

CHAPTER II

LITERATURE REVIEW

2.1 Ingredients Review

Crab shells are not often used by many individuals, they frequently end up as waste that is harmful to the environment (Abdelgalil & Abo-Zaid, 2022). Crab shells are used for variety of objects and have numerous benefits. Crab shells can be put to use in a wide range of fields, including agriculture, medicine, manufacturing chemicals, construction, cosmetic production, culinary and significantly more (Popović et al., 2023). It would be unfortunate if this ingredient, which has nutrients along with uses that advantageous to humans, were not properly reprocessed. It is claimed that crab shells contain phosphorus (0,78%) , calcium (22,93%), crude fiber (10,89%), and protein (32,95%). The production of natural food flavours or seasonings is one of the products made from crab shells (Azizah et al., 2020). Apart from being able to make better environmental circumstances, creating seasoning by processing ingredient that is considered waste can introduce new uses for crab shells to people who were not previously thought of. Crab shells have a quite high nutritional value. Thus, using them as a seasoning can enhance food flavour and impart a hint of crab taste without using crab meat while also being healthful.

2.2 Product Review

As crab shells are a rich source of chitin, protein, and minerals, they have the potential to be utilized in the food industry (Jun et al., 2019). Crab shell-based powdered broth is one of the results of processing in culinary industry and does not yet widely recognized in Indonesia. It is created by dehydrating and grinding crab shells into a powder, which is then combined and cooked

with various spices to intensify the crab flavour, and subsequently used as a seasoning in innumerable dishes.

The powdered broth that is available in markets is often made with either chicken or beef. Typically, seafood itself must be used to provide a seafood taste to food. Along with being a new product, powdered broth made from crab shells may offer dishes a savoury flavour and a seafood sense of taste without using actual aquatic creatures. Additionally, by omitting additional preservatives and MSG from the powdered broth, this product's manufacturer aims to create a healthier alternative to seasoning and increase people's awareness of the other applications for crab shells.

There are still plenty of individuals who choose to eat bland or lesser-flavoured foods to avoid being negatively impacted by MSG. Moreover, the market-available powdered broth contains additional chemicals to extend its shelf life. Besides deliberately using main ingredients that can reduce waste, this product is intended for people who want to use powdered broth without being concerned about their health.

One potential drawback of crab shell-based powdered broth is that it may not be suitable for those with shellfish allergies. It is also not widely available in the market, which may make it difficult to source. However, with the increasing awareness of sustainability and reducing food waste, the use of crab shells in culinary products is likely to increase.

2.3 Process Review

Contrary to common perception, making powdered broth without the incorporation of chemicals is not as challenging. Dehydration is an alternative approach that can be employed. It is a method to reduce the amount of moisture in a product so that it lasts longer since microbes do not have their need for growth, which is water (Britannica, 2021).

Dehydration can be accomplished in a variety of ways, such as sun-drying, air-drying, microwave drying, oven-drying, and using electric dehydrators. Sun

and air drying are not recommended since, in addition to being unhygienic, it take an extended period of time, making them ineffective and inefficient. Microwave drying is only possible for certain items like herbs and leaf vegetables. Also, the possibility of success is extremely small for numerous foods.

As for drying food ingredients, both an electric dehydrator and an oven are capable of doing so. However, using an oven will not produce as excellent of a result as using an electric dehydrator. The final drying with the oven will be darker and less flavourful than it was initially. The main purpose of an oven is for cooking rather than drying, so it will need more supervision. In addition, the temperature control is tricky as it cannot be consistent and the airflow is uneven (Willenberg, 2021).

An electric dehydrator, as opposed to an oven, is designed specifically to dry food products. Without affecting the amount of nutrients or enzymes presents, a constant and even temperature causes moisture and water content to decline. The success rate of drying items using an electric dehydrator is higher. It does not need to be closely watched, it can dry a variety of item at once, and because each product is placed on a separate layer of tray, the taste of every item is assured to be preserved (Food Dehydrator Vs Oven: Which One Works Better in Drying Food?, n.d.).