UNIVERSITI TEKNOLOGI MARA

SYNTHESIS OF SINGLE-STRANDED RNA MARKER

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ABSTRACT

Single-stranded RNA marker is widely used in biotechnology field. Producing it on our own will reduce the laboratory cost. This study aimed to synthesis single-stranded RNA marker. In this research, two method were used which are PCR process and followed by in vitro transcription. PCR is a special technique to amplify the DNA sequence of interest. A successful laboratory testing for PCR depends on sensitivity and specificity of PCR method itself. In vitro transcription is a technique to transcribe double stranded DNA to single stranded RNA. Ten different size of DNA ranging from 1kb to 10 kb were amplified and undergo in vitro transcription to synthesis single stranded RNA with the same bases range.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Ribonucleic Acid (RNA) marker is most commonly used for qualitative and quantitative analysis of RNA. RNA marker is a reagent in molecular biology, which used for agarose gel electrophoresis of RNA. The basic principles the RNA sample and RNA marker are loaded in adjacent well of an agarose gel. Then, the RNA is migrate by electrophoresis through the gel. The gel is stained with ethidium bromide and exposed to ultraviolet light. The sample RNA is then recognized its fragment by comparing its migration with the bands of known size in RNA marker. Production of RNA marker is done commercially and available by several companies such as Abnova, Amresco, Merckbiosciences, and etc.

1.2 Objective of the Research

The main objective is to synthesis single-stranded RNA marker.