

## CHAPTER I

### INTRODUCTION

Edible films are generally defined as a thin layer of material which can be consumed, coated on foods or placed as barrier between the food and the surrounding environment (Bourtoom, 2008). Advanced research activities in edible packaging material have been driven by both increasing consumer demands for stable, safe, convenient, high quality foods as well as ecological consciousness. The unique advantages and versatilities of edible packaging are envisioned to create attractive applications and alternatives, including the ability to protect foods with their barrier and mechanical properties, enhance sensory characteristics and control-release active ingredients (Janjarasskul & Krochta, 2010).

Edible films can be formulated from single type of biopolymers or combination of several biopolymers. Edible composite packaging materials have been developed by blending biocomponents for specific applications, aiming to take advantages of complementary functional properties or to overcome their respective flaws (Janjarasskul & Krochta, 2010).

Among many steps in edible packaging production, drying process is one of the most important operations. Generally, edible films were dried at ambient temperature which is the obstacle for production in industrial scale due to low capability. Thus, rapid drying method is required for the reasons of commercialization. In addition, storage conditions are also considered because they affected the film's properties. The stability of edible films depends on many factors during storage especially, temperature, time and % relative humidity. Therefore, the storage stability of edible films is necessary for further commercial applications.



Previous study shows that konjac glucomannan (KGM) film is flexible and easy to be peeled from the casting plate (Cheng et al., 2002). However, KGM film is translucent and low in gloss which is typically opposite to preferred visual properties by consumers. Moreover, KGM film readily solubles in water which is an important obstacle for establishing water resistant packaging. While whey protein isolate (WPI) film is transparent, colorless, tasteless, odorless, heat-sealable with good oxygen barrier and tensile properties at low to medium relative humidity (RH) conditions (McHugh & Krochta, 1994). Blending of these biopolymers is hypothesized to overcome their drawbacks.

Therefore, the aim of this research was to study the effect of incorporating whey protein isolate (WPI) on properties of konjac glucomannan (KGM) based film. The effects of drying rate and storage condition on physical properties of edible composite film from KGM-WPI were also investigated.

