

CHAPTER I

INTRODUCTION

1.1 Background

Durian (*Durio zibethinus Murr.*) is an exotic fruit that is commonly grown in Southeast Asian countries such as Indonesia, Philippines, Thailand and Malaysia. The fruit has a very distinctive taste and odor that people will either love or hate. The odor of durian is commonly expressed as unpleasant or disagreeable but the taste of the fruit itself is sweet and custard like. Durian can be consumed in many ways i.e.-the ripened flesh can be eaten fresh or incorporated in many different kinds of food and beverages such as ice cream, smoothie, candy and many more (Vaughan and Geissler, 2009).

Drying is a common and widely used process in food industry. There are many different methods of drying and with its own advantages and disadvantages. These include freeze drying, spray drying, drum drying and many more. The most common disadvantage caused by drying is nutritional quality loss and change of flavor. However, currently there are plenty emerging technologies in food processing that include the use of drying as an alternative to the conventional methods which applies heat as a mean to dehydrate food product. New drying methods typically show significant advantages compared to the conventional methods (Ratti, 2009). An example of the new drying method is foam mat drying, where liquid food such as fruit juices are foamed by the addition of stabilizer and incorporation of gas. It also has the ability to process materials that are hard to dry due to its consistency (Sudheer and Indira, 2007).

Durian is a fruit that is distinctive for its large size, thus storage and transportation of durians might require high operational cost. Dried durian or powdered durian will have lower moisture content which in turn increases shelf life and eases storage and transportation. Powdered durian takes much lesser space weigh much less as compared to its intact form and thus this can help reducing the price of packaging and operational costs. Powdered durian is also more convenient to be purchased by the consumers as it takes less space and has convenient packaging (Affandi *et al.*, 2017).

Nowadays, instant powder drinks are becoming more popular. Fruit flavored instant drinks, in particular, are especially popular due to its convenience and high consumer acceptability. Manufacturers around the world are selling instant drinks with many kinds of fruit flavor, including durian. However, it is still difficult to find an instant drink with real essence of durian. Most of the commercial durian flavored instant drinks are made with artificial durian flavors. The ability of foam mat drying in producing a porous powdered product with good rehydration properties has opened a way to make a durian flavored instant drink with the real essence of durian. Therefore, this research will be focusing on the making of instant fruit drink with real essence of the fruit using foam mat drying technique.

1.2 Research Problem

Instant drink made of real durian flesh is still uncommon to find in the market. Most of the commercial instant drinks are made from artificial ingredients. Furthermore, it is also difficult to obtain powdered durian by using

conventional drying methods due to the viscosity of the fruit itself. Therefore, this research is conducted to show how powdered durian can be achieved more easily through the use of foam mat drying along with the making of durian flavored instant drink which uses the powdered durian as the main ingredient instead of artificial ingredients.

1.3 Objectives

1.3.1 General Objectives

The main purpose of this study was to perform foam mat drying of durian flesh to create a durian flavored instant drink that captures the real essence of the fruit.

1.3.2 Specific Objectives

The specific objectives of this research are:

- 1) To determine the best combination pulp to water ratio and carboxymethyl cellulose (CMC) concentration to be used in foam mat drying of durian.
- 2) To determine the best combination of albumen concentration and mixing time to be used in foam mat drying of durian.
- 3) To determine the best combination of drying time and temperature for the foam mat drying of durian.