CHE697 RESEARCH PROJECT II

PREPARATION OF DRUG CARRIER FROM GLYCOSIDE AND POLYMER: DRUG RELEASE STUDY

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2016

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CHAPTER 1

INTRODUCTION

1.1 Abstract

Nano-sized vesicles formed from self-assembly glycoside were produced by using two type of different glycoside which is Glucoside Palm Kernel Oil (GPKO) and Galactoside Palm Kernel Oil (GalPKO) with the addition of Polyethylene Glycol (PEG) 12 to optimized drug loading and releasing property and Cholesterol to form a stable vesicle. Besides, dicetyl phosphate (DCP) was added into the vesicle formulation because to induce negative charge and minimize the aggregation between neutral uncharged molecules. The sample is then analyzed for their vesicle characterization to check on their size, polydispersity index (PDI) and surface zeta potential. The main objective is to study the release of drug encapsulated in the vesicle and it is accomplished by using fluorescence spectrophotometer to get the release concentration per unit time.

1.3 Objectives

The objective for this study is:

1. To prepare drug carrier from two type of different glycoside which is Glucoside Palm Kernel Oil (GPKO) and Galactoside Palm Kernel Oil (GalPKO) with the addition of Polyethylene Glycol (PEG) 12.
2. To determine the drug release properties from the drug carrier of GPKO and GalPKO with the addition of PEG.

1.4 Problem Statement

To prepare the drug carrier from glycoside and polymer is intended to control the release of drug at targeted site based on the required frequency of drug exposure at that site for it to show the effectiveness of the drug. This research is aiming to study the drug release mechanism, behavior, property as well as release capacity and rate of release. Thus problem statement related to this study is:

i. What are the release rate by drug carrier of GPKO and GalPKO with the addition of PEG.
ii. What are the drug release mechanism, behavior and property?
iii. Does using different combination of polymer and glycosides will give significant effects to the release of drug from its carrier.

1.5 Scope of Research

This study is aimed to determine the drug release from the drug carrier. The drug carrier is made of GPKO and GalPKO with the addition of PEG.The preparation method and formulization optimization would give impact in the release property as well as capacity. The encapsulated drug will be released vary according to their type of vesicles. To check on the release capacity, instruments used are fluorescence spectrofluorometer.