

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Strawberry is recognized as one of the most nutritious berry fruits, as it contains an abundance of bioactive compounds such as folic acid, vitamin C, dietary fiber, flavonoids, anthocyanins, and various antioxidants that are highly beneficial for human health (Ather-uz-Zaman et al., 2018). These nutritional components not only contribute to improving the immune system but also play an important role in reducing the risk of degenerative diseases, including cardiovascular problems, diabetes, and certain types of cancer. Despite its high nutritional and economic value, the cultivation of strawberries in Indonesia has not yet been extensively developed or widely practiced. One of the main limitations is that strawberry plants thrive only in low-temperature environments, which means they can only be cultivated successfully in highland areas of Indonesia. This geographical restriction narrows the possibility of large-scale production.

In addition to climate challenges, most strawberry farmers in Indonesia still adopt traditional or conventional cropping methods. The absence of advanced technology, as well as weak and non-integrated land management, often results in higher vulnerability of plants to pests and diseases. Such conditions not only decrease the productivity of strawberry cultivation but also compromise the quality of the harvested fruits, which directly affects their competitiveness in the market. Nevertheless, strawberries continue to hold bright prospects as a profitable commodity in the domestic market. Apart from being consumed directly in their fresh form, strawberries can also be processed into a variety of value-added products such as jam, syrup, dodol, sweets, juice, or used as a primary ingredient in desserts such as ice cream and cakes. Although strawberries are not native to Indonesia, efforts to strengthen strawberry agribusiness and agro-industrial systems are highly promising and could become an important source of income, particularly in the agricultural

sector. Such development could also stimulate rural economic growth, provide employment opportunities, and encourage diversification of agricultural commodities.

Indonesia itself is a country with a wide geographical range extending from the western to the eastern regions, supporting a vast diversity of agricultural resources. In recent years, there has been growing scientific and community interest in torch ginger (*Etlingera elatior*), a plant widely known for its functional properties and cultural significance (Muawanah et al., 2012). Torch ginger has been utilized by local communities for generations as both a food ingredient and a medicinal plant (Naufalin, Rukmini, & Arsil, 2018). Its potential is not limited to fresh consumption; rather, it can be innovatively processed into functional food products such as jams, beverages, and herbal preparations.

Moreover, torch ginger has deep culinary applications across various Indonesian regions. In West Java, for instance, its flower petals are popularly used as a natural flavor enhancer in traditional dishes such as chili sauce and pecel, providing a refreshing aroma and distinctive taste. Meanwhile, in Tanah Karo, the Batak ethnic community makes use of both the flowers and fruits of torch ginger to neutralize the fishy odor in carp arsik, a traditional Batak dish. The versatility of this plant is further demonstrated in the use of its leaves, which can be cooked as sour vegetables, and its stems, which are incorporated into a variety of meat-based preparations (Naufalin, 2005). Beyond its culinary uses, torch ginger also possesses bioactive compounds with potential health benefits, making it a valuable commodity not only in the local food tradition but also in the context of functional food innovation and agro-industry development.

In addition to being used as a culinary ingredient, torch ginger provides several health benefits due to its rich nutritional composition, which includes antioxidants, flavonoids, tannins, as well as essential vitamins and minerals. Its high fiber content contributes to digestive health by improving bowel function, preventing constipation, and supporting the balance of gut microbiota.

Furthermore, torch ginger possesses antimicrobial properties that help suppress harmful bacteria within the digestive system.

Torch ginger, scientifically known as *Etlingera elatior*, is relatively easy to obtain and is frequently incorporated into various dishes to enhance flavor (Rian, 2019). Generally, all fruits can be processed into jam, especially those containing pectin (Wismanto, 2014). However, the development of jam from flowers is still relatively unfamiliar to most Indonesian consumers. For this reason, this study explores the potential of torch ginger as a raw material for jam production. Owing to its unique floral fragrance and natural sour taste, torch ginger is considered highly suitable as the basis for an innovative jam product.

Aromatic jam, in this context, refers to a type of jam that highlights a distinctive, natural fragrance originating from the main ingredient itself or from added components such as spices, flowers, or essential oils. The emphasis of aromatic jam lies in its strong scent profile, which provides a more complex sensory experience compared to conventional jam. Torch ginger-based jam is regarded as highly valuable not only because of its refreshing aroma, which can substitute or enhance artificial flavorings in commercial jams, but also due to its antioxidant and antimicrobial activities that may extend product shelf life. The purpose of developing torch ginger jam is therefore to create an innovative food product utilizing local resources, diversify jam varieties available in the market, and provide a new alternative for consumers. As a jam product, it is also suitable for pairing with bread and other bakery items.

Processing methods play a critical role in determining the quality of the final jam product. Proper raw material handling must be ensured to maintain both sensory and nutritional quality. For instance, in the preparation of torch ginger jam, the flowers must first be carefully sorted, selecting only those that display a bright red color. This is crucial because the color of the raw material directly influences the appearance of the final jam. Moreover, freshness must be maintained, and any flowers that show signs of decay or defects should be excluded, as these may negatively affect the taste and quality. A consistent

production formula and method are also required to achieve uniformity in the final product.

This study, therefore, investigates the potential of torch ginger to be processed into a jam product that is not only acceptable to Indonesian consumers but can also gain recognition in international markets. With its distinctive floral fragrance and naturally sour flavor, torch ginger presents strong potential as a raw material for jam innovation. Based on this background, the objective of the research is to determine whether torch ginger jam can be sensorially accepted through organoleptic evaluation, thereby producing a floral jam product with unique characteristics and broad consumer appeal.

1.2 Objectives of the Study

The objectives of this study are following below :

1. The purpose of this study is to determine whether jam made from Torch ginger can be accepted well sensorially through organoleptic tests so as to produce flora jam products made from torch ginger.
2. To find out whether torch ginger can be used as a basic ingredient in making jam.
3. Showing that torch ginger can not only be used as a mixture in food but can be used as a new innovation.