

CHAPTER I INTRODUCTION

1.1 Statement and significance of the problem

Aging is a progressive process involving reduction in maximal function and reserve capacity of the whole organism [1]. It is a consequence of both genetic program and cumulative environmental effects. Among all the organs, aging of the skin is of particular importance because it affects human health, it has a strong social impact due to its visibility. Recently research claim that free radical is the cause of skin aging such as wrinkles, mottled dark spots, a dry, leather-like texture, and loss of elasticity [2, 3]. In theory, the free-radical caused of aging states because cells accumulate free radical damage over time[3]. For most biological structures, free radical damage is closely associated with oxidative damage [4]. Antioxidative agents are believed to play a role in the prevention and treatment of a variety of chronic diseases [5]. The proposed mechanism by which antioxidants protect cells from oxidative stress is by scavenging free radicals and halting lipid peroxidation chain reactions, which can cause DNA damage [6].

Wrinkle is the one sign of skin aging [7, 8] that everyone do not want the wrinkle appear on their skin. Therefore, anti-wrinkle cosmetic are developed under the antioxidant mechanism and widely used. Previously, the synthetic substances are used in anti-wrinkle cosmetic products but now natural substances play a role in decreasing the appearance of wrinkle [9].

Thai herbs are increasingly interested to research and develop for cosmetic and nutraceutical product. Customers believe that natural products are more safety than the synthetic ones. In cosmetic industry, the herbal extracts are widely used. The safety of cosmetic products that contained herbal extracts is considered the hygiene of herbal extraction. In addition, the content of active compounds had to consider. Therefore, the standardization of herbal extract is important and the use of herbal

extracts need to realize for safety and efficiency lead to the highest of customer benefits.

Lychee (*Litchi chinensis* Sonn.) is one of important economic plant in northern of Thailand especially Chiang Rai and Chiang Mai provinces. There almost ten cultivars of lychee, the most well known are “Hong Huay”, “Chakapad”, “Kim Cheng”, “Kwang Chou” and “O-Hia” [10]. Normally, lychee was consumed in fresh or dry fruit as well as syruping as canned fruit. Lychee seeds were the by product from canned fruit process. Previously, many researches on antioxidant properties in seed plants such as mango (*Mangifera indica* L.), tamarind (*Tamarindus indica* L.) including longan (*Dimocarpus longan* L.) [11].

Therefore, this research was emphasized to develop the standardized lychee seed extract for cosmetic product purpose as antioxidant properties.

1.2 Objective

1. To develop standardized lychee seed extract that has antioxidant activities.
2. To find the trend to standardize the lychee seed extract for cosmetic propose.
3. To evaluate the anti-wrinkle properties of cosmetic product that contained lychee seed extract.