CHAPTER II

LITERATURE REVIEW

2.1 Health Benefits of Pumpkin

Pumpkin belongs to the family of *Cucurbitaceae*. Pumpkin flesh contains a variety of *phenolic* compounds, *flavonoids*, vitamins, as well as minerals. It also has low calorie content (17 kcal/100 g flesh). One of the major *carotenoids* in pumpkin fruit (>80%) is Beta-carotene, which contributes to the high nutritional value of pumpkins (Koh & Park, 2018). There are seven health benefits of pumpkin:

1. Pumpkin Helps Digestion

All those stomach-satisfying powers also lower your risk for obesity, all while increasing nutrient absorption (Lattimer & Haub, 2010). It is also slows absorptions of the carbohydrates, including natural sugars. Plus like many hydrating fruits and vegetables, pumpkin is mostly made of water (about 90 percent), a helpful bonus that supports normal bowel movements.

2. Pumpkin Regulates Blood Pressure

Your heart loves pumpkin as much as your taste buds do. Warner (in Walsh, 2018) mentioned that Pumpkin contains potassium and antioxidants, which contribute to good heart health. While pumpkin nutrition facts panel lists only a half gram of fat, there are more oils in the seeds. That healthy pumpkin seed oil helps prevent high blood pressure and can lower already high levels (Mosallamy et al, 2012).

3. Pumpkin Reduce Cancer Risk

A magical combo platter of vitamins A and C, iron, and more nutrients make pumpkin natural are more against cancer cells. In particular, the health benefits of pumpkin decrease risk for prostate, breast, and colon cancers (Medjakovic et al, 2016).

Consuming the antioxidants found in foods like pumpkin, corn, and beans leads to less oxidative stress, a major factor in decreasing cancer risk. And once again, the fiber may play a role here. Consuming more soluble fiber has been linked to lower risk of mouth, colon, and stomach cancers, too.

4. Pumpkin Combats Diabetes

When you enjoy it unadorned, pumpkin calories are quite low. Since the following a low-cal diet (and losing weight, if necessary) is key to keeping type 2 diabetes in check, that makes pumpkin a wise choice. The *phenolic phytochemicals* in this super fruit have been shown to control blood sugar levels, and in turn, lower the risk for diabetes.

5. Pumpkin Improves Immunity

Warner (in Walsh, 2018) mentioned that the vitamin C in pumpkin is great for your immune system, especially in cold weather. Peptides in pumpkin seeds may also have antimicrobial effects. Beta-carotene is converted into vitamin A in the body and is found in spades in pumpkin. It boosts the natural killer cells that fight diseases including ear, bladder, and kidney infections (Chew & Park, 2004).

6. Pumpkin Improves Eye Health

This stellar winter squash is a real vision booster. Warner (in Walsh, 2018) mentioned that pumpkin is rich in carotenoids, which can be converted to vitamin A, important for keeping your skin and eyes healthy. The *carotenoids, lutein,* and *zeaxanthin*, in particular, are beneficial in the battle against cataracts.

7. Pumpkin Boost Muscle Function

Dix (in Walsh, 2018) mentioned that as a good source of potassium, a nutrient the majority of us don't get enough of, pumpkin can improve muscle function. Pumpkin seeds are a strong source of muscle building amino acids and muscle relaxing magnesium (Walsh, 2018).

2.2 Noodles

Oriental noodles have been consumed for thousands of years and remain an important part in the diet of many Asians (Huo, 2001). There are two types of noodles in common, which are wet noodle and dry noodle. "*Mie adalah jenis makanan olahan tepung yang sudah dikenal oleh sebagian besar orang Indonesia dan telah digunakan sebagai makanan pokok selain nasi.*" It means that noodles are a type of flour processed foods that are already well known by most Indonesian people and have been used as staple food besides rice (Juniawati, 2003). "*Mie basah adalah jenis mie yang mengalami proses perebusan, di mana kandungan airnya tinggi. Bisa mencapai 52 persen sehingga memiliki daya tahan yang pendek.*" It means that wet noodles are the type of noodles that undergo boiling process, where the water content is high. It can reach 52 percent so it has short durability (Widyaningsih & Murtini, 2006). Widyaningsih & Murtini also states that "*mie basah memiliki daya tahan yang pendek karena mengandung kadar air yang tinggi. Mie basah hanya bertahan selama 10 - 12 jam pada suhu kamar, jadi pengawet perlu ditambahkan untuk menambah penyimpanan.*" It means that wet noodles have short durability because they contain high water content. Wet noodles only last for 10 – 12 hours at room temperature, so preservatives need to be added to increase the storage (Widyaningsih & Murtini, 2006).

2.2.1 Kinds of Noodles

The following are kinds of noodles based on Koswara (2009).

" 1). Mie mentah/segar, 2.) Mie basah, 3.) Mie kering, 4.) Mie goreng, 5.) Mie instan (mie siap hidang). "

It means there are five kinds of noodles according to Koswara(2009):
1. Raw/Fresh noodles,
2. Wet noodles,

3. Dry noodles,

4. Fried noodles

5. Instant noodles

2.2.2 The Ingredients of Noodles

1. High Protein Flour

This flour has a minimum protein content of 13%. Protein levels contained in wheat flour show gluten levels. The higher the gluten level, the noodles that are produced will be even thicker. Usually this high protein flour is used for making bread and noodles.

2. Salt

Salt has a function as a giver of flavor strengthens the texture, increases flexibility and elasticity of noodles, binds water, inhibits protease and amylase enzymes so that it is not sticky and does not expand excessively, helps color formation, and inhibits the growth of fungi. The amount of use of kitchen salt in noodle making is 2% -4% of the weight of flour..

3. Eggs

Eggs are a very good source of inexpensive, high quality protein. More than half the protein of an egg is found in the egg white along with vitamin B2 and lower amounts of fat than the yolk. Eggs are rich sources of selenium, vitamin D, B6, B12 and minerals such as zinc, iron and copper. Egg yolks contain more calories and fat than the whites. They are a source of fat soluble vitamins A, D, E and K and lecithin - the compound that enables emulsification in recipes such as hollandaise or mayonnaise.

4. Water

Water serves to dissolve ingredients such as salt and other ingredients, as a reaction to gluten and carbohydrates so that gluten and chewy properties appear.

Things that must be considered in the use of water for noodle dough are water cleanliness both in color, aroma, taste and free of bacteria, Ph neutral water between 6-7, because the lower the pH the water is acidic and vice versa it will be alkaline (bitter), Maximum water temperature 15c.

The use of water for making noodle dough is between 30% - 35% of total flour and water use based on the prescription tools. The use of water from 28% - 30% should use an electric noodle prescription machine (usually used by UKM noodle craftsmen). 35% use of water can use the manual noodle machine (example the pasta machine used on the table). Water use 38% - 40% when using rolling pins (wood or pipe pieces) in pressing noodles (use of this water to make it easier for housewives who want to make their own noodles at home).

5. Vegetable Oil

Vegetable oils are derived from oil seeds grown mainly for their oil. The major food oils consumed as cooking and salad oils are canola (rapeseed), corn, cottonseed, olive, palm, palm kernel, coconut, peanut, safflower, soya bean and sunflower. They are all *triacylglycerols* that are liquid at room temperature, but differ greatly in fatty acid composition. They are classified as short-chain (C_{6-8}), medium-chain (C_{10-12}), and long-chain (C_{14-18}) (Dupont, 2003).

2.2.3 The Steps of Making Noodles

These are the steps of making wet noodles from Rahayuwati (2014)

> " *Bahan (4 porsi): 300 gram Tepung Terigu Protein Tinggi, 3 buah Telur Ayam, 1 sendok makan Minyak Goreng, 1 sendok teh Garam, secukupnya Tepung Terigu untuk taburan.*
>
> *Langkah(45 menit): Campur tepung dengan 1 sdt garam, selanjutnya masukkan telur dan minyak ke dalam tepung dan uleni hingga lembut. Jika adonan sudah lembut bungkus adonan dengan serbet selama 30 menit. Setelah itu bagi adonan menjadi 4 dan pipihkan dengan mesin pembuat mie bertahap mulai dari tingkat 1 hingga 5. Letakkan adonan yang telah pipih diatas serbat makan yg telah diberi tepung selama kurang lebih 30 menit. Selanjutnya cetak mie dengan mesin pencetak mie. Taburi dengan sedikit tepung terigu dan diamkan hingga mie kering. Didihkan air yg*

sudah diberi garam. Langkah terakhir yaitu rebus mie ke dalam air mendidih."

It means there some ingredients and steps to make wet noodles according to Rahayuwati (2014):

Ingredients (4 servings): 300 grams of High Protein Flour, 3 Chicken Eggs, 1 tablespoon of Edible Oil, 1 teaspoon of Salt, sufficient Flour for sprinkling.

Step (45 minutes): Mix flour with 1 teaspoon of salt, then add the eggs and oil to the flour and knead until soft. If the dough has gently, wrapped the dough with a napkin for 30 minutes. After that, divide the dough into 4 and flatten it with a gradual noodle making machine starting from level 1 to 5. Place the flat dough on a napkin that has been given flour for about 30 minutes. Then make it into the noodles with a gradual noodle making machine. Sprinkle with a little flour and let it sit until the noodles are dry. Boil the salt water. The last step is boiling the noodles in boiling salt water.

2.3 Previous Study

The writer found the previous study of the innovation of a new variant of noodles from other researcher. The study was about the innovation of a new variant of cereals through the use of pumpkin from Nadya Simatupang. The writer used pumpkin as one of the main ingredient of the product. The difference between the study done by Nadya and the writer was the product where Nadya made instant cereal through the use of pumpkin and the writer made noodles through the use of pumpkin.