UNIVERSITI TEKNOLOGI MARA

SYNTHESIS OF HIGH MOLECULAR WEIGHT DNA LADDER

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Dissertation submitted in partial fulfillment of the requirement for the Bachelor of Pharmacy (Hons)

Faculty of Pharmacy

November 2009

ACKNOWLEDGEMENT

First and foremost, I would like to take this opportunity to express my deepest appreciation to my supervisor, Dr. Rosmadi Yusof for his commitment, patience and guidance throughout the period of this study. Special thanks go to Miss Fazleen Hazlinda Mohd Hatta, Assoc. Prof. Dr. Teh Lay Kek, Prof. Dr. Mohd Zaki Mohd Salleh and all the post-graduate students who had directly and indirectly participated in this study. Last but not least, I would like to thank my family and friends for their continuous help and support.

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ABSTRACT

DNA ladder has been used as a tool in laboratories to determine the size of DNA fragment. The aim of this study is to synthesize high molecular weight DNA ladder and to optimize PCR reaction in order to obtain high yield and specific product. High molecular weight DNA ladder ranges from 0.5 – 10 kbp. DNA ladder is synthesized by using Polymerase Chain Reaction (PCR) method, where lambda phage DNA is used as a template for both PCR reaction and designing primer. The results showed that high molecular weight DNA ladder could be synthesized in laboratory setup. Thus, it could be used as a laboratory tool in the future and may reduce the cost incurred by the faculty in carrying out related studies.

CHAPTER 1

INTRODUCTION

1.1 Introduction

DNA ladder has been used as a tool in laboratories to determine the size of DNA fragments. It serves as a reference for researchers to confirm the targeted DNA is correctly amplified. DNA ladder is particularly important because without it one will not be able to estimate the size of PCR product when gel electrophoresis is carried out.

1.2 Background of study

DNA ladder could be produced by two methods. One involves partial restriction digestion of a special plasmid which contains an insert of tandem repeats of a DNA