UNIVERSITI TEKNOLOGI MARA (UiTM)

ANTIPROLIFERATIVE PROPERTIES OF BANANA SOFT PITH (*MUSA PARADISIACA*) EXTRACTS AGAINST HUMAN COLON ADENOCARCINOMA CELL LINE (HT-29) AND HEPATIC FOETAL HUMAN EPITHELIAL CELL LINE (WRL-68)

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ABSTRACT

Banana soft pith (BSP) is an edible tender portion of banana stem with diameter 5-6 cm. According to traditional medicine practitioner, the banana soft pith (BSP) has many beneficial uses. As a traditional remedy, BSP is used to treat fever by lowering body temperature. Furthermore, it has been claimed to possess wound healing properties, antihyperlipidemic, antidiabetic and able to treat kidney stones but the scientific evidence in this area is still lacking. This study was conducted to investigate the cytotoxicity effect of BSP ethanolic extract against human colon adenocarcinoma cell line (HT-29) and acetone extract against hepatic fetal human epithelial cell line (WRL-68). From the result, it was indicated that BSP ethanolic extract has cytotoxicity effect towards HT-29 in dose and time-dependent manner. The IC_{50} for our study was 126μg/ml at 72 hours incubation period. For higher concentration (500 and 1000 μg/ml), there were significant differences ($\rho<0.05$) on the percentage of viability between treated and untreated cells for the all time interval of incubation periods. Evidently, there was no cytotoxicity effect of BSP acetone extract towards WRL-68.

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CHAPTER 1

INTRODUCTION

1.1 Background of study

Since 2007, 11 million people are diagnosed with cancer annually worldwide and it is estimated that this number will increase up to 16 million new cases per year by the year 2020 (Harold and Zeliger, 2011). By the year 2012, one in 4 deaths in the United States is due to cancer. Cancer is one of the major global health problems. There are many types of cancer such as breast cancer, lung cancer, and colorectal cancer (Siegel *et al.,* 2012).

Normal cells and cancer cells have the same functional capabilities in which they can proliferate extensively (Shackleton, 2008). The balance between self-renewal and differentiation is important for normal cells maintenance and tissue homeostasis. If dysfunction happens such as decreased in self-renewal, it would cause depletion of the normal cells population, while uncontrolled self-renewal would result in overproduction of cells and potentially cause cancer (Kuang *et al.*, 2007). Cancer cells differ from