

CHAPTER II

LITERATURE REVIEW

2.1 Ingredient Review

2.1.1 Senna leaves

Senna leaves, usually called *Senna alexandrina* are a plant that is often used for herbal medicine and weight loss. Senna leaves have been used as herbal medicine and traditional medicine (Dirhamsyah., 2021). These leaves are used by brewing them like tea in general, but with the right dose because these leaves can have side effects. Senna leaves are also commonly used in colonoscopic procedures because they are able to cleanse the intestines. This is because Senna leaves have laxative compounds called anthraquinone glycosides (Santoso., 2018), which are proven to be able to facilitate bowel movements.

2.1.2 Reed

Reeds, or *Imperata cylindrica*, is a type of grass with sharp leaves. In general, reed is used to protect the soil from erosion. Reed also has benefits such as treating hypertension (Prisdiany & Levita, 2019) overcoming difficulty urinating, treating digestive disorders, preventing disorders of the heart and blood vessels, reducing inflammation, preventing cancer growth, and so on.

Imperata cylindrica is one of the plants that have been used traditionally since ancient times. to treat various indications. The plant has experienced phytochemical investigations, experimental and a wide range of clinical constituents active in the plant. These include vitamin C and polyphenols (flavonoids, triterpenoids, saponins, and lignans). Studies Experimentally, it has shown its function in inflammation and its effects antibacterial, wound healing activity, cytotoxic activity, neuroprotective effect, hepatoprotective effect, cardioprotective, and activity oxidative stress inhibition (Sulistiyowati., 2017)

2.1.3 Scoby

Scoby (Symbiotic Culture of Bacteria and Yeast) is a secondary metabolite from kombucha fermentation that forms a cellulose structure (Abass, 2016). The dominant microorganisms found in kombucha include *Acetobacter xylinum*, *Saccharomyces cerevisiae*, *Brettanomyces*, and *Zygosaccharomyce* (Simanjuntak *et al.*, 2016). The yeast group will use the sugar in the sweet tea solution as a substrate and convert it to alcohol. The resulting alcohol will be consumed by a group of bacteria to produce organic acid compounds, where in kombucha the dominant acidic compound is acetic acid. Fermentation itself is a chemical change of organic compounds by enzymes produced by microorganisms.

2.2 Product Review

By fermenting the beverage, we can get probiotic drinks resulting from the fermentation process that has been carried out. Probiotics are live microbes that have a beneficial effect on the host through shape modification and attachment (association) with the host or the microbial community in their environment so that they can improve food digestibility, protect against pathogen attack, and improve environmental quality (Wardika, Suminto, Sudaryono., 2014).

Tannins are a flavonoid compound that gives foods a bitter taste. The average tannin content of kombucha with the basic ingredients of senna leaves has decreased along with the increase in fermentation time. Tannins in kombucha tea experience degradation due to processing and brewing processes (Naland., 2004).

2.3 Process Review

The leaves can provide a healthy drink, and the advantage of the drink will increase when fermented by microorganisms. The culture is a group of colonies that represent a symbiotic relationship between yeast and bacteria. by breaking glucose and fructose into gluconic acid and other organic acids.

The result of this fermentation is best used for relieving constipation, body restoration, overcoming atherosclerosis, helping digestion function, increasing immunity, neutralizing toxins, and destroying cancer cells. A scientific report says that this drink has an antibacterial effect against pathogenic bacteria (Rinihapsari, Richer., 2013).

The microorganism in the scoby is anaerob microorganism, These bacteria convert sugar into alcohol and produce essential substances, in the form of glucuronic acid acetic acid, lactic acid, enzymes, vitamins, minerals, amino acids and antibiotic substances (Aini *et al.*, 2022). Anaerobic fermentation is a process that involves lactic acid bacteria (LAB) to be able to maintain feed products while enriching the benefits of feed with existing biotic benefits and lactic acid products as the main result. As a result of the fermentation process, the feed has an acidic pH (Allaily *et al.*, 2017).

A few days after fermentation, a new scoby will produce. this indicates that the fermentation process is going well, the new scoby can be used to make fermented drinks as well. And to make a starter, leave the fermentation process for a couple of month. This process will make the product is not capable for drink, but it will be a starter for another fermenting process.