CHAPTER 1

INTRODUCTION

1.1 Background, Motivation and statement of problem

1.1.1 Background and Motivation

Cosmetic products in the major markets of the world are becoming increasingly regulated. As this progresses, the needs of the cosmetic industry increase for raw materials that are suitable and are made under manufacturing conditions that assure consistent purity, free from unexpected and harm-ful contaminants, even in minute quantities. Cosmetics are becoming gradually popular with dermatologists, also known as make-up. They are care substances used to reverse the effects of aging, to improve the quality of the skin, to augment facial structures, and to improve the patient's appearance in general (Castle, 2006). They can also be beneficial for certain dermatoses. Cosmetics are generally mixtures of chemical compounds, some being derived from natural sources (such as *Moringa oleifera* oil) and some being synthetics, They are used for personal care and hygiene, to improve appearance, to protect the skin and to keep it in good condition. Not being drugs, cosmetics do not have curative effects. During their daily use, often without knowing it, mistakes are made that may result in discomfort, starting. There is a lot of raw material used for cosmetics products; most of them are natural which abstracted from animals, plants, insects and vegetables and fruit. For example fish scales are in nail polish and mascara, fish scales use in the formulation of bath products, cleansing products, fragrances, hair conditioners, lipsticks, nail products, shampoos and skin care products (Jenkins, 2012). Also Cochineal Beetles are tiny insects that feed on cactus plants, female cochineal beetles eat the red cactus berries, so when the beetles are crushed, a very powerful red dye is produced. Beside that many of plants used for beauty products such as Lavender in an oil base might moisturise your skin, Rose oil is, well, an oil, so it's bound to be

hydrating, and it should at least plump up skin temporarily. It's also high in vitamin C (Castle, 2006), and Calendula has a reputation for healing up skin and reducing redness (Gattis, 2014). From the vegetable and fruits there are cucumber, tomato, carrot, banana and apple and others which used for cosmetics. For an example of the vegetable that extract the cosmetics material is the Sweet Potato ,which is extract the beta carotene that used for the cosmetics products, Beta Carotene is a carotenoid compound responsible for giving fruits and vegetables their orange pigment (Top 10 Foods Highest in Beta Carotene, 2016). A powerful antioxidant, beta carotene has been found to help protect against cancer and aging. (However beta-carotene supplements can increase lung cancer risk for smokers). β-carotene is a fat soluble vitamin, so eating the following foods with a fat like olive oil or nuts can help absorption, therefor the beta carotene is used for cosmetics (Top 10 Foods Highest in Beta Carotene, 2016). There are some of sources of beta carotene such as Carrot, Spinach, Squash and Cantaloupe Melon. In this research, will be extracted the beta-carotene from *Moringa oleifera*. And finding out the yield of the beta-carotene and the types of carotene in the *Moringa oliefera*.

1.1-2 Problem Statement

One of the major public health nutritional problems in Malaysia as a developing country is vitamin A inadequacy. This is because most people in developing countries do not really know the function of carotenoids. They rarely include fruits and vegetables into their diet. Preventable blindness is responsible due to deficiency of Vitamin A. According to (V.S.Ekamet al., 2006), diseases such heart diseases, cancer, cataracts, and macular degeneration can be minimized if sufficient carotenoids are taken into the diet.

Carotenoids had known of it’s attributed to health benefits when consumed as part of human diet .Carotenoids consumptions can reduced the risks of cancers , variety of diseases,eyedisease(cataract),andage-related mascular degeneration(luteinlab.unh.edu). So,it can be said that carotenoids is very useful as it can act as diseases prevention.This project proposes to extract carotenoids from carrot. Fortunately, carotenoids is believed to have derived their name from the fact that they constitute the major source the major pigment in the *Moringa oleifera*, Daucus Carola (Tee, 1995). *Moringa oleifera* is one of

the major source of carotenoids. In Malaysia, these kinds of leaves are can be easily obtain .But the problem is people do not know the use of carotenoids and the importance of it . From the early discovery based on *Moringa oleifera*, it is worth to extract the carotenoids from *Moringa oleifera* that is very useful for human health in term of the role carotenoids play as provitamim A, antioxidant, and food colourant and disease prevention.

Due to the multifunctioning of carotenoids, another method of extraction process was being developed such as supercritical fluid extraction (SFE). Actually, there are many method of extraction process available such as supercritical fluid extraction (SFE), hydrodistillation, and microwave-assisted distillation. However, there are still lack of detail information regarding this process, especially for the purpose of beta- carotene extraction. Thus, Soxhlet extraction has been identified as one of the most economical method and is widely since it required simple apparatus and safe.

1.2 Objectives

There are two main objectives that need to be fulfilled in this study;

1) To extract the carotene form *Moringa Oleifera* leaves.

2) To analyse the extraction of *Moringa Oleifera* leaves and find the yield of carotene extracted from *Moringa Oleifera* leaves.