

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1 Ingredient Review**

##### **2.1.1. Tempeh**



**Figure 2.1** Tempeh

Tempeh is a fermented food made of mainly soybeans and is a nutritious, affordable, and sustainable functional source of protein. Globally, tempeh is a widely accepted fermented product (Ahnan-Winarno et al., 2021). The main aspects of tempeh are: its attractive flavor and texture, certain nutritional properties and reduced cooking time compared to the raw materials used (Pilco et al., 2019). Several basic ingredients can be used to make tempeh, but the ingredient that is often used is soybeans (Rizal et al., 2022). Basically, tempeh is produced locally through several kinds of processing methods which include cooking the soybean, soaking, dehulling, inoculation of starter culture, and incubation processes. But some tempeh producers employ modified methods which add another boiling step after soaking process (Radita et al., 2018). In the health sector, tempeh is reported to have many benefits, including as an antioxidant, inhibitor and cholesterol-lowering, preventing the risk of cancer, prostate, and many other benefits (Arham et al., 2021).

The following is the nutritional facts of tempeh:

**Table 2.1** Tempeh nutritional facts

Amount per 100 grams	
<b>Calories</b> 193	
<b>% Daily Value*</b>	
<b>Total Fat</b> 11 g	16%
Saturated fat 2,2 g	11%
<b>Cholesterol</b> 0 mg	0%
<b>Sodium</b> 9 mg	0%
<b>Potassium</b> 412 mg	11%
<b>Total Carbohydrate</b> 9 g	3%
<b>Protein</b> 19 g	38%
* Per cent Daily Values are based on a 2,000-calorie diet. Your daily values may be higher or lower depending on your calorie needs.	

Source: Tempeh, U.S. Department of Agriculture, 2019

### 2.1.2. Purple Eggplant



**Figure 2.2** Purple Eggplant

Eggplant (*S. melongena*) usually known as brinjal in south Asia (especially Pakistan, India, and Bangladesh), aubergine in Europe, melongene in West Indies, Guinea squash in America and

patlican in Turkey. It belongs to a family *Solanacea* with a bushy foliage with an average height of about 60 to 95 cm (Naeem et al., 2019). Eggplant fruit is important items of the human diet due to its many cooking ways and various used states such as fresh, dried and preserved. It was reported that eggplant is a good source of minerals (magnesium, potassium), vitamins (vitamins B1, B6 and K), phytochemicals, especially valuable phenolic compounds, which are extensively used to decrease the blood cholesterol rate in humans and to treat various health disorders including diabetes bronchitis, arthritis and asthma (Liao et al., 2022). Eggplant contains a lot of dietary fiber, especially water-soluble fiber, the skin of the eggplant also contains water-insoluble fiber. These two types of fiber help to facilitate digestive function, reduce plasma sugar levels, and to reduce fat and cholesterol (Buulolo et al., 2022).

Green and purple eggplant both contain important nutrients such as vitamin C, vitamin K, folate and potassium. However, purple eggplant also contains powerful antioxidants known as anthocyanins which also give the purple color to the eggplant. These antioxidants help prevent cell damage and may provide different health benefits than green eggplant (Nisa, 2023).

The following is the nutritional facts of Purple Eggplant:

**Table 2.2** Purple Eggplant nutritional facts

Amount per 100 grams	
<b>Calories</b> 25	
<b>% Daily Value*</b>	
<b>Total Fat</b> 0,2 g	0%
Saturated fat 0 g	0%
<b>Cholesterol</b> 0 mg	0%
<b>Sodium</b> 2 mg	0%

<b>Potassium</b> 229 mg	6%
<b>Total Carbohydrate</b> 6 g	2%
Dietary fiber 3 g	12%
Sugar 3,5 g	
<b>Protein</b> 1 g	2%
* Per cent Daily Values are based on a 2,000-calorie diet. Your daily values may be higher or lower depending on your calorie needs.	

Source: Eggplant, raw, U.S. Department of Agriculture, 2019

## 2.2 Product Review

Jerky is an important part of the snack food with characteristics of low water content, durable storage, small size and convenience for transportation, etc. (Li et al., 2014). Jerky has a high nutritional value, is low in fat and high in protein, and does not require refrigeration if a proper processing is applied to destroy microorganisms. The product is shelf-stable and does not require reheating prior to consumption (Juneja et al., 2016).

The product that is developed in this study is vegan jerky. The main ingredients of this product are from non-animal product which is suitable for vegans and vegetarians. The protein that is originally sourced from meat will be substituted by tempeh and this product will also contain additional fiber coming from purple eggplant.

## 2.3 Process Review

Steaming is the process of cooking food ingredients with water vapor (Kurniadi, 2017). The reason of the use of steaming process is because it can minimize the reduction of water-soluble fiber in the purple eggplant and also to soften the ingredients.

Drying is probably the oldest and the most important method of food and vegetables preservation practiced by humans. It removes moisture and preserve products. Drying process involves heat and mass transfer. It can cause

substantial reduction in weight and volume, minimizing packaging, storage and transportation costs and enables storability of the product under ambient temperature (Inyang et al., 2017).

Oven-drying is one of many drying methods. This method is suitable for making this product because not only it can remove moisture, it also cooks the product making it a ready-to-eat product that consumers can easily eat just by heating it again. And as mentioned above, oven-drying also can make this product last longer due to the small water content.