

UNIVERSITI TEKNOLOGI MARA

**ANTICANCER ACTIVITY OF METHANOL EXTRACT
OF *MICROMELUM PUBESCENS* LEAVES**

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ABSTRACT

Liver cancer is among the common cancer that contribute to mortality in the world particularly in developing countries. Several factors have been documented to be the etiologies of this cancer. Current treatments for cancer are not give significant success in reverting the disease and researchers continuously put efforts in finding way to improve the treatments. Recently, plant is likely has attracting interest from many researchers to make it as an alternative source in finding the better cancer treatment. *Micromelum pubescens* is an attractive plant that can be found in South-East of Asia country like Malaysia and Sri Lanka which come from a family Rutaceae and genus *Micromelum*. The principle of this study was to investigate the anticancer properties of species *Micromelum pubescens* on liver cancer cell lines *in vitro*. Cell viability study was conducted with MTT assay to see the trend in cell viability with the treatment of methanol extracts of the plant. This is the first study to provide data cytotoxicity of *Micromelum pubescens* on cancer cells. The extract of *Micromelum pubescens* leaves was shown to decrease the cell viability of liver cancer cells HepG2, without toxicity in Chang normal cells. IC₅₀ of extract on HepG2 cells was 1172.8005 ± 270.99 $\mu\text{g/ml}$. *Micromelum pubescens* can be assumed safe for the medicinal purposes. Further studies are needed for other pharmacological or toxicological properties that such extract might have.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Cancer is the second largest cause of death in the world. Worldwide, deaths from cancer are predicted to continue rising, with an estimated 12 million deaths in 2030 (“WHO | Cancer,” n.d.). In the year 2008, there are 7.6 millions of cancer deaths where 13% of all deaths worldwide. There are 100 types and more of cancers in which any part of the body can be affected. In the order of frequency, the five most common types of cancer that cause deaths each year are : lung, stomach, liver, colon and breast while the mostly diagnosed were lung, breast and colorectal cancers. The fact tells that most regular types of cancer differ between men and women.

(Ferlay *et al.*, 2010)

The term cancer is refer to any kind of malignant neoplasm. One main feature of cancer is the uncontrolled growth of abnormal cells that invade or metastasize to other parts of body. The uncontrolled metastasizing then may lead to death. The fundamental cause of all cancer is damaged or mutant DNA. In basic pathology, the transformation of cells (carcinogenesis) that follows injuries that produce direct damage to DNA. Natural or manmade chemicals, viruses and ionizing radiation can be responsible for the occurrence of human cancer. Several conventional cancer