

CHAPTER II

LITERATURE REVIEW

2.1 Ingredient Review

2.1.1 Sorghum

Sorghum is a plant belonging to the cereal group. Has the potential to be developed as a food substitute for rice. Has advantages related to water requirements and tolerance to land that is experiencing drought. Sorghum is known for its tolerance to abiotic stress, especially in drought and hot weather (Putri, 2022). Sorghum belongs to the grass family (Gramineae). Sorghum plants can grow in tropical and sub-tropical areas, can adapt well to various ecological conditions and can still produce despite unfavorable environmental conditions for other types of cereal crops. In Indonesia, sorghum is suitable for planting in lowland areas to areas with an altitude of 800 meters above sea level with rainfall between 375-425 mm, optimal growth temperature for sorghum between 23 °C-30 °C and relative humidity of 20-40%. Sorghum plants can still grow well in stagnant soil or on sandy soil with a soil pH ranging (Siregar, 2021).

The nutritional content contained in sorghum flour is not inferior to other flours which are also widely consumed by Indonesian people, such as rice flour, corn and wheat flour. Sorghum flour has advantages in higher levels of crude fiber, fat and starch compared to wheat flour (Table 1).

Table 1. Chemical composition of cereal flour

Commodity	Protein (%)	Fiber (%)	Fat (%)	Starch (%)
Rice	1,05	1,52	1,88	86,45
Corn	4,24	1,35	5,42	79,95
Sorghum	2,74	2,24	3,65	80,42
Wheat	1,92	1,83	2,09	78,75

(Source: Suarni, 2001)

Starch is the main carbohydrate content found in sorghum. Starch digestibility is the ability of starch to be hydrolyzed by pancreatic enzymes. Processing of sorghum seeds through steaming, pressure processing, flaking, puffing, or reducing the size of the starch will increase the digestibility of sorghum starch. The carbohydrate content of sorghum is lower compared then rice and wheat that can seen in Table 1 (Suarni and Firmansyah, 2013).

2.2 Product

2.2.1 Kwetiau

Kwetiau is a type of white Tionghoa noodle made from rice. Can be stir fried or cooked in broth. Kwetiau is a food that is quite popular in Indonesia, especially in areas where many people of Chinese descent live. Kwetiau are generally synonymous with the Hokkian and To Ciu ethnicities. In its distribution in Indonesia, the Hokkian and To Ciu ethnicities differ in terms of serving kwetiau. The Hokkien ethnic group who lives in Sumatra are famous for their Medan kwetiau which uses fish balls, lapchiong (pork sausage), and duck eggs. Meanwhile, the To Ciu ethnic group, which mostly lives in Kalimantan, is famous for its beef kwetiau, which uses beef and its innards, such as tripe. In its development, a new variant emerged known as kwetiau siram.

Kwetiau is a type of noodle made from rice and mixed with tapioca flour (Hormdok and Noomhorm, 2007). Furthermore, Hasan (2013), states that kwetiau has a shape like noodles which is white in color with a flat and wide shape and is made from rice flour, so it can be used as a substitute for rice. The kwetiau are classified into two groups, namely: first, wet kwetiau which has a high water content, spoils quickly, and lasts 1 day if not put in the refrigerator. Second, dry kwetiau, like this can last a long time if packaged in an airtight container (Fadiati et al., 2009).

To prevent the dependence of the Indonesian people on wheat flour, sorghum can be an alternative to wheat flour and rice flour. Although the texture is not as soft as wheat flour or rice flour, sorghum flour has a higher fiber content than the two. To make kwetiau from sorghum flour, the correct cooking technique is needed, namely by using the steaming technique

2.3 Process Review

2.3.1 Steaming

To make sorghum kwetiau skin the method used is steaming. Steam is a moist/wet cooking process, with heat from water vapor or known as steaming. Steamer (steamer) consists of several pans arranged up in layers. The lowest pot contains boiling water. The pot that is arranged on it is perforated to allow water vapor to enter through the holes. Steamed food does not come into contact with water. This is done to keep the nutrients from being lost and to keep the texture of the food better. If the steaming process is carried out for a long time, check that the amount of boiling water in the bottom layer of the pot does not run out. The steaming technique is used in the process of making kwetiau skin. The kwetiau maturation process using the steaming technique aims to make the dough perfectly cooked, the surface does not dry quickly, and aims to

maintain the original taste of the food. To make kwetiau skin using the steaming method only takes 2-3 minutes per skin.