UNIVERSITY TEKNOLOGY MARA

THE EFFECT OF INDUCER CONCENTRATION ON THE ACTIVITY OF RECOMBINANT PHOSPHOLIPASE A_2 ENZYME IN *Escherichia coli*

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ABSTRACT

Phospholipase A2 is used widely in food, cosmetics and pharmaceutical industry. The recombinant PLA2 previously was constructed in order to overcome the issue of halal status among Muslim consumer. Arabinose is inducer that plays important role in protein expression for recombinant using pBAD as promoter. Thus different concentration of Arabinose which is 0.2% and 0.02% was used to study the effect of concentration of Arabinose on the activity of recombinant PLA2 in *E.coli*. The test was done by running SDS-Page and Microassay analysis. The result shows that of 0.2% arabinose produce high rate of activity on pBAD/TOPO PLA2 in *E.coli* clone 5 while 0.02% significant for pBAD/TOPO PLA2 in E.coli clone 8.

CHAPTER ONE

INTRODUCTION

1.1 Background of study

Phospholipase A_2 (PLA_2) is a lipolytic enzyme that specifically hydrolyzes glycerophospholipids at sn-2 position yielding free fatty acid and lysophospholipids. Such lysoderivatives produced a powerful biosurfactants and important solubilizer with wide application in food and pharmaceutical industries nowadays. It exists either in extracellular secretions or intracellularly. Extracellular PLA_2 is widely obtained in tissues of various organism such as mammalian pancreatic juice, snake venom, bee venom while intracellular are obtained in the cytosol or other organelle. However the main sources of commercial PLA_2 nowadays are produced from porcine pancreas which is an essential issue among Muslim user because of non-Halal product consumption. This situation makes the idea to construct the recombinant PLA_2 enzyme. The construction was conducted by the previous researcher from Faculty of Pharmacy, UiTM to produce another alternative source of PLA_2. The recombinant was made on pBAD/TOPO Thio Fusion vector and this plasmid was transformed into *E.coli* strain TOP10 as a host.