

UNIVERSITI TEKNOLOGI MARA

**COMBINATION THERAPY OF
ANNONA MURICATA ETHANOLIC EXTRACT
WITH CISPLATIN AGAINST
BREAST CANCER CELL LINES, MCF-7**

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ABSTRACT

Breast cancer is the most commonly diagnosed cancer in women worldwide with nearly 1.7 million new cases diagnosed in 2012 and resistance to chemotherapy events such as cisplatin-related resistance is a foremost problem. (Raybaudi-Massilia et al., 2015)

Recently, *Annona muricata* also known as soursop has been vastly claimed to possess valuable natural products that supposedly play an important role in demoting anticancer activity. (Majid, et al., 1991). *A. muricata* leaves have been exposed to numerous studies of human diseases, including cancer (Moghadamtousi et al., 2015) However, the action of *Annona muricata* on breast cancer is not well understood.

In this research, the cell viability was measured by using 3-(4, 5-dimethylthiazole-2-yl)-2, 5-diphenyltetrazolium bromide (MTT) assay. The results showed that *Annona muricata ethanolic extracts* (AMEE) do possess anticancer properties as it inhibits the growth of MCF-7 at $IC_{50} = 391.39 \text{ ug/ml}$. The extract also inhibits the proliferation of normal cell line CRL-2522 at $IC_{50} = 744.27 \text{ ug/ml}$. However, when in combination, AMEE seems to have antagonistic effect towards cisplatin.

CHAPTER 1

1 Introduction

1.1 Background of Study

Breast cancer is the most commonly diagnosed cancer in women worldwide with nearly 1.7 million new cases diagnosed in 2012. In Malaysia, breast cancer risk hits 1:31 Malaysian women, as one in 19 women will be diagnosed with breast cancer by the age of 85 and every 100 000 death cases, 19 of them are recorded due to the breast cancer (WHO, 2012). These statistical data give a powerful impact to the National Cancer Institute (NCI), therefore, a massive effort are given on developing chemotherapeutic drugs. In the recent decades, exploiting natural substances has been the cross application of different cancer treatments and it is progressively getting interest of medical researchers (American Cancer Society, 2015). Plant-derived natural materials have been targeted to own potential in governing cancer cells development. Indeed, most of the chemotherapeutics used in clinical nowadays are devised from plants.