UNIVERSITI TEKNOLOGI MARA

NATURAL MUCILAGES AND THEIR PHYSICOCHEMICAL PROPERTIES

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ABSTRACT

Mucilages have been widely used as drug excipient since they have shown good properties as binding agents, emulsifiers and gelling agents. In this study, the physicochemical properties of *Hibiscus rosa sinensis* Linn and *Plantago ovata* Forsk seed mucilages were characterized and compared. The mucilages were extracted by water-acetone extraction method. The physicochemical properties of the mucilages were determined using gel permeation chromatography (GPC), pH meter, Fourier transform infrared (FTIR) spectroscopy and scanning electron microscopy (SEM). The result showed that the molecular weight of *Hibiscus rosa sinensis* Linn mucilage was higher than *Plantago ovata* Forsk mucilage. The pH value produced by both mucilages were almost neutral which can be compatible and non-irritating when applied to the body mucous membrane. The common functional groups such as O-H and C-H were observed in the mucilages. The SEM micrographs showed that both mucilages have irregular and amorphous shape. The study concluded that the mucilage of *Hibiscus rosa sinensis* Linn was comparable and as good as the commercialized mucilage, *Plantago ovata* Forsk.

CHAPTER 1

INTRODUCTION

1.1 Overview

It is common for people nowadays to look after natural resources to be applied in their daily life. This is also applied in the pharmaceutical formulation since the synthetic resources are expensive and prone to have more side effects when administered to the patient. Synthetic resources also have poor patient compliance since some of the patients may have poor interaction with these polymers. The plants give a lot of products that can be used as the pharmaceutical excipients. For example, mucilages, the natural product from plant which are present in the plant parts such as seed endosperms, rhizomes, roots, leaves and flowers have been evaluated to be the drug excipients such as binding agents in tablet formulation, disintegrants, suspending agents, gelling agents and sustained release polymers. Mucilages are compatible with the pharmaceutical formulation in which they are less toxic and readily available. They are also cheap and give soothing action when applied to the body.