

UNIVERSITI TEKNOLOGI MARA (UiTM)

**CYTOTOXICITY STUDY OF BANANA SOFT PITH
(BSP) OF *MUSA PARADISIACA* ACETONE
EXTRACTS AGAINST HUMAN COLON
ADENOCARCINOMA CELL LINE (HT29)**

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ABSTRACT

Banana soft pith (BSP) anti-cancer properties are yet to be studied and its therapeutic value is still lacking of clinical evidence. BSP has been traditionally being consumed as food and medication purposes. Previously, our colleagues found that BSP extract possesses anti-proliferative effects towards liver cancer cell line (HepG2) and breast cancer cell line (MCF7). The aim of this study is to investigate the anti-cancer potential of acetone extract of BSP (*Musa Paradisiaca cv Kebatu*) towards human colon adenocarcinoma cell line (HT29). The study was conducted by performing MTT assay and microscopic analysis. The cells were subjected to treatment with various concentrations (0, 50, 100, 250, 500, and 1000 μ g/ml) and treated for 24, 48 and 72 hours. The results obtained showed percentage of cell viability was significantly reduced to 7.35% ($p < 0.05$) after being treated with 1000 μ g/ml sample for 72 hours incubation. The IC_{50} obtained was 229 μ g/ml. The microscopic analysis qualitatively showed that the cells were reduced in cell size and cell number. These finding suggest that acetone extract of BSP posses anti-proliferative properties. Therefore, further studies of this extract shall be continued to further understand the underlying mechanisms.

CHAPTER 1

INTRODUCTION

1.1 Background

Cancer is the second leading disease of human death culprit. The word cancer came from a Greek word 'karkinos', to describe carcinoma tumours by a physician Hippocrates during 460-370 B.C (Sudhakar, 2009). According to previous statistics, it had been accounting for 7.6 million deaths (around 13% of all deaths) in year 2008. Apart from that, deaths due to cancer worldwide are projected to continue rising, with an estimated 13.1 million deaths in 2030. There are many different types of cancer that contributing to the large number of death, which are lung cancer, stomach cancer, liver cancer, colon cancer and breast cancer (Shivjee *et al.*, 2012).

Cancer is a disease due to the abnormal cells division. In other words, it is a pathological condition characterized with an uncontrolled growth and spread of cells. Normal cells multiply when the body needs them, and die when necessary. However, cancer cells grow out than normal cells in the body. It can affect almost any part of the body. The cancer cells often invade surrounding tissue and can metastasize to distant sites. When cells divide too quickly in an uncontrollably manner, cancer will appear. It can also occur when cells forgot how to die and continuously grow (Rath, 2010).