CHAPTER I

INTRODUCTION

1.1 Background

As an agrarian country where lots of plants grow, Indonesia has various types of fruits and vegetables. One of them is papaya (*Carica papaya* L.) which has long been cultivated in Indonesia and known as tropical fruit. As recorded by *Badan Pusat Statistik Indonesia* (2015), the production of papaya in Indonesia is increasing from 772,844 tons on 2009 to 906,305 tons on 2012.

Papaya has high nutritional value and believed to provide easy digestion. According to Tietze (2003), almost all parts of papaya plant has beneficial value, not only directly consumed, but also can be used as therapeutic remedies due to its medicinal properties. The ripen fruit of papaya plant has high vitamin C and vitamin A value. Meanwhile, papaya leaves are proven to reduce symptoms of asthma, worming, and dysentery. Also, papaya leaf extracts is used as remedy for cancer and infectious disease (Tietze, 2003).

Lots people enjoy papaya as delicious fruit, with soft red pulp and sweet taste when it has ripen. Besides consume as fruit, young papaya can also cooked as vegetables. Besides of its fruit, papaya leaves can also be consumed. In Indonesia, papaya leaves are consumed as *lalapan* (side dish) or sometimes cooked and eaten like spinach (Kalie, 2008). Although papaya leaves has been consumed in many region of Indonesia, the consumption of papaya leaves still low due to its bitter taste. The bitterness in papaya leaves is due to the high content of carpain, an alkaloid that can help to lower blood pressure (Rizki, 2013).
Edible sheet is a product inspired from nori, a popular product from Japan which is made from seaweed. Nori is a traditional food from red seaweed Porphyra which has high nutritional value and largely produced as well as consumed in Japan, China, and Korea (Dawezynski, et al, 2007). In Indonesia, sushi has become popular food in this modern time. The increasing of sushi popularity is because it suits Indonesian tastes as it includes rice. Other than used in sushi, nori has become popular snack due to its crispy characteristic. Unfortunately, nori from Phorphyra cannot be produced in Indonesia because Phorphyra only grow in subtropics climate (Teddy, 2009). Thus, to fulfill the demand of nori in Indonesia which keeps increasing, they have to import it from China, Japan, or Korea.

This research aim to make edible sheet since papaya leaves still lowly consumed and ended as waste. However, since papaya leaves does not have adhesive properties, the addition of hydrocolloid agents believed to enhance water binding activity in papaya leaves edible sheet so that it is strong enough and does not easily break. Among all types of hydrocolloid agents, carrageenan, agar, and alginates are chosen because they are extracted from red algae that expected to make the texture of papaya leaf edible sheet similar as nori.

1.2 Research Problem

Papaya leaves with many nutritional benefits is still slightly consumed due to its bitter taste. According to that condition, papaya leaves with addition of hydrocolloids presented as papaya leaves edible sheet to increase the consumption of papaya leaves. The suitability of binder used and concentration of binder on
papaya leaves edible sheet is investigated for its physicochemical and sensory properties.

1.3 Objectives

1.3.1 General objective

The general objective of this research is to study papaya (Carica papaya L.) leaves utilization in edible sheet making.

1.3.2 Specific Objectives

The specific objectives of this research were:

1) To study the effect of water treatment used in blanching papaya leaves toward the reduction of bitter taste

2) To study the effect of salt concentration in blanching papaya leaves toward the reduction of bitter taste

3) To study the effect of different types of binder used toward the physicochemical characteristics of papaya leaves edible sheet

4) To study the effect of different binder concentration toward the physical characteristic and sensory properties of papaya leaves edible sheet