

CHAPTER I

INTRODUCTION

Rice bran oil (RBO) is extensively consumed as edible oil in many Asian countries such as China, Japan, Korea, and Thailand. The utilization of this oil is increasing as the ingredient in cosmetics such as cream, lotion and soap. RBO presents unique health benefits that may be attributed to its antioxidant properties. Antioxidants are used in pharmaceuticals and cosmetic formulations mostly to prevent auto-oxidative deterioration of lipid raw materials. Antioxidants are also introduced as primary ingredients in cosmetics to scavenge free radicals produced by ultraviolet light and environmental pollutants which involved in skin aging process (Lupo, 2001).

The most important antioxidant compounds in RBO are γ -oryzanol, mixtures of ferulic acid esters of triterpene alcohols and sterols (Kim, et al., 2001), tocopherols and tocotrienol, a family of isomers that presents vitamin E activity.

Edible RBO presents low content of antioxidant compound due to the production of refining of vegetable oils consist of several steps such as dewaxing, degumming, neutralization, bleaching, winterization, and deodorization. Moreover, up to 90% of the γ -oryzanol and tocopherols family content in crude oil can be lost (Marshall, 1994). Thus, it is interesting to preserve the important components in RBO using the traditional cold-pressed method.

The objectives of this study were to identify the best production method to preserve antioxidant compounds obtained from various production methods. Five productions of RBOs were solvent extraction RBO (SE-RBO), bleached-solvent RBO (BSE-RBO), cold-pressed RBO (CP-RBO), bleached cold-pressed RBO (BCP-RBO) and refined RBO (RE-RBO).

The free radical scavenging activity, content of γ -oryzanol and thermal stability of γ -oryzanol in the RBO from the various production methods mentioned above were compared. The preparations of oil-in-water emulsion using RBO from

various production methods were formulated, the texture, spreadability, skin feel, color, odor, pH and viscosity of each preparation were also evaluated.

The main objectives in this investigation were as follows:

1. To study the effects of production methods of rice bran oil on free radical scavenging activity and content of γ -oryzanol and vitamin E (α -tocopherols)
2. To formulate and evaluate rice bran oil emulsions for skin care products.