

CHAPTER I. INTRODUCTION

1.1 Background

Functional food is food contains active components that could provide health benefits, beyond the benefits provided by the nutrients contained (Astawan, 2011). The bioactive components found in functional foods are dietary fiber, probiotics, prebiotics, synbiotics, antioxidants, omega-3 fatty acids, omega 6, omega 9, and phytochemical compounds (Winarti, 2010). Functional bevarages are one of the beverages products that are currently being developed. Functional beverages must have characteristics as beverages that provide sensory uniqueness, both in terms of color and taste, contain nutrients, and have certain physiological functions for the body such as maintaining endurance, maintaining physical condition, preventing the aging process and preventing disease (Ridwan *et al.* ., 2016).

Plants are one of the oldest known natural ingredients as functional food sources. One of these plants is areca nut which belongs to the family Arrecaceae or Palmae, which is a type of coconut tree with one seed or monocot. Jambi Province has the potential for areca plantations which is quite wide, which is around 19.967 Ha which spreads in almost all districts (Directorate General of Plantations, 2015). Areca seeds contain 15% condensed tannins (phlobatin, catechins) polyphenols and 0,2-0,5% alkaloids (arecoline, aracidine, guvacine and guvacoline) which act as antioxidants (Rathod et al., 2015). Tannins are phenolic compounds which are secondary metabolites of plants have antioxidant activity and consequently have physiological benefits (Zhang et al., 2014).

The process of processing areca seed is still carried out in a simple manner and research on areca nut is still lacking, especially in development as a raw material for functional beverages. One of the uses of areca seed as medicine by the community is with boiling it using water, therefore the development of areca seed as a functional beverages is a good alternative to get a healthy beverages. The tannins contained in areca nut seeds could cause chelate taste and volatile compounds that can cause unpleasant aromas, so their application in product must be controlled (Harnowo and Yunianta, 2015).

Pineapple is a local fruit that can grow well in Indonesia and in general, the taste of pineapple is liked by the public. The high water content of pineapples causes pineapples to not be stored for a long time because the fruit is easily damaged and decayed due to the presence of microorganisms (Wiyono and Kartikawati, 2017). Processing of pineapple fruit into fruit juice could be done to extend the shelf life of pineapple if it is formulated with betel seed extract to function as a functional food. In addition, by making fruit juice, the cellulose cell walls of the fruit will be destroyed and dissolved so that it is easier to digest by the stomach and digestive tract (Wirakusumah, 2013).

Lestari *et al.*, (2020) stated in the manufacture of functional beverages with a concentration of 80% pineapple juice and 20% turmeric juice was the best treatment based on sensory characteristics and vitamin C. According to Septiana and Hidayah (2009), the manufacture of functional beverages from sliced dried fruit of crown of god by boiling as much as 5 grams in 1 L of water to a volume of 600 mL has antioxidant activity as indicated by the inhibition of peroxide formation by 38.20% and inhibition of malonaldehyde (MDA) of 28,98%.

Based on research results Wetwitayaklung *et al.*, (2006) antioxidant activity of 1000 grams of betel seed extracted with 2000 mL of water was higher than that of the roots, stems, skins and leaves of areca nut. According to Yenrina *et al.*, (2014) the antioxidant activity of raw betel seed syrup from 100 grams of betel nut in 300 mL of water produces 53,52% using a temperature of 80°C -100°C for 10-15 minutes. Mawa's research (2017), states that in the manufacture of Functional beverages of areca nut seeds as antioxidants have astringent taste, so further research is needed.

Based on this description, researchers are interested in research with the title **"The Effect of Concentration of Areca Seed Extract (*Areca Catechu* L.) on Physicochemical and Sensory Properties of Pineapple Juice (*Ananas Comosus* L. Merr) as a Functional Beverages"**

1.2 Research Purpose

The Puroposes of this research are:

1. To determine the effect of the concentration of areca seed extract on the physicochemical and sensory properties of pineapple juice as a functional beverages.
2. To determine the appropriate concentration of areca seed extract to produce pineapple juice which has the best physico-chemical and sensory properties.

1.3 Research Benefits

This research is expected to provide information and increase the utilization of areca seed and pineapple fruit and in particular to determine the effect of the concentration of areca seeds on pineapple juice as a functional beverages.

1.4 Research Hypothesis

1. Concentration of areca seed extract affect on the physicochemical and sensory properties of pineapple juice as a functional breverages.
2. Obtaining the best concentration of areca seed extract and applied in the manufacture of pineapple juice as a functional breverages.