DETERMINATION OF ANTIBACTERIAL ACTIVITY OF METHANOL EXTRACT OF *Senna alata* PLANT

By

NUR HAZWANI BINTI ABDUL HAMID

Thesis Submitted in Partial Fulfillment for the Degree of Bachelor of Medical Laboratory Technology (Hons), Faculty of Health Sciences, Universiti Teknologi MARA

2017

DECLARATION

I hereby declare that this thesis is my original work and has not been submitted previously or currently for any other degree at UiTM or any other institutions.

_____

(Nur Hazwani Abdul Hamid)

ACKNOWLEDGEMENT

Alhamdulillah and I am very grateful to Allah S.W.T for giving me strength, ability and health to complete my final year project that took about four months.

Firstly, I would like to appreciate and thank to my supervisor, Assoc. Prof Wan Kamil Wan Mohamad for guiding and giving me more knowledge regarding to my final year project. The encouragement, suggestion and advice that he gave to me were very helpful in completing my final year project successfully.

I also would like to thank to Faculty of Health Sciences and Dr. Mazura Binti Bahari, Coordinator of Bachelor of Medical Laboratory Technology (Hons.) for the support. Other than that, a million thanks goes to all laboratory staffs; Mrs. Norzila Shafeai, Mrs. Aziyana Zainol, Mrs. Masmadianty Muhammad, Mr. Mohd Nazihan, Mrs. Iadah Elias and Mr. Mohd Nornizam Zaini, for cooperating and helping me during my laboratory work. A special thanks to Encik Kamarudin from Pasir Mas, Kelanta for supplying the leaves of *Senna alata* for this final year project.

A special appreciation and thanks to my parents, En. Abdul Hamid Bin Din and Pn. Naemah Binti Dahalan, and also to my family members for their moral support and encouragement throughout my study in UiTM Kampus Puncak Alam.

Lastly, I would like to thank to my classmate especially to my project partner, Nor Shela Binti Kamarudin, for their favor, idea and support to complete my project.

TABLE OF CONTENT

ABSTRACT

Senna alata L. is commonly used as antimicrobial remedy against skin infection on human such as eczema, scabies, tinea infection, shingles and even herpes. Crude methanol extract of leaves from *Senna alata* were tested in vitro against three bacteria which are *Escherichia coli (E.coli), Staphylococcus aureus (S. aureus)* and *Staphylococcus epidermidis (S. epidermidis)*. This study was to determine antimicrobial susceptibility of crude methanol extract of *Senna alata* against *E.coli, S. epidermidis* and *S. aureus* in vitro and to identify the minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) value of *Senna alata* methanol extract against *E.coli, S. epidermidis* and *S. aureus* in vitro. Disc diffusion method was used to determine the activity of selected bacteria against crude methanol extract of *Senna alata*. Minimal inhibitory concentration and minimal bactericidal concentration was used to identify lowest concentration that inhibit visible growth and killed most of the bacteria respectively. The highest zone of inhibition was observed against *S. aureus* (11.5mm) followed by *S. epidermidis* (11mm). However, the crude extract did not show any activity against *E.coli.* The value of MIC for *S. aureus* and *S. epidermidis* is 31.25 mg/ml. The value of MBC for both organisms *S. aureus* and *S. epidermidis* shows 500 mg/ml and 250 mg/ml respectively. This study showed that crude extract of *Senna alata* possessed antimicrobial activity against *Staphylococcus aureus* and *Staphylococcus epidermidis* but not to *E.coli*. This finding provide new knowledge for treatment of common skin infection since the common bacterial skin infections are usually caused by Staphylococcus and Streptococcus species which is gram positive bacteria. However, further research about effect of *Senna alata* against wider range of bacteria and fungi and toxicological studies of the extract is recommended.

Keywords: *Senna alata*; antimicrobial activity; methanol extract; antibacterial; antifungal.