UNIVERSITI TEKNOLOGI MARA

THE FORMULATION OF AGAR-BASED SUSTAINED RELEASE TABLET OF CHLORPHENIRAMINE

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TABLE OF CONTENTS

ABSTRACT

The objective of this study was to formulate a sustained released tablet of chlorpheniramine by using different concentration of agar. Sustained released tablets were prepared using agar as polymer, lactose as filler and chlorpheniramine as active ingredient. The tablets were analyzed in terms of swelling index and dissolution profile. Results from the study showed that formulation with 10% agar followed zero ordered drug release profile and has highest percentage of swelling. This proved that agar-based sustained release chlorpheniramine tablet has advantage over normal release tablets.

CHAPTER 1

INTRODUCTION

1.1 Antihistamine

1.1.1 Types of antihistamines

Since the discovery of the first antihistamine, piperoxan, by Daniel Bouvet and Ernest Fourneau in the 1930's, antihistamines have been used to treat a variety of symptoms of hay fever, the common cold, eczema, and chronic hives (F. E. R. Simons & Simons, 1994) as well as used to treat nausea and vomiting in pregnancy (Madjunkova, Maltepe, & Koren, 2014). During the 1940's many other antihistamines were discovered including diphenhydramine, chlorpheniramine and promethazine and by the 1980's several second generation antihistamines were available including terfenadine, loratadine and acrivastine (Church & Church, 2011).

Histamines are molecules that mediate various physiological and pathophysiological conditions of a body such as allergy and inflammation (Shimamura *et al.*, 2011). There are four type of histamine receptors in the human body; H1, H2, H3 and H4 receptor. H1 receptors are located in endothelium cells of blood vessels, smooth muscle cells of respiratory airways, and in brain. H1 receptors play their role in inflammations and allergies condition. When antigens (dust, mites, virus, pollen