

CHAPTER I

INTRODUCTION

1.1 Background of Study

Ready-to-eat (RTE) cereal is a preferred option for kids breakfasts. RTE cereal increases a child's intake of nutrients, including those that are important for health (such as calcium, fiber, potassium, and vitamin D). We also discovered that children who ate RTE cereal had 29% higher total dairies than non-eaters (Smith *et al.*, 2019). Therefore the need of ingredient that can support health to meet nutritional needs has increased, by using local product that have a high amount of production in Indonesia can make the production of this study easier, the ingredients that are used in this study is purple sweet potato.

Sweet potatoes (*Ipomoea batatas (L) Lam*) is one of the most important tuber products, especially in parts of Southeast Asia including Indonesia, because sweet potatoes can be harvested throughout the year (Kurnianingsih *et al.*, 2020). It has been claimed that the anthocyanin content in purple sweet potatoes is significantly higher than that in typical orange-fleshed sweet potatoes. Purple sweet potato anthocyanins are types of natural anthocyanin red pigments extracted from the root or stem of purple sweet potatoes. They are stable and have the functions of anti-oxidation, anti-mutation, anti-tumor, liver protection, hypoglycemia, and anti-inflammation, which confer them a good application prospect. Daily dietary structure of American residents revealed that the average daily anthocyanin intake per capita was about 12.5 mg/day. Therefore, purple sweet potatoes can not only be used as a green food to meet people's daily intake of cereals and potatoes but also increase the daily intake of anthocyanins to achieve health benefits (Li *et al.*, 2019). However, studies have shown that methods of cooking like boiling, and baking reduced the amounts of anthocyanins but slightly increased during steaming process (Tian *et al.*, 2021; Mulyawanti *et al.*, 2018). There's also some ingredient that added the anthocyanins content that are used in this study namely miana leaves.

Miana is the Lamiaceae family of flowering plants, which is native to South East Asia and its surrounding areas. Miana has a rectangular stem appearance in Indonesia. Its leaves have an ovoid or triangular shape, and their colors range from green to purplish-red. Its flower has a form of stacked strands on its buds in red, white, purple, or yellow variations (Yanto *et al.*, 2020). Miana leaves are widely used by Indonesian people as medicine to cure various diseases. This review will serve as the first comprehensive study on the molecular mechanism and immune response of Miana in infectious disease as a potential agent for combating infection in the years to come. Miana is one of the herbal medicines that have promising potential immune regulator effects. Toraja people in South Sulawesi, Indonesia, use Miana leaves to treat infectious diseases or boost their immunity (Yanto *et al.*, 2020).

1.2 Object of Study

The objective of this study are following below :

1. In order to follow the global trend and due to increasing demand on gluten free product, the study aims to create gluten free and high-antioxidant cereal with purple sweet potatoes and miana leaves from local resources, which is purple yam and miana leaves.
2. To review nutritional content of cereal purple sweet potato with miana leaves