

UNIVERSITI TEKNOLOGI MARA

**MICROBIAL BIOTRANSFORMATION
OF
MEDROXYPROGESTERONE**

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ABSTRACT

Microbial biotransformation studies are very important in a new drug discovery or in pharmaceutical products for many years. The advantages of this process compare to chemical synthesis method were that, this method has high stereoselectivity, enantiomeric, regioselective under mild conditions, handle easily, cheaper and green environment by reduced the hazardous chemical usage. In the current work, the compound of interest or starting compound used to undergo the biotransformation process is medroxyprogesterone (MP), which was derived from steroids and also an metabolite of medroxyprogesterone acetate (MPA). MP was undergo fermentation with fungi for different incubation times. The extract obtained after fermentation were then analyzed by using High Performance Lipid Chromatography (HPLC) with Diode Array Detector (DAD). There are seven fungus involved in this studies which were *C. elegans*, *V. lecanii*, *A. coerulea*, *B. bassiana*, *B. cinera*, *T. roseum*, and *M. plumbeus*. Lastly, the HPLC profiles for each fungus and starting compound were compared and the results obtained showed that, medroxyprogesterone may have the possibility to undergo biotransformation with *C. elegans*, *A. coerulea*, *B. cinerea*, *T. roseum*, and *M. plumbeus* only by showing significant results in HPLC.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Steroidal compounds nowadays have a wide range of therapeutic purposes such, as anti-inflammatory, immunosuppressive, progestational, diuretic, anabolic and contraceptive agents. Some of them also applied for the treatment of some forms of breast and prostate cancer also osteoporosis too. Besides, they also use in the prevention of coronary heart disease, antifungal agents, active ingredients in antiobesity agents and also treatment in HIV infection. Recently reported that torvoside H, a steroidal glycoside that isolated from the fruits of *Solanum turvum* has anti-viral activity on herpes simplex virus type 1 (Fernandes, Cruz et al. 2003).

In the pharmaceutical industry, steroids drugs are important and have been widely used in clinical applications (Zhang, Shao et al. 2013). For steroid biotransformation, in order to prepare production of many kinds of derivatives that usually difficult to conduct with other methods, microorganisms have been widely used in this process. Throughout the years, there are many different characteristics of steroids