UNIVERSITI TEKNOLOGI MARA

# EFFECTS OF PEEL EXTRACT OF *HYLOCEREUS POLYRHIZUS* ON BLOOD PARAMETER IN MICE

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

**Faculty of Pharmacy**

**October 2007**

# ACKNOWLEDGEMENT

Alhamdulillah, praise to Allah s.w.t for His guidance and blessing upon completing this assignment on Effects of peel extract of *Hylocereus Polyrhizus* on Blood Parameter in Mice for course PHM 555 – Research Instrumentation

I would like to express my deepest appreciation to Dr Adnan Sulong for his kindness and patience in helping me upon finishing this topic. Without his encouragement, support and guidance, this assignment will be impossible to be completed.

Finally, I would also like to thank Miss Sharina Mahavera and Nur Mardhiya Darnalis for their assistance and contribution to this research. Each of their opinions, cooperation and thoughts are valued and appreciated. Thank you.

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# ABSTRACT

*Hylocereus polyrhizus,* or commonly known as pitahaya, red pitaya and dragon fruit is a fruit originated from Mexico and is currently cultivated around the world. Previous studies have shown that HP possessed nutritional, commercial and medicinal values, especially as an antioxidant source. The objective of this study was to evaluate and determine the toxicity profile of HP on blood parameters. Mice were divided equally into two groups and were administered either the peel extract of HP (treatment group) or normal saline (control group). The peel extract of HP was dissolved in normal saline and administered to mice via orogastric gavage method. No mortality and clinical signs of toxicity were observed upon administration of HP in both the acute and subacute toxicity studies. Blood samples were analyzed based on haematological and biochemical properties and expressed as mean ± standard deviation. Blood analysis from 24-hour and 48-hour acute toxicity testing as well as subacute toxicity testing showed that acute exposure to HP peel extract did not affect the blood parameters. It is concluded that acute and subacute exposure to HP did not affect the blood parameters. These results offer a basis for further development of HP extract for use as a natural antioxidant.



Keywords: *Hylocereus Polyrhizus*; Toxicity; Acute toxicity; Subacute toxicity; Blood Parameters

# CHAPTER I

# INTRODUCTION

A balance life-style employing a balanced diet, no smoking, and moderate physical activity is fundamental for maintaining a healthy status. Diet rich in fruits, vegetables, and legumes have been recognized to have health benefits. Fruit and vegetable consumption has been associated with decreased incidence of a variety of chronic diseases (Bazzano, 2006).

The plant kingdom holds many species of plants which contain substances of medicinal value (Trease & Evans, 2005). Bioactive compounds commonly found in fruits, vegetables, herbs and other plants have been proved to have possible health benefits with antioxidative, anticarcinogenic, atherosclerosis, antimutagenic, and angiogenesis inhibitory properties (Yoo et al., 2007).

*Hylocereus polyrhizus*, (HP) also known as red pitaya, pitahaya and dragon fruit is the fruit of a cactus specie, a member of the Cactaceae family. The common name for these fruits, "pitaya" is better known since these fruits contain scales on its skin hence the name pitaya "the scaly fruit" is given. In the last two decades, efforts have been made to cultivate these plants. Along with that, studies have been done to evaluate the pigments of this specie (Wybraniec et al., 2001).