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RELATIVE REAL-TIME POLYMERASE CHAIN REACTION ANALYSIS OF GENE REGULATED BY GELAM HONEY IN A549 LUNG CANCER CELL LINE

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ABSTRACT

In this study, we are looking at the differentially express gene of lung cancer cell line, which is the Human Lung Adenocarcinoma Epithelial Cell Line 549 (A549) which was treated with Gelam honey. Gelam honey is one the most valuable treasures in Malaysia and studies conducted so far has shown that honey contained compounds able to act as anticancer agents. The method used to analyze the relative gene expression was Real-time Polymerase Chain Reaction. Based on the results, Gelam honey caused genes to be differentially expressed.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Cancer occurs when there is an abnormal growth of the cells. These cells can also be regarded as malignant cells. There are many kinds of cancer of which can be fatal if left untreated. Among the treatments that has been carried out includes chemotherapy, surgery to remove the tumor, radiation therapy and stem-cell transplant. Researchers have also developed gene therapy to treat cancer. Gene therapy is used to alter, replace or as supplement to the patients' cellular genetic makeup in order to correct or to improve certain biological functions (Liau, Su, & Dixon, 2001). This therapy causes the reestablishment of apoptosis and able to correct the abnormal growth, thus inhibiting the spread of cancer (Toloza, 2005). In simple words, apoptosis refers to cell death and in this context, it simply means that the death of the cancer cells (Kerr, Winterford, & Harmon, 1994).

Lung cancer occurs when the lung cells growth abnormally. There are three types of lung cancer. Non-Small Cell Lung Cancer (NSCLC) accounts the most common type of lung cancer. Secondly, it is Small Cell Lung Cancer (SCLC). This type of cancer only affects about 10 % to 15 % of the lung cancer patients. However, the disease will spread even faster than Non-Small Cell Lung Cancer. The last type of lung cancer is the Lung