

## CHAPTER II

### LITERATURE REVIEW

#### 2.1. Ingredient Review

##### 2.1.1. Duck meat

Duck is a non-flying domesticated bird. Compared to other birds like broiler chicken, quail, turkey, and pigeon, duck has a more savoury taste. Additionally, duck has nutrients that help strengthen the body's immune system. One of the sources of protein that is required for growth and for the replacement of damaged muscle tissue is red meat. Everywhere in the world, especially during festivals, red meat is a common main course. In addition to staple foods like rice, wheat, corn, cassava, and cereal, red meat is said to be a crucial element for adding wonderful flavour and triggering the appetite. Iron, which is necessary to encourage the blood vessel to produce more red blood cells, is also found in red meat. (M.Mafruchati .,2020)

While duck breast muscles have slightly lower protein and ash content compared to broiler chickens, they have higher water and fat content. Duck breast muscles also have a favourable amino acid profile, with higher levels of certain amino acids such as leucine, lysine, tryptophan, phenylalanine, and tyrosine. Furthermore, duck breast meat contains a higher proportion of polyunsaturated fatty acids, including linoleic and linolenic acids, which are beneficial for health. In terms of microstructure, duck breast muscles are similar to those of geese and quails, and they have a higher proportion of red fiber (61-75%) compared to white fiber (25-38%), which contributes to meat tenderness.(Dariusz Kokoszynskiet *al* .,2020)

### **2.1.2. Betutu Spices**

Betutu, a traditional Balinese chicken dish, has its roots in the culinary traditions of the majority Balinese Hindus. It was originally prepared as an offering for Hindu religious ceremonies. However, over time, betutu has gained popularity across different religious backgrounds in Bali, including Christianity, Islam, and Buddhism. It is considered a neutral and halal culinary option. The dish is prepared using a combination of spices known as "genep" or "jangkep." These spices include red onions it works as the aromatic, garlic act as the aromatic, red chili and cayenne pepper gives it a little kick of spiciness, hazelnut gives a nutty flavour, kencur, galangal, ginger, turmeric, kaffir lime leaves gives it a fresh aromatic, coriander and nutmeg act as the herbs for the bumbu, pepper, palm sugar and salt is the seasoning, sauteed shrimp paste gives a funky flavour and aroma, and coconut oil as the binding agent for the spices and herbs. There are different techniques for cooking betutu. It can be directly grilled over an open fire or buried in chaff-fired pits. Some variations involve initially cooking the chicken with water and seasoning before grilling it over hot coals (I Made Purnamet al 2019).

### **2.2. Product Review**

Chicken nuggets and duck meat nuggets offer distinct differences in flavour, texture, and overall culinary experience. Chicken nuggets, being the more common and widely consumed option, have a milder taste with a subtle blend of savoury flavours. Their texture tends to be tender and juicy, complemented by a crispy outer coating. Chicken nuggets are often associated with a familiar and comforting taste, making them a popular choice among people of all ages. On the other hand, duck meat nuggets present a unique and bolder flavour profile. Duck meat, known for its richness, offers a more pronounced and slightly gamey taste. Its dark meat and higher fat content contribute to a deeper, more complex flavour

that can be described as earthy and robust. Duck meat nuggets provide a more indulgent and gourmet experience compared to their chicken counterparts.

In terms of texture, while both chicken and duck meat nuggets have a crispy exterior, duck meat tends to be more tender and succulent moist, flavourful duck meat creates a delightful contrast that elevates the eating experience.

## **2.3. Process Review**

### **2.3.1. Steaming**

Meat preparation frequently involves the use of moist heating techniques like steaming and boiling. It has been discovered that steam, in particular, has a substantial impact on cooking time and cook values. Steam transfers energy to the meat sample more quickly than water does at a given medium velocity because it has a higher energy transfer rate. The total amount of time the meat needs to cook can be shortened by this rapid heat transmission. There are various benefits to using steam in cooking. Shorter cooking periods may result, which is advantageous for both energy conservation and meat quality preservation. ( Yu Song *et al* ., 2021). The use of Steaming method in the making of this duck nugget is one of the crucial process because we should steam the nugget first before shaping it. Because if we do not steam it first then the texture of the nugget is going to be crumbly and not firm.

### **2.3.2. Freezing**

Research into various freezing techniques and their impact on quality is crucial for the seafood business since freezing protects quality and expands the variety of raw fish that may be distributed. Changes in colour, texture, water holding capacity, and impacts of intracellular/extracellular ice crystal formation on structure are among the quality indicators that are impacted by freezing(Wesam Al-

Jeddawiet *al .*, 2018). And in the case for this product is also the same freezing the nuggets after coating it with breadcrumb is also a crucial step because freezing it can increase its shelf life and we can keep it for storage for a long time before we want to eat it.

### **2.3.3. Frying**

One of the earliest techniques for food processing is frying. Its popularity is correlated with the simplicity and quickness of meal preparation as well as sensory qualities including distinct flavour and taste. It is a quick and inexpensive method. Due to complicated interactions between food and oil, there is simultaneous heat and mass transfer that alters the sensory and nutritional qualities. Due to its high temperature and quick heat transfer, frying is an effective cooking technique. The oil that the food is submerged in functions as a substance for transporting heat. The method preserves food by thermally destroying microbes, enzymes, and decreasing water activity on the food's surface. Changes in food and oil rely on the food's properties, the type of oil, its surface area to volume ratio, how quickly air is incorporated into the oil, the temperature, and the heating method. The depth of the immersion and the type of material used to make the frying vessel. (E.K OKE *et al* 2018). In the case of this duck meat nugget the frying process is the last step before we can eat it. Because after we freeze it and store it we need to thawed it until we can fry it. The frying process make the outer layer of the nugget or the breadcrumb golden brown and give it crispy texture while the inside layer is cooked through.