UNIVERSITI TEKNOLOGI MARA

FORMULATION AND EVALUATION OF BENZYL BENZOATE TOPICAL PREPARATIONS

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TABLE OF CONTENTS

ABSTRACT

Background: Benzyl benzoate is one of the drugs used to treat scabies. However, efficiency of the treatment depends on the rate of penetration of the drug through to the target site of the skin. Different type of formulations with different rheological properties have different rate of penetration of the drug through the skin.

Objective: The purpose of this study is to find the relationship between the viscosity of different topical formulations and in vitro release of medicaments from them.

Methods: Different types of formulations such as lotion, emulsion, gel, ointment and emulgel have undergo viscosity observation by using Rheometer and also in vitro release studies by using Franz diffusion cell.

Results and discussion: Emulgel has released the highest amount of benzyl benzoate. The tested preparation can be arranged in the following descending order according to the release of benzyl benzoate: emulgel > lotion > emulsion > gel > ointment. The higher the viscosity of the formulation, the lower the amount of benzyl benzoate released. However, for emulgel the benzyl benzoate released is not depend on viscosity only. Composition of the emulgel which is the combination of emulsion and gel influences the amount of benzyl benzoate released.

CHAPTER ONE

INTRODUCTION

1.1 Background

Benzyl benzoate is an ester with pleasant aromatic odor. The physical appearance of this compound is colorless viscous oily liquid. The esterification process of benzoic acid with benzyl alcohol will yield this compound (Florey et al., 1981). It is hydrophobic drug. It has very high boiling point which is 323^0C. Besides that, it also has low volatility, so it is suitable in the application inpharmaceutical field. A part from that, benzyl benzoate is stable under normal temperature and pressure, so the stability problem during storage can be overcome when using benzyl benzoate ("Benzyl benzoate | CAS 120-51-4 | Santa Cruz Biotech," n.d.; "benzyl benzoate | C14H12O2 | ChemSpider," n.d.).

Benzyl benzoate is one of the drugs used to treat scabies (Mounsey, McCarthy, & Walton, 2013).There are some signs and symptoms characterized for scabies. For example, severe itching usually most severe at night, red spots, skin lesion which is commonly on the waist, feet, and ankles (Bignell, 2010).This itching sensation will cause excessive scratching that eventually can cause skin lesion. This lesion will expose the body to secondary bacterial infection(Karthikeyan, 2005).There are different types of scabies and the most dangerous is crusted scabies ((Baccouche, Sellam, Guegan, Aractingi, & Berenbaum, 2011). This crusted scabies is uncommon