UNIVERSITI TEKNOLOGI MARA

HIBISCUS ROSA-SINENSIS MUCILAGE AND ITS TRANSDERMAL DRUG DELIVERY PROFILES THROUGH SKIN BARRIER

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ABSTRACT

Transdermal drug delivery system is whereby upon applying on the skin, drug will permeate and reach systemic circulation while bypassing the hepatic metabolism. The major problem in transdermal drug delivery system is percutaneous absorption of drug is hindered by thick layer of keratinized stratum corneum. As such, *Hibiscus rosa-sinensis* (HR) leaves mucilage was investigated as penetration enhancer to promote drug permeation across the skin barrier. HR mucilage was extracted by cold maceration method and was brought to skin permeation study using vertical diffusion cells at different concentration together with sulfanilamide as hydrophilic model drug. HPLC analysis of sulfanilamide was carried out and percentage of drug permeation was calculated. Based on finding, HR mucilage was not able to enhance drug permeation of sulfanilamide through skin. This could be due to the physicochemical properties of both HR mucilage and skin. HR mucilage showed a promising entity in the development of controlled release formulation, as well as topical medicine for skin disease that requires long-term treatment such as skin cancer and psoriasis.

CHAPTER 1

INTRODUCTION

1.1 Overview of study

Pharmaceutical dosage form is one of key player in administration of drug to patient. Through high technology and vast research, transdermal drug delivery system (TDDS) is undergoing rapid development as one of the most promising route after oral delivery system. This system covers large market of approximately £ 2 billion based on only several drugs (Pathan & Setty, 2009). This route of drug delivery is designed to deliver therapeutically significant amount of drug across patient's skin into systemic circulation (Wokovich et al., 2006). By using non-oral route and non-injection which more preferable in most patient, formulation scientists keep a keen eye on development of transdermal route as the most successful innovative research arena in drug delivery system (Pathan & Setty, 2009).

Transdermal drug delivery system offers various advantages than conventional oral dosage form in term of stability, hepatic first pass metabolism, non gastro-irritant and in case of toxicity can be eliminated within time. This route also reduce frequency of