

CHAPTER II

LITERATURE REVIEW

2.1 Ingredients Review

2.1.1 Pineapple

Pineapple fruit is a fruit that is in high demand across a wide range of nations, however in Indonesia as evidenced by the declining consumption of pineapple fruit, it is not very popular, this can be seen from the decreasing consumption of pineapple fruit. This explains that Indonesia has not yet optimized its export potential from high production domestic pineapple (Safitri & Kartiasih, 2019)

According to Sukriadi *et al.*, (2022) pineapple is a plant that comes from tropical America, namely Brazil, Argentina and Peru. These plants have spread widely throughout the world, especially in the area around the equator between 30° LU and 30° LS. Regions in Indonesia as potential pineapple producing centers are in East Java, West Java, North Sumatra, South Sumatra and Riau. Pineapple plants can grow in the lowlands and highlands, and one pineapple tree can produce one pineapple fruit. Syakila (2021) explain there are 52,0 kcal, 13.7g of carbs, 0,54g of protein, 130 I.U of vitamin A, 24 mg of vitamin C, and 150 mg of potassium in 100 grams of pineapple can provide 16.2% of daily vitamin C requirements. Pineapple includes citric acid, malic acid, and oxalic acid in addition to vitamins.

2.1.2 Starfruit

Star fruit is a star-shaped fruit and has a green color when it is not ripe, whereas when it is ripe the color of the fruit will change to a yellow to orange color. This fruit is usually consumed by juicing rather than being eaten

directly, apart from juice, this fruit is usually processed into a salad. rich in vitamins (provitamin A), B and C, also has high iron and high fiber contents (U.F & Nwaoha, 2020).

According to Lakmal *et al.* (2021) beneficial effects of star fruit, explored the potential mechanisms for such beneficial effects, and outline factors that may affect the safe level of consumption. The beneficial effects include the following: antioxidant (mediated via L-ascorbic acid, epicatechin, and gallic acid), hypoglycemic (mediated via high fiber levels and 2-dodecyl-6-methoxycyclohexa-2,5-diene-1,4-dione), hypotensive (mediated via apigenin), hypocholesterolemic (mediated via micronized fiber), anti-inflammatory, anti-infective, antitumor effects, and immune-boosting effects.

2.1.3 Yeast

Yeasts are eukaryotic microorganisms that live in a wide variety of ecological niches, mainly in water, soil, air and on plant and fruit surfaces. Perhaps the most interesting habitat at this point is the latter, since they directly intervene in the decomposition of ripe fruit and participate in the fermentation process. In this natural environment, yeasts can carry out their metabolism and fermentation activity satisfactorily as they have the necessary nutrients and substrates (Maicas, 2020).

2.2 Product Review

2.2.1 Wine

Wine is an innovative alcoholic beverage produced by the yeast fermentation of grape must consist of the species *Vitis vinifera*. The art of preparation of wine was started back 6000-5000 BC (Fracassetti *et al.*, 2019). It has functional properties which pose many health benefits such as anti-

aging effects, improve the lung function, reduce the coronary heart disease, helps in the development of healthier blood vessels in elderly people, act as an antiulcer agent, acting as an antioxidant and also act as anti-carcinogenic. The polyphenolic components of the wine depend on the type of substrate used for its preparation.

Wine can be made from tropical, subtropical, and temperate fruits that are highly perishable, nutritionally diverse, and underutilised, such as raspberries, pomegranates, sweet potatoes, papaya, pineapples, and kiwi fruit (Sandhu & Morya, 2022).

2.3 Process Review

2.3.1 Wine Fermentation

This wine is produced utilizing a fermentation procedure, in which yeast performs one type of metabolism. *S. cerevisiae*, the predominant yeast in this reaction, turns the substrate glucose into the product ethanol. Other yeasts (non-Saccharomyces) that participate in the fermentation process in addition to *S. cerevisiae* are crucial for enhancing the quality of wine (Elisabeth, 2021).