

UNIVERSITI TEKNOLOGI MARA

**HAEMATOLOGICAL ANALYSIS ON SUB-
ACUTE ORAL TOXICITY STUDY OF WATER
EXTRACT FROM LEAVES OF *HIBISCUS ROSA-
SINENSIS* L. IN BALB/c MICE.**

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**Dissertation submitted in partial fulfilment of the requirements
for the Bachelor of Pharmacy (Hons.)**

Faculty of Pharmacy

2017

ACKNOWLEDGMENT

Alhamdulillah, all praises to Allah for the strengths and His blessing in completing this thesis. First and foremost, I would like to express my sincere gratitude to my supervisor, Dr Suraya Adina binti Suratman, for the continuous support of my thesis and research, for the patience, motivation, enthusiasms, and immense knowledge. Her guidance helped me from the beginning of my research project up until its completion.

I would like to thank my co-supervisor, Dr Aida Azlina Ali for taking her time out from her busy schedule to served and helped me in completion of this projects by providing me the materials and knowledge related to the research study.

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 staffs who assist me during my research project including the staffs in laboratory Animal Facility and Management (LAFAM). Their co-operation and support during the laboratory works is greatly appreciated.

I also would like to thank my lab mates, Annur amanina Abdul Manaf, Munawarah Zulkifli and Siti Salihah Ahmad who helped me a lot in completing this research and to my family who had given me support and encouragement towards completing this study.

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ABSTRACT

The leaves of *Hibiscus rosa-sinensis* are widely used in some country such as Japan, India and Haiti as herbal medicine to promote wound healing, hair growth and for the treatment of fever. However, the consumption of *H.rosa-sinensis* leaves as herbal medicine have raised concerns with regard to its dosage range that can be safely utilised among consumers. Although, there is study that has been conducted in assessing *H.rosa-sinensis* leaves of methanolic extract in Swiss Albino mice, toxicity study on the water extract of *H.rosa* leaves in BALB/c mice is still absent. The aim of this study is to look at the effect of repetitive administration of water extract *H.rosa-sinensis* leaves on haematological parameter in BALB/c mice. The leaves of *H.rosa-sinensis* were collected around UiTM Puncak Alam was prepared by aqueous extraction. In this sub-acute toxicity study, twenty-four BALB/c mice were used. The mice were randomly divided into four groups (n=6). Each group were given either distilled water (control), 50,300 or 2000 mg/kg doses of extract respectively for 28-days via oral gavage. Food intake and body weight were recorded at weekly interval throughout the experimental duration. At the end of this study, the mice were sacrificed by using pentobarbital (0.2ml/mice) intraperitoneally. Then blood was collected by cardiac puncture and haematological analysis (RBC and WBC count) was conducted. In the sub-acute toxicity study, administration of 50,300 and 2000mg/kg doses of extract to mice for 28-days did not show any significant toxicity effect on haematological parameters nor behavioural effect in the BALB/c mice. Body weight, food consumption and haematological parameter analysis also showed no significant changes in this study.

Keywords: BALB/c, *Hibiscus rosa-sinensis*

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

Plants have been used medicinally for thousands of years and are important sources of drugs (Samuelsson, 2004). The usage of plants as medicine dates way back at least to the Middle Paleolithic age, around 60,000 years ago as it was discovered by the archaeology discovery of fossil in northern Iraq (Maridass & Britto, 2008). Though there are increasing discovery in modern medicine, plant-based system continue to play the essential role in healthcare (Cragg & Newman, 2013). In fact, in certain parts of the world, traditional medicine is used as the primary health care (WHO, 2004).

Hibiscus rosa-sinensis L. is one of the popular herbal medicine that is is widely used throughout the world, including in India, Mexico, Hawaii, Japan and also Malaysia (Jadhav, Thorat, Kadam, & Sathe, 2009). *Hibiscus rosa-sinensis L.* is one of the genus in Malvaceae family. It locally known as Bunga Raya, the national flower of Malaysia. Its five petals representing the five Rukun Negara (*Malaysian declaration of national philosophy*) of