

CHAPTER II

LITERATURE REVIEW

2.1 Ingredients Review

Pomelo Orange Peel



Figure 2.1. Pomelo orange peel

Peel of pomelo fruit is safe to eat but taste very bitter. Pomelo's peel has considerable value and may be used to turn waste into treasure and increase the rate at which raw materials are utilized. It is one of the most significant by-products from which a range of active substances can be extracted (Varsha et al., 2021). In this project, the ingredient that will be use is the peel. this project uses pomelo's peel to reduce food waste and reuse things that sometimes people throw away like a garbage.

The peel of pomelo fruit, which can make up to 30% of the fruit's weight, is thrown as biological waste. Up to 30% of the weight of a pomelo is made up of the albedo component (the spongy white portion of the peel). It has been considered a possible source of pectin and dietary fiber. The fruit is consumed fresh, as juice, or salad. The presence of natural chemical components

such as flavonoids, essential oils, cellulose, and pectin has led some people to believe that pomelo peel is a rich source of useful substances (Wandee et al., 2019).

Pomelo is sometimes categorized as either common (or white) or pigmented (or pink). The Food Agriculture Organization of the United Nation has revealed data showing that around 9.3 million metric tons of pomelo are produced globally each year. With between 5.0 and 0.5 million metric tons produced each, China and the United States are the top two pomelo producers in worldwide. Pomelo, together with orange, mandarin, lemon, and grapefruit, is currently one of the five most frequently grown and consumed citrus fruits in Southeast Asia and other regions of the world. It has a sweet flavor, a touch of acidity, and a whiff of bitterness (Kumar et al., 2021). Pomelos are rich source of minerals, phytochemicals, vitamin C, fiber, and the well-known antioxidant lycopene.

Fresh pomelo peel is abundant in a variety of nutrients and useful components. Typically, 46.58% of a pomelo's weight is made up of the fruit's skin. Particularly, the white peel (51.426%) offer potential culinary uses whereas the green peel (48.574% of peel volume) is frequently utilized for essential oil extraction. Utilizing this source is essential due to the pomelo peel's environmental friendliness and health advantages for people (Son et al., 2021). Although the thick, discarded pomelo peel makes up between 35% and 60% of the fruit, the sweet, juicy, and juiciest component of the pomelo is the pulp, which is the major part ingested. As a result, each year there is a lot of pomelo's peel waste due to the consumption of pomelo. However, a wealth of study demonstrates that pomelo peel is rich in a variety of nutrients and useful substances, including dietary fiber, pectin, essential oils, and different polyphenols (Hung et al., 2023).

2.2 Product Review

Pomelo's peel actually taste bitter and people thinks it cannot be eaten. But by using a few technique like blanching. Blanching in the world of cooking is

basically use to maintain color and taste, but in this project blanching is use to reduce the bitterness of the pomelo's peel. If blanching usually done only one time, in this process blanching use about 3-4 times and in each blanch process must remove the used water and change it into a new clean water. The purpose is to remove the bitter taste from the blanched water.

Pomelo's peel texture is easily breaks apart after soaked in water. To make it chewy, velvet and drying technique is the suitable process to make it chewy. For the gulai, Indonesian herbs and aromatics always used in this dish. So the taste of this gulai will be rich of herbs and aromatics. Overall, after the dish is done, the target of this project is to make the pomelo's peel texture similar as kikil and for the gulai to be rich and savory.

Gulai usually uses chicken, beef, mutton and other proteins, but in this project, pomelo's peel is the main ingredient. Gulai's paste contain many Indonesian aromatics and herbs like turmeric, shallots, garlic, cumin, coriander, red chili and bird eye chili that have been blend. After blending all of the ingredient, cook it on a medium-low heat until its fully cooked (appendix). Then deglaze it with water and add coconut milk and bring it to boil and wait until it is reduce. Gulai has a thick soup consistency. Gulai's flavor is spicy and savory.



Figure 2.2 Gulai's Paste Ingredients

2.3 Process Review

Pomelo peel has to have the bitterness removed before processing since it has a very strong bitter flavor. Several research have documented the effects of drying on the antioxidant capacity of certain dried citrus products, confirming that the drying process does influence the antioxidant composition and its capacity. The impact of various drying techniques on the phenolic compounds and antioxidant activity of pomelo by-product has. However, only been the subject of a small amount of research (Rahman et al., 2018).

Blanching is a time-honored and widely used technique in the food business. Prior to freezing, canning, or drying, fruits and vegetables are heated to inactivate enzymes, change texture, maintain color, taste, and nutritional content, and release trapped air. A more homogeneous treatment is often achieved with water blanching, enabling processing at lower temperatures. By concentrating on the proper enzyme indicator, blanching time might be cut in half while also addressing the following issues: boosting product quality (by retaining more nutrients and other fresh-like qualities), lowering energy costs, and lowering waste generation (Dekker et al., 2004).

The first process to do blanching is prepare enough water in a pan to blanch the item. Next step is to turn on the heat to medium-high and wait until the water reach 80° C. After it reach 80°C, put the item and let it sit for 1 minute then take it out from the pan and drain it. Normally based on the Research journal say that the water temperature for blanching is between 75° C - 95° C degrees for 1 until 10 minutes (Adiil et al., 2019) .

Blanching can reduce bitter taste of pomelo's peel because blanching can reduce or stop enzymatic activity in food, eliminate strong flavors and heat-labile microorganism, maintain food quality, and inactivate endogenous toxic components of food to improve food tenderness, flavor, and nutritional value (Anthony et al., 2016).