

CHAPTER 2

PRODUCT OVERVIEW

2.1 Ingredients

2.1.1 Sorghum



Figure 1. Sorghum

Sorghum (*Sorghum bicolor* (L.) Moench) is native to tropical Ethiopia, East Africa, and the Ethiopian highlands is considered a major center of sorghum domestication (Takdir's 2013 study (as cited in Vavilov,1926). The main sorghum producing countries are India, Nigeria, Mexico and the United States. Sorghum is commonly consumed in the form of processed bread, porridge, drinks, and chips (Shafia's 2019 study (as cited in Dicko et al. 2006a). Sorghum has antioxidant food elements, minerals, especially Fe, fiber, oligosaccharides, -glucans including non-starch polysaccharide carbohydrates (NSP) which are useful for preventing diseases related to the immune, endocrine, nervous, digestive, circulatory systems, and digestive systems. Sorghum is used as one of the main ingredients for making multigrain milk.

2.1.2 Red Adzuki Bean



Figure 2. Red Adzuki Bean

Red adzuki bean (*Vigna angularis*) are small red beans that are rich in protein, a source of carbohydrates, vitamin B6, iron, thiamin, fiber (fiber), manganese, and folic acid. Red adzuki beans in health function to reduce the risk of colon cancer and healthy digestion, helping to improve insulin sensitivity, help in lowering cholesterol in the body and have a healthy heart. Red adzuki bean is used as one of the main ingredients for making multigrain milk.

2.1.3 Pumpkin Seed



Figure 3. Pumpkin Seed

Pumpkin Seeds (*Cucurbita moschata* ex Poir) which are usually only produced into 瓜子 guā zǐ or even discarded even though pumpkin seeds contain many nutrients including major fatty acids, vitamin E, carotenoids, amino acids, and trypsin

inhibitors. These compounds are useful for inhibiting peroxides into free radicals, because these free radicals can damage cell membranes which can result in degenerative diseases and skin cancer.

2.1.4 Lime juice



Figure 4. Lime Juice

Lime or *Citrus aurantifolia* (CA) is one type of plant that has long been used by local people in Indonesia, commonly used as medicine or food. Lime contains vitamin C, iron, calcium, vitamin B6, riboflavin, niacin, and folate. Lime is used to treat fever, sauna ingredients, cough medicine, to increase stamina, treat hypertension, and anti-cholesterol, anti-microbial, anti-oxidant, anti-hypertensive, anti-osteoporosis, and anti-cancer. In the manufacture of vegetarian multigrain butter, lime is used as a natural food preservative and to curdle the multigrain milk.

2.1.5 Coconut Oil



Figure 5. Coconut oil

Coconut oil is high in fat. Coconut oil also has many benefits such as nourishing the skin, reducing the risk of

diabetes, and makes hair and heart health. In making this butter, coconut oil functions as fat.

2.1.6 Sunflower Seed Oil



Figure 6. Sunflower Seed Oil

Sunflower Seed Oil contains unsaturated fats, vitamin E, squalene, aliphatic hydrocarbons, and sterols. The benefits of sunflower seed oil are to maintain heart health because it contains unsaturated fats, lowers LDL cholesterol and increases HDL cholesterol, helps prevent colon, uterine, lung cancer, lungs, and skin, and strengthen the immune system. In the process of making vegetarian multigrain butter, sunflower seeds act as additional nutrients.

2.1.7 Soy Lecithin



Figure 7. Soy Lecithin

Lecithin that used in vegetarian multigrain butter is soya lecithin. Soya Lecithin is a cholesterol-free natural health supplement derived from the extraction of soybeans. Isolated mechanically without chemical process so that it is free of solvent hexane. Lecithin as an emulsifier which prevents the separation of substances from one another. Soya lecithin helps prevent diseases of the liver, spleen, bile, heart, kidney, pancreas, diabetes, high blood pressure, cancer, and many more.

2.1.8 Water



Figure 8. Water

Water is a compound that is very important for life. Water contains, sodium, potassium, and minerals. Water is useful to help neutralize toxins in the body, increase metabolism, and prevent dehydration. Water is used as a liquid in multigrain milk.

2.1.9 Nutritional Yeast



Figure 9. Nutritional Yeast

Nutritional yeast is a yeast that comes from a single-celled fungus that is usually used as a substitute for cheese, it is yellow in color and in powder form. This nutritional yeast is rich in vitamin B12 and contains folic acid. It tastes delicious and is easy to use. Nutritional yeast works to protect the nerves and brain, supporting the formation of DNA and red blood cells. In the process of making vegetarian multigrain butter, these yeast nutrients play a role in enriching the flavour.

2.1.10 Salt



Figure 10. Salt

In addition to consumed, a lot of salt is needed in several industries, including for preservation and a mixture of chemicals. Natural salt contains magnesium chloride, magnesium sulfate, magnesium bromide, and other trace compounds. Salt is an ionic compound consisting of positive ions (cations) and negative ions (anions), thus forming a neutral compound (without charge). Salt is used to give Vegetarian Multigrain Butter a salty taste. Salt is good for the brain but also for muscle and nervous system function.

2.2 Utensils

2.2.1 Bowl



Figure 11. Bowl

Bowl is used to wash and soak the grain with different length of time. It is also used as a container for filtered multigrain milk. The material of this bowl is stainless steel.

2.2.2 Sauce Pan



Figure 12. Sauce Pan

Sauce pan usually used for cooking various kinds of sauce. This sauce pan is used for boiling the red adzuki bean and the pumpkin seed. Saucepans have one long handle that makes it easy to use. The material is stainless steel.

2.2.3 Cooking Pot



Figure 13. Cooking Pot

Cooking Pot is used for simmering the sorghum until it cooked. The material of this cooking pot is stainless steel. It is usually used to cook soup and stew.

2.2.4 Strainer



Figure 14. Strainer

Strainer is used to separate liquids from fine solids in cooking. Strainers have different sizes ranging from the width of the circle to the size of the hole. This strainer has a small hole to strain the unrefined grains from the multigrain milk. The material of this strainer is stainless steel.

2.2.5 Blender



Figure 15. Blender

Blender is used for grind or mash food or drink such as juices, smoothies, milk, to crush ice cubes and many more uses. The polycarbonate container of this blender is made of glass. The blender has many parts, starting from the blade, lid, polycarbonate container, and the engine. The blender is used for grind the grains by adding water so it become multigrain milk and for mix all the component such as multigrain milk, soya lecithin, lime juice, nutritional yeast, coconut oil, and sunflower seed oil.

2.2.6 Spoon



Figure 16. Spoon

Spoon is used for eating, serving, and cooking foods. The material of spoon is stainless steel. Spoon help the filtering process of multigrain milk and mixing the multigrain milk with lime juice.

2.2.7 Silicon Spatula



Figure 17. Silicon Spatula

Silicon spatula is used for stirring the boiled and simmered grains. Silicon spatula have different sizes from small, medium and large. It is made from silicon, heat resistance reaches 220 centigrade, silicone material is non-toxic, non-biodegradable and non-recyclable.

2.2.8 Stove



Figure 18. Stove

Stove is a device used for heating or cooking, that used an open flame to cook food on the stovetop. The material can be stainless steel, brass, aluminium, or cast iron. It is used to heat the saucepan and pot for cooking the grains.

2.2.9 Knife



Figure 19. Knife

Knife is used for cutting, chopping, dicing, slicing, mincing, peeling, and separating. The most common material in knife are carbon steel, stainless steel, tool steel, and alloy steel. Knife is used for cutting the lime so that the juice can be squeezed.

2.2.10 Cutting Board



Figure 20. Cutting Board

Cutting board also known as a chopping board, a surface to cut or slice things. Cutting boards are often made of wood

(bamboo), cork or plastic with various uses. It is used for cutting the lime.

2.2.11 Measuring Spoon



Figure 21. Measuring Spoon

Measuring spoon is used to measure the ingredients from 1/8 tsp, 1/4 tsp, 1/2 tsp, 1 tsp, 1/2 tbsp, and 1 tbsp. The material of measuring spoon is stainless steel. It is used for measuring the oil, nutritional yeast, lime juice, and soy lecithin.

2.2.12 Measuring Cup



Figure 22. Measuring Cup

Measuring cup usually used for measuring liquid like water, oil milk, and many other things. It is made from glass or plastic. It is used for measuring the coconut oil and multigrain milk.

2.2.13 Digital Scale



Figure 23. Digital Scale

Digital scale is an electric scales used to weigh food ingredients with a more definite weight than the manual one. Used to weigh the grains before cooked. Digital scales mostly use batteries.

2.2.14 Container



Figure 24. Container

Container is used as a container for vegetarian multigrain butter. the material of this container is plastic, and it can be filled with about 250 grams of vegetarian multigrain butter.

2.2.15 Clothes Iron



Figure 25. Clothes Iron

Clothes iron is used for ironing clothes so they don't wrinkle. It is used for ironing aluminium seal. Do not use a steam iron for seal the container.

2.2.16 Aluminium Seal



Figure 26. Aluminium Seal

Aluminium Seal is used for sealing the container. The material is from aluminium. This seal is to prevent butter from being contaminated with the air outside.

2.3 Revised Recipe

Recipe Name : Vegetarian Multigrain Butter

Yield : 17 portion

Main Ingredients : 125 ml Multigrain Milk

Ingredients :

- 50 gram Sorghum
- 50 gram Red Adzuki Bean
- 50 gram Pumpkin Seed
- 1 tsp Lime Juice
- 1 tbsp Nutritional Yeast
- 120 ml Coconut Oil
- 2 tbsp Sunflower Seed Oil
- 4 tsp Soy Lecithin
- ¼ tsp Salt
- Water

Method :

1. Wash the grains and soak it, Sorghum (14 hours), Red Adzuki Bean (14 hours), Pumpkin Seed (2 hours).
2. Skinned the Red Adzuki Bean and Pumpkin Seed.
3. Cook the Sorghum : To start combine the sorghum and water in a large pot. Bring it to boil, and then reduce to a simmer. Cover and cook for 20 minutes. Cook the Red Adzuki Bean : Boil the Red Adzuki Bean with water for 15 minutes. Cook the Pumpkin Seed : Boil the pumpkin seed for 10 minutes.
4. Make sure all the grains are soft. Mix the grains and put in a blender with water (1:3), blend it gradually.
5. Strain the liquid with a small hole strainer.
6. Wait until the milk is at room temperature, then pour 125 ml Multigrain Milk and Lime juice to a cup rest it for 10 minutes.
7. Pour the Multigrain Milk, Coconut Oil, Sunflower Seed Oil, Salt, Nutritional Yeast, and Soy Lecithin to the blender. Blend it for about 1 minute 30 seconds with high speed.

8. Pour the butter to the container, seal it and put it in the fridge, let it set (6 hours).
9. The butter is ready.

The reason for the revision of the recipe is because there is an additional process, namely peeling the skin of the red adzuki beans and pumpkin seeds which affect the color of the multigrain milk and also changes to the ingredients for a better texture. There is also a change in soaking time and cooking time, the difference is that if you soak it longer the skin will easily come off and the cooking time will be shorter because the grains are softer than before.

2.4 Product Processing Sequence Using Flowchart

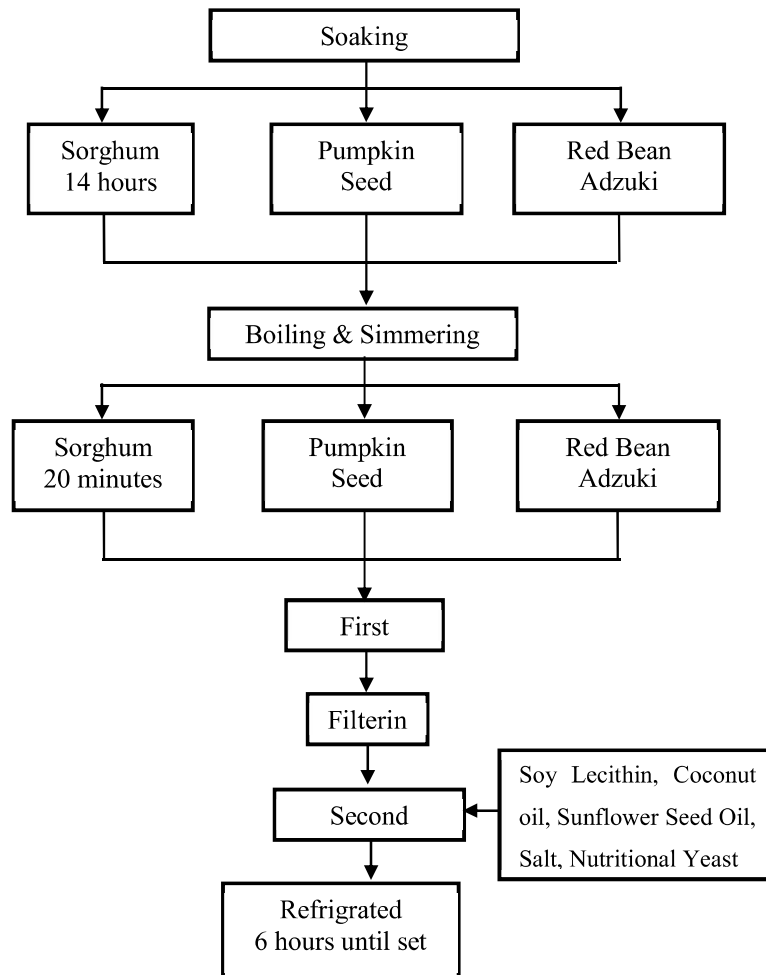


Figure 27. The Flowchart of Making Vegetarian Multigrain Butter

The method of preparation starts from soaking the seeds to remove toxins and to cook faster when cooked. Skinned the Red Adzuki Bean and Pumpkin Seed. Boiled the grains in different pot with different processing times because the grains doneness level are different, blend the seeds with water until smooth, then strain the multigrain milk, and blend the milk again with additional ingredients such as lime juice, salt, coconut oil, sunflower seed oil, nutritional yest, and soy lecithin. Put the vegetarian multigrain butter into the container and seal it to avoid contamination or oxidation. Put it in the refrigerator and leave it for 6 hours until set, the butter is ready to be served.

2.5 Product Processing Method with Pictures

1. Weigh each grains about 50 grams with digital scales.



Figure 28. Red Bean Adzuki, Sorghum, and Pumpkin Seed

2. Wash the grains.



Figure 29. Wash the grains on the sink

3. Soak the Red Bean Adzuki and Sorghum for 14 hours, and the Pumpkin Seed for 2 hours.



Figure 30. Soak until it becomes mushy

4. Skinned the Red Adzuki Bean and Pumpkin Seed



Figure 31. Skinned Pumpkin Seed and skinned Red Adzuki Bean

5. Boil the Red Adzuki Bean for 15 minutes, Pumpkin Seed for 10 minutes, and for the Sorghum boil and simmer it for 20 minutes.



Figure 32. Boil the grains with different sauce pan

6. Pour out the water and put the grains on the blender. Pour the water with ratio 1 : 3 in gram.



Figure 33. Blend it with high speed until it becomes smooth

7. Strain the Multigrain Milk.



Figure 34. Strain the multigrain milk so that there is no dregs

8. Combine 125 ml Multigrain with 1 tsp lime juice and leave it for 10 minutes.



Figure 35. Pour in the lime juice

9. Pour all the ingredients into the blender.



Figure 36. Add the Sunflower Seed Oil, Coconut Oil, Nutritional Yeast, Salt, and Soy Lecithin

10. Blend it with high speed for 1 minutes 30 seconds.



Figure 37. The Vegetarian Multigrain Butter is ready

11. Pour it into the container, seal it, and refrigerate it for 6 hours until it set.

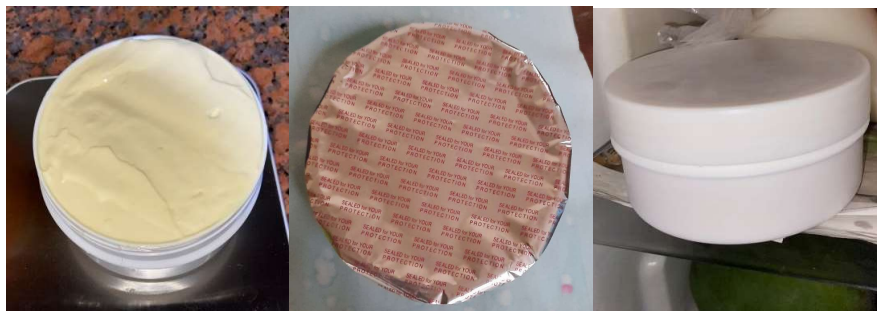


Figure 38. Vegetarian Multigrain Butter, Sealed Container, Refrigerated in Refrigerator