UNIVERSITI TEKNOLOGI MARA (UiTM)

THE EFFECT OF *HIBISCUS ROSA-SINENSIS* LEAVES EXTRACT ON MDA-MB-231 BREAST CANCER CELLS

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ABSTRACT

The purpose of this study was to know the effect of *Hibiscus rosa sinensis* leaves extract on MDA-MB-231 breast cancer cells. Four types of solvent extraction (methanol, ethyl acetate, acetone and petroleum ether) were used in this study. MTT assay showed that the extracts have the ability to reduce cancer cell viability in a dose dependence manner. The inhibition on 3T3, fibroblast cell lines also was observed and the inhibition percentage was slightly to be moderate and less toxic than MDA-MB-231 breast cancer cells. From the results, it has concluded that acetone extract of *Hibiscus rosa sinensis* leaves is the most potent in reducing the viability of MDA-MB-231 breast cancer cells. In conclusion, acetone extract of *Hibiscus rosa sinensis* leaves is a promising agent to be further investigated as a natural source for a novel anticancer agent.

Keywords: *Hibiscus rosa sinensis*, MDA-MB-231 breast cancers, normal cells (3T3), MTT assay, IC50.

CHAPTER ONE

INTRODUCTION

The second leading cause of cancer related deaths in women is breast cancer cell. Poor prognosis was shown in estrogen receptor (ER)- negative breast cancer. Besides that, ER- gave less effect to anticancer drug. In most cancer cells increase in EGFR signaling is found including breast cancer cell. In ER(-) MDA-MB-231 cells, higher level of EGFR is found compared to normal epithelial cells and ER(+) MCF-7 cells (Chung et al., 2011). Tamoxifen is used as hormone-dependant breast cancer theraphy. Unfortunately, limitation is found in some patient because it gave resistance during treatment and also elevate risk of endometrial cancer (Nagaiah et al., 2010).

The plants *Hibiscus rosa-sinensis* (*H. rosa- sinensis*) belongs to the Malvaceae family. Many chemical constituents such as hentriacontane, quercetin, calcium oxalate, cyanidin, thiamine, ascorbic acids, riboflavin, and niacin have been isolated from this plant. Traditionally the flowers can be used as anti asthmatic agents and antibacterial activity (Ruban & Gajalakshmi, 2012a). In order to treat damaged or inflamed tissue, wound healing and to rejuvenate the skin, *Hibiscus rosa sinensis* is used in India as herb in alternative medicine or Ayurvedic. It has been reported that, *Hibiscus rosa sinensis* has antioxidant properties (Nayak et al., 2007).