

UNIVERSITI TEKNOLOGI MARA

**ANTIPROLIFERATIVE ACTIVITY FROM VARIOUS
FRACTION CHLOROFORM EXTRACT OF *MUNTINGIA
CALABURA***

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ABSTRACT

The aim of the present study is to determine the *in vitro* antiproliferative activity of chloroform extract of *Muntingia calabura* leaves (CEMC) and its fractions against human acute myelocytic leukemia (HL-60), human lung adenocarcinoma epithelial (A549) and human breast adenocarcinoma (MCF-7) cell lines using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) kit assay. The diluted ranges of extract were added to each well and the final concentrations of the test extracts were 1.56, 3.13, 6.25, 12.50, 25.00, and 50.00 µg/ml. CEMC possessed antiproliferative activity only against HL-60 with an IC₅₀ of 41.25 µg/ml with no effect seen against normal fibroblast (3T3) cell line. Fractionation of CEMC yielded eleven (11) fractions whereby only 3 fractions, namely F2, F4 and F5 fractions showed antiproliferative activity on the cancer cell but do not inhibit the proliferation of 3T3 cells, thus, indicating its safety. F2 was effective against MCF-7 (IC₅₀ of 9.75 µg/ml), HL-60 (IC₅₀ of 12.50 µg/ml) and A549 (IC₅₀ of 31.20 µg/ml); F4 was effective against HL60 (IC₅₀ of 11.25 µg/ml), A549 (IC₅₀ of 37.07 µg/ml) and MCF7 (IC₅₀ of 46.00 µg/ml) and; F5 exerted antiproliferative activity against HL-60 (IC₅₀ of 11.25 µg/ml) and A549 (IC₅₀ of 49.50 µg/ml). In conclusion, CEMC possess potential anticancer activity that needs to be further explored.

CHAPTER I

INTRODUCTION

1.1. Background

Rainforest and biodiversity in Malaysia offers a wide variety of plant species with medicinal value that are waiting to be explored by human. In the world, for example, China has developed a lot of traditional medicines based on herbs. Many plants used in traditional medicine because plants produce a diverse range of bioactive molecules, making them a rich source of different types of medicines.

1.1.1. Plant Natural Products

The natural product refers to herbs, herbal concoctions, dietary supplements, traditional Chinese medicine, or alternative medicine produced by a living organism such as plant, animal, microorganism and also marine (Holt & Chandra, 2002). The natural products have been contributing to the pharmaceutical drug discovery and drug design for a long time. The natural products are popular in the Eastern country like China and India, but its usage have been increasing and popular among the Western country. Plants in particular, are rich in secondary metabolites such as tannins, terpenoids, alkaloids, and