

**UNIVERSITI TEKNOLOGI MARA**

**CYTOTOXIC ASSAY OF RX-TRA TOWARDS CHANG AND HEPG<sub>2</sub> LIVER  
CELL LINES**

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## ABSTRACT

Cancer is one of the major health problems. More than 1 million cases of invasive cancers and half a million of cancer deaths have been reported by US Cancer Statistic in year 1999-2011. Treatment usually comprised of surgery, cytotoxic and radiation therapy which have been associated with adverse effects. More tolerable alternative treatment is highly sought by patients and one of it is natural product. Rx-Tra is one of the popular options for alternative treatment. It has been used to treat several diseases. Testimonies by patients claimed positive effects on cancer whereby patients regain their health. This study was conducted to study the cytotoxic effect of Rx-Tra towards Chang normal liver cell and HepG<sub>2</sub> liver cancer cell lines and to study the cytotoxic effect of Rx-Tra in combination with Rx-17. Cell-based study had being conducted using high and low concentration of test product, where in each experiment test product was further diluted to several lower concentrations. Solvents used are double distilled water, Rx-17 and normal drinking water to see the effect of different solvents toward the effects of the test product on both cell lines. Consistent results were not obtained, thus failed to determine the IC<sub>50</sub> of each combination of test product and solvents. Rx-17 resulted in increased cell viability for both Chang and HepG<sub>2</sub> cell lines. From the results, it can be concluded that the best combination for Chang cell line is Rx-Tra with Rx-17, whereas the best combination to inhibit growth of HepG<sub>2</sub> cell lines is Rx-Tra with double distilled water. However, further study should be conducted on different cell types and on animal as cell-based study have limitation where the cell can only be plated out for only 3 days.

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Background of Study**

Cancer is one of the major health problems. It has been one of the major causes for morbidity and mortality cases worldwide with approximation of 14 million new cases and 8.2 million cancer related deaths for the year 2012. Moreover, this number is expected to keep increasing about over 70% over the next two decades. The contribution of cancer deaths are :- lung cancer with 1.59 million deaths, liver cancer with 745,000 deaths, stomach cancer with 723,000 deaths, colorectal cancer with 649,000 deaths, breast cancer with 521,000 deaths and oesophageal cancer with 400,000 deaths ("WHO | Cancer," n.d.).

US Cancer Statistic reported that cancer cases diagnosed and cancer deaths that occurred from year 1999 until year 2011 shows that each year of data, there are more than 1 million cases of invasive cancer, including about 14,000 cases among children younger than 20 years, and more than 574,000 deaths from cancer (Group & others, 2013).