

UNIVERSITI TEKNOLOGI MARA

**MICROBIAL TRANSFORMATION OF
ETHYNODIOL DIACETATE**

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**Dissertation submitted in partial fulfilment of the requirements for
the degree of Bachelor of Pharmacy (Hons.)**

2015

ACKNOWLEDGEMENT

Alhamdulillah, all praise to Allah for giving me the strength to be able to complete my final year project together with the thesis writing. First and foremost, I would like to express my sincere gratitude to my supervisor, Dr Sadia Sultan for her continuous support, patience, motivation and guidance throughout two semesters of doing this research.

I also would like to express my gratitude and appreciation to Miss Sharifah Nurfazilah that help me a lot in completing my laboratory work including her opinion and guidance throughout the project. I am very indebted to her patience and generosity in sharing the knowledge and experience of doing the research project.

A special thanks to my family especially both of my parents for their continuous support and encouragement toward me in completing this research project. Also million thank you to all my friends who keep on motivating me in completing this thesis writing. Thanks to any person who directly or indirectly involved in completing this research project.

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ABSTRACT

The studies on microbial transformation have been well established as an important tool for the modifications of highly complex structure like steroids. Primarily, it can be used to synthesize chemical structure that might be difficult to obtain synthetically. Currently, research has been focused on structural modifications of bioactive steroids by using various microorganisms in order to obtain biologically potents compound with diverse structure. In this study, ethynodiol diacetate has been used as a substrate and undergone fermentation with nine selected endophytes. High Performance Liquid Chromatography (HPLC) has been performed to identify the biotransformed products.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Steroid can be ranked as the most broadly marketed product and most widely used for many therapeutic purposes. It ranges from anti-inflammatory, diuretic, progestational, immunosuppressive and anabolic to contraceptive agents (Rao, Thakkar, & Pawar, 2013).

The steroid drugs can be synthesized either through microbial or chemical routes in which both involved the conversion of steroid precursors into the drug intermediates and finally lead to conversion into active drug (Rao et al., 2013). Steroid molecules often have complex structure and due to high regio- and stereo-selective render the used of microbial synthesis instead of chemical synthesis. Microbial synthesis or often known as biotransformation involved the use of organisms or the enzymes to produce a variety of useful products with biologically potent which are difficult to be achieved through chemical synthesis. Bacteria and fungi are widely been used in this transformation studies (Alfarra & Omar, 2013).

One of the successful applications of this microbial technology involves the production of steroid drugs and hormones in large scale industrial process. The