COMPARATIVE STUDY OF ANTIOXIDANT ACTIVITY AND PHYTOCHEMICAL CONSTITUENTS IN YOUNG LEAVES OF *Solanum nigrum* AND *Anacardium occidentale*

NUR AMIRAH BINTI MAT ZIN

BACHELOR OF SCIENCE (Hons.) BIOLOGY
FACULTY OF APPLIED SCIENCES
UNIVERSITI TEKNOLOGI MARA

JULY 2016

ACKNOWLEDGEMENT

Praise to Allah swt, the most Gracious and Most Merciful; may peace and blessing be upon Prophet Muhammad saw for the chances given to me in completing this Final Year Project.

A highly gratitude and appreciation to my project supervisor, Madam Ainun Jariah binti Manaf for all her advices, encouragements, guidance and patience throughout the making of this project. Besides, millions of thanks to my co-supervisor Dr. Neni Che Mohd Ramli who always there when we need of guidance and support. Not to forget the biology laboratory staff especially Mr. Suhairi, Mr Azman, Mr. Fauzi for their helps in completing this project.

Special dedications to Amiera, Hamizah, Farah, Syazana and my other friends for encouraging and supporting me all this long. It is an honour for me to have friends like them; hopefully the sweet memories bring us closer.

Last but not least, to my beloved parents and family members, thanks you for being supportive and understanding towards me while I am completing this project. I appreciate all your sacrifices until I reach this rate. Once again, I would like to thank all people who contribute in the making of this project.

(Nur Amirah binti Mat Zin)

TABLE OF CONTENTS

ABSTRACT

COMPARATIVE STUDY OF ANTIOXIDANT ACTIVITIES AND PHYTOCHEMICAL CONSTITUENTS IN YOUNF LEAVES OF *Solanum nigrum* AND *Anacardium occidentale*

Herbal plants consist of many phytochemical constituents and each of them have potential in treating diseases and some of them have antioxidant compound. *Solanum nigrum* and *Anacardium occidentale* are common herbal plants in Malaysia which can be found wildly grown and also were sold in daily markets. The aims of this study were to screen the phytochemical constituents of leaves extracts of *Solanum nigrum* and *Anacardium occidentale*, to determine and compare antioxidant capacity of both leaves extracts using DPPH scavenging method and to detect the presence of phenolic and flavonoid contents in both plants extracts by using High Performance Liquid Chromatography (HPLC). Different solvents with different polarities of hexane, chloroform and methanol were used to extract phytochemical constituents from plants by using sequential extraction method. The study conducted to extract six different of plants crude extracts which were hexane extract, chloroform extract, methanol extract of *Solanum nigrum* and *Anacardium occidentale* respectively. Phytochemical screening of *Solanum nigrum* and *Anacardium occidentale* revealed that alkaloids, tannins, phenols and terpenoids were present in young leaves of *Solanum nigrum* while for young leaves of *Anacardium occidentale* revealed the presence of alkaloids, flavonoids, saponins, steroids, tannins, phenols and terpenoids. The antioxidant activities of the extracts were obtained by reading of absorbance using spectrophotometer. For HPLC, result was evaluated based on retention time of chromatogram. *Anacardium occidentale* shows 39.13% inhibition of DPPH radical yield in antioxidant activity while *Solanum nigrum* showed 32.22% of inhibition of DPPH. Both plants were unable to produce peak that represent same compounds like standard due to incomparable peaks. This study confirms the presence of various phytochemical constituents and both plants are potential antioxidant agents.