

CHAPTER I

INTRODUCTION

1.1 Background

Ice cream is a creamy, sweet, soft, and cold frozen delicacy that is made from ingredients such as, milk, sugar, food additives such as emulsifier, stabilizers, flavorings, and sweeteners (Marshall *et al.*, 2003). Nowadays, people can even make their own ice cream at home, however not all people can accommodate the tools that are required to make ice cream. Hand mixer is a common household kitchen equipment that has a sole purpose to mix and homogenizing a mixture. Therefore, instant ice cream mix has the edge over regular made ice cream in terms of simplicity and processing time by utilizing hand mixer as the only equipment needed for processing before freezing step. Powdered drinks in Indonesia were once popular due to its flavor and simplicity. By turning the once popular powdered drink flavor into ice cream mix that can easily be made at home, it can bring a nostalgic but better feeling for consumers.

However, to emulate the favorable texture of ice cream, the right combination of emulsifiers and stabilizers in the production of ice cream need to be observed. In this research a ready to mix chocolate powder mix will be re-formulated to become an instant ice cream product. According to BSN (1995) and Bodyfelt *et.al.*, (2009), a regular ice cream would need a minimum of 5% w/w fat, 8% sugar w/w, 2.7% protein w/w, 3.4% total solids w/w, and about 30-50% overrun for household businesses and 70-80% overrun for industrial. Therefore, in this

research, maltodextrin and several stabilizers, such as carrageenan, guar gum, and tara gum will be used to respectively mimic the function of fat in ice cream, fulfill the total solids and nutritional requirements of ice cream, to maintain the texture of the ice cream, keeping the emulsion stable, and even preventing the growth of ice crystals (Sinurat *et al*, 2007; Barazendegan *et al*, 2013).

1.2 Research Problem

Ice cream was able to have a creamy texture because of the heating/pasteurization process and the homogenization process. During the heating process, not only it helps with killing microorganisms, but it also helps melting the fat. The melted fat then homogenized to reduce its size, thus making it more stable and be a uniform suspension, resulting in an ice cream that have creamy texture and not appear greasy (Marshall *et al.*, 2003). However, heating is not done in powdered ice cream mix the homogenization was only done through whipping process. Therefore, it is important to find a good formulation that can emulate the traditional ice cream characteristic while using a simpler method. Different types and concentration of stabilizers will be tried in this experiment to find the most suitable concentration that can produce an acceptable instant ice cream formulation.

1.3 Objectives

1.3.1 General Objective

The general objective of this research was to study the effects of different food additives in developing powdered drink ice cream mix.

1.3.2 Specific Objectives

The specific objectives of this research were:

1. To determine the preferred maltodextrin amount to emulate the TSS by observing the effects on the physical properties and sensory properties of the ice cream.
2. To determine the effect of different stabilizers and concentration and which of it gives the best result in terms of sensory properties.

