

UNIVERSITY TEKNOLOGY MARA

**MICROBIAL TRANSFORMATION
OF ANDROGRAPHOLIDE AND
MEDROXYPROGESTERONE**

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ABSTRACT

Microbial transformation has been known for a long time. The biotransformation allows the compound to be modified without the use of any chemical reagent and biotransformation act as a green chemistry. In this study, andrographolide and medroxyprogesterone have been used as a substrate that undergo fermentation with selected endophytes which are *Aspergillus niger*, *Beauveria bassiana*, R3-2SP17, R3-3SP2, R3-3SP30, SC 24J, *Cunninghamella elegans*, *Verticillium lecanii*, SSW and *Absidia coerulea*. Method involved are media preparation, inoculation of fungi, feeding of substrate, incubation for 4 days and 8 days and extraction with ethyl acetate. The extracts were analyzed by HPLC to identify any biotransformation products.

CHAPTER ONE

INTRODUCTION

1.1 Background of study

The developments of drugs are increasing over the years. During the development process, there are so many diseases that can be treated. However, there are also diseases that develop resistant toward the drugs especially some infectious diseases. Hence the development of the drug is crucial in order to improve the efficacy and effectiveness. Microbial transformation is also known as biotransformation in which an organic compound is modified into reversible product by using simple, chemically reaction or catalyzed by the presence of enzyme in the cell.

Microbial, plant and animal are the cells that can produce enzyme to catalyze the transformation process. Biotransformation processes involve the chemical reaction when high specificity is required to produce modification at the specific site on the drug. It include various type of reactions such as hydroxylation, hydrolysis, reduction, phosphorylation, glycosylation, methylation , halogenation, or resolution of racemix mixtures . Microbial transformation is a useful tool to modify the structure of bioactive natural compound and this process allow the production of region-and stereo selective compound under mild condition (Carlos A., Luis A. L. , Jorge B., Juana R., & S., 2012).

Microbial transformation is a useful method in the production of the large scale of compound especially when the compound has limited resource. This method will increase the production of compound and less cost required. This is very suitable