

## CHAPTER II

### LITERATURE REVIEW

#### 2.1 Banana Peel

Bananas are the most abundant agricultural product compared to other fruits in Indonesia and bananas are widely cultivated both as commercial and household commodities. Plantain banana (Pisang Raja) are one of the most popular types of banana in Indonesia. So in this case the banana peel can be utilized as an ingredient/food product by industry. The nutritional content of plantain peel is quite complete carbohydrates, fat, protein, calcium, phosphate, iron, B vitamins, vitamin C and water. Plantain peel (kulit Pisang Raja) contains activity Antioxidants are quite high compared to the meat. The antioxidant activity of banana peels reaches 94.25%. concentration of 125 mg/ml while in the fruit it is only approx 70% at a concentration of 50 mg/ml. Antioxidant compounds found in banana peels namely catechins, gallic catechins, and epicatechins which are class of flavonoid compounds. Banana peel has good potential to be used as sources of antioxidants in food (Ode Ermawati, 2016).

Banana is a food that is often consumed by people, in Indonesia there are many different types of banana but banana peel usually never reprocessed, only disposed as organic waste or used as food livestock such as goats, cows and buffaloes. The amount of banana peels will be has a profitable selling value if it can be used as a raw material food. Banana peel waste contains substances high enough nutrition, especially vitamins and minerals so that it can be utilized as a food raw material. Banana peel has a water content of 68.9 g, KH 18.5 g, Protein 0.32 g, Fat 2.11 g, Calcium 715 mg, Phosphorus 117 mg, Iron 1.6 mg, Vitamin B 0.12 mg, and vitamin C 17.5 mg (Wakano *et al.*, 2016).

Banana peel have a bioactive components, particularly the phenolic compounds. Peel has traditionally been used as a remedy for a variety of ailment such as burns, anaemia, diarrhoea, ulcers, inflammation, diabetes, cough, snakebite and excessive menstruation (Pereira, A., & Maraschin, M., 2015). The major phenolic compounds found in the banana peel are grouped as flavonols, hydroxycinnamic acids, flavan-3-ols, and catecholamines. The incorporation of banana peel into food products enhanced the nutritional content, particularly the dietary fibre and phenolic content. It has been demonstrated that banana peel reduces lipid oxidation, particularly in meat-based products (Zaini *et al.*, 2020).

## **2.2 Champignon Mushroom**

Mushrooms have a great taste, texture and are good for health. The nutritional value of mushrooms is comparable to eggs, milk and meat. Edible mushroom is a rich source of protein, minerals (P, Ca, Fe, K, and Na) and vitamins (thiamine, riboflavin, folic acid and niacin). Rate content contained in the mushroom protein contains all the essential amino acids. Mold contains high potassium which makes mushrooms is the ideal food for people who suffering from hypertension and heart disease. Champignon mushrooms belong to the genus *Agaricus bisporus*. *Agaricus bisporus* is the most widely cultivated type of mushroom worldwide (Widyastuti, N., & Tjokrokusumo, D., 2021).

## **2.3 Banana Peel and Champignon Mushroom Burger Patty**

Burger is present in fast food restaurant that are available within minutes after customer ordered. Burger may not or may meet people's nutrients needs. Burger was an evaluation that boosted popularity all over the world. Burger have become symbol of American cuisine (Boukid, F. & Castellari, M., 2021). Nowadays, people tent to have a healthy living that is why some people prefer to eat organic or vegetables base meals. The idea of using banana peel as a patty. Patties are usually made by meat but there

are already some alternatives and banana peel can be a good substitute for meat. The incorporation of banana peel into food products enhanced the nutritional content, particularly the dietary fiber and phenolic content. It has been demonstrated that banana peel reduces lipid oxidation. Banana peel has a great potential as an alternative for functional food as long as it is consumed with safety measures for human (Mohd *et al.*, 2021).

#### **2.4 Plant-Based Meat**

Plant-Based Meat is a practical processed food product that is fully processed from non-meat ingredients, usually made from vegetable protein sources. These products have often a long list of ingredients and their nutritional values are very different from animal meat. Among the earliest examples of meat alternatives, plant protein products were traditionally produced and consumed in Asian countries namely, tofu and tempeh from soy and seitan from gluten. Unfortunately, this product is not capable of replicating the attributes of meat products for Western consumers, therefore scientific research utilizes raw materials other than soybeans due to issues related to GMOs, allergies, unfavorable climate for soybean cultivation. As such, recent research is exploring the use of protein from different raw materials, including pea, fava bean, rapeseed, and hemp (Andreani *et al.*, 2023).