

UNIVERSITI TEKNOLOGI MARA

**RELATIONSHIP BETWEEN THE WATER
NUMBER OF OINTMENT BASES AND THE IN-
VITRO RELEASE OF MEDICAMENTS**

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ABSTRACT

Water number of ointment bases may be defined as the largest amount of water held by 100 gm of the base at definite temperature. In this study, it seemed interesting to find whether the water number of the ointment base affects the release of medicament from them. Both oleaginous and absorption ointment bases were chosen for this study. Ketoconazole, an antifungal hydrophobic drug was selected for this research in a concentration of 1%. The in-vitro release of ketoconazole from the tested bases was performed by the Franz diffusion cell using cellulose acetate membrane at 32°C. Ketoconazole released was determine by UV spectrophotometer at 269 nm. Addition of cetostearyl alcohol to soft paraffin has increased the water number of soft paraffin from 11.5 ml to 57.5 ml, while for wool fat the water number of 202.5 ml was determined. The tested bases can be arranged in the following descending order according to the release of ketoconazole:

Wool fat > soft paraffin with cetostearyl alcohol > soft paraffin.

Keywords: Water Number, Ketoconazole, UV Spectrophotometer, Franz Diffusion Cell

CHAPTER 1

INTRODUCTION

1.1 Research Background

Drugs can be incorporated in many dosage form to be delivered for therapeutic effect in our body. There are so many type of dosage form having different properties, such as solid, semi-solid, liquid and others. Different types of dosage form are associated with different routes of administration, such as oral, topical, intravenous and others. This study focuses on topical dosage forms as ointments.

Topical dosage forms are used for delivering drug externally that is on the skin or mucous membrane. They are mainly used for local effects of the drugs such as antiseptics, antifungals, anti-inflammatory and as emollients for protective effects (Aulton, 1988, p. 5,6). Besides having local effects, topical preparations can also give a systemic action regards to their dermatological applications. According to Osborne & Amann, 1989, a topical dermatological product is prepared to convey drugs into the skin as the target organ and treat dermal disorder, referring to local action of topical preparations. Meanwhile, transdermal products are prepared to convey drugs through the skin, known as percutaneous absorption, into the general circulation for systemic effects and the skin is not becoming the target organ, referring to systemic effect of topical