catalysts. Oxidation will be hampered if vitamin C is left in acidic conditions or low temperatures (Winarno, 2008).

2.2 Drying Method

The principle of making candy is heating or drying to evaporate the excess water added. The factor that must be considered in making candy is the length of time to cook the dough which will determine the amount of water that is evaporated to get the desired product consistency.

Vegetable candy is included in semi-wet food products, because the main ingredients are water, flavorings and other ingredients. Therefore this product is easily damaged, so to extend the shelf life it is necessary to do proper drying. Drying is a process of reducing the water content of the

material until it reaches a certain water content so that it can slow down the rate of product deterioration due to biological and chemical activities.

In the process of processing jelly candy, the drying process uses an oven, the oven is a more practical drying tool and makes work easier. Drying is done to minimize the water content so that it has a longer shelf life. This can happen because the activity of enzymes or microorganisms will decrease due to the minimum amount of water for activity. The drying method with the oven has advantages such as fast, safe and easy to control.

The existence of a drying stage can reduce moisture from vegetable candy so as to minimize the possibility of growth of bacteria, fungi and also yeast. Drying using an oven is a tool for heating, baking and drying. The oven can be used as a dryer if it is combined with a heater with low humidity and sufficient air circulation. Drying using an oven (oven drying) is faster than drying using the sun however, the drying speed depends on the thickness of the material being dried. The advantages of drying using an oven include being maintained and the temperature regulated, besides that, it can protect food from insect and dust attacks.

This drying is done when the dough is ready and has been printed, candy is basically hard because it has gone through the drying process, after drying there is no further process other than packaging, so during drying it really requires a more hygienic and good drying technique.