UNIVERSITI TEKNOLOGI MARA

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

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Dissertation submitted in partial fulfillment of the requirements

for the degree of

Bachelor of Pharmacy (Hons.)

2013

ACKNOWLEDGEMENT

Alhamdulillah, all praises to Allah for the strengths and His blessing in completing this thesis. Firstly, I would like to express my sincere gratitude to my supervisor, Dr. Hasseri Halim , for the continuous support for my thesis and research, for his patience, motivation, enthusiasm, and immense knowledge. His guidance helped me a lot from the beginning of my research project up until its completion.

Not to forget, thanks to Universiti Teknologi MARA (UiTM) for providing me with the facilities and comfortable laboratory to conduct this study. Appreciation also goes out to the laboratory staffs and master students who assist me a lot during my research project. Their cooperation and support during the laboratory work is greatly appreciated.

I would also like to thank my friends especially my labmates, Nor Fatin Sharmira binti Abdul Basir and Muhamad Solehuddin bin Mohamad Noor who are together with me completing this research and to my family who had given me support and encouraging me in completing this study. To those who indirectly contributed in this research, your kindness means a lot to me. Thank you very much.

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ABSTRACT

Breast cancer is the number one killer among women population and the incidence higher because the treatment of cancer not sufficient enough to maintain and prolong lifetime of a patient. *Hibiscus rosa-sinensis* is a herbaceous evergreen plant that are native to tropical and also sub-tropical regions. The effect of *Hibiscus rosa-sinensis* leaves extract on breast cancer cells were evaluated in breast cancer cell lines (MCF-7) and fibroblast cell lines (3T3). Four types of extracts; methanol, acetone, ethyl acetate and petroleum ether were prepared using maceration technique. Both cells lines were treated with these extracts with the concentration of 25, 50, 100, 200 and 400 µg/ml. The cells left untreated of any extracts were used as a control. The cell viability for both cells was analyzed using MTT assay after 24 hour treatment of the extracts. The percentage of inhibition of breast cancer cells were observed with all types of *Hibiscus rosa-sinensis* leaves extracts which varies according to the extract. The inhibition on fibroblast cell lines also was observed and the inhibition percentage was slightly to be moderate and less toxic than the cancer cells. There were significant difference between the breast cancer cells and the normal cells ($p \leq 0.05$). The *Hibiscus rosa-sinensis* leaves acetone extract reduced cell viability of breast cancer cells without further reduce in normal cells. In conclusion, acetone extract of *Hibiscus rosa-sinensis* may possess anticancer effects and therefore could be an alternative treatment besides on the conventional agents used before.

Keywords: *Hibiscus rosa-sinensis* leaves extract, breast cancer cells, cells viability.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Breast cancer is the number one killer among women population. Even though all of us know the danger of breast cancer, but women itself does not really concern about the nature of the disease. In the year of 2002, it was estimated to be more than a million the number of newly diagnosed cases and there were more than 400,000 deaths worldwide. Highest incidence for breast cancer are in northern Europe and North America, while intermediate incidence are in the southern Europe and South America and lowest are in Africa and Asia according to marked geographical variation. There has been a rapid increase in the incidence of breast cancer in recent years in Asia, and the disease may occur at a relatively young age (Yip *et al.*, 2006).

The tendency for a woman to have breast cancer increases as they reached menopause. There are many complex factors to cause breast cancer that give variations between different countries and regions including population structure (age, race, and ethnicity), lifestyle, environment, socioeconomic status, risk factor prevalence, mammography use, disease stage at diagnosis, and access to high-quality care. In order to fully understand the reasons for variation in breast cancer