

**DETERMINATION OF ANTIMICROBIAL ACTIVITY OF CAPE
LEADWORT (*Plumbago auriculata*) EXTRACT**

THESIS

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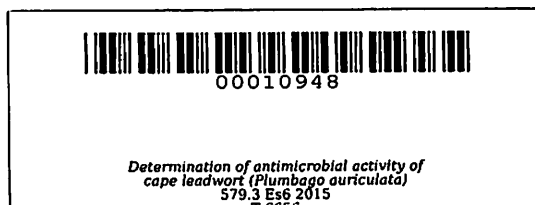
THESIS/SP 579.3 Es6 2015

October 2015

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A Thesis Manuscript
Submitted to the Faculty of the
Department of Medical Technology
College of Nursing
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for the degree
Bachelor of Science in Medical Technology



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November 2015

ABSTRACT

ESPADILLA, TRIXIA ANJANE R., RODRIGUEZ, CLARENCE GAEBRIEL R., AND SARIA, LALAINE MARIE G., Determination of Antimicrobial Activity of Cape Leadwort (*Plumbago auriculata*) Extract. Undergraduate Thesis. Bachelor of Science in Medical Technology, Cavite State University, Indang, Cavite, November 2015. Adviser: Prof. Ronalyn S. Sanchez, RMT

This study was conducted from April to December 2014 at the Department of Medical Technology, College of Nursing, Cavite State University, Indang, Cavite. The study aimed to determine the antimicrobial activity of Cape Leadwort (*Plumbago auriculata*) extract. Dried leaves and roots of *P. auriculata* were extracted with Soxhlet method using absolute ethanol and obtained both the polar and non-polar extract.

Susceptibility test for bacteria was performed using Cup Plate method. Both treatments showed low inhibition with root ethanolic extract having a higher inhibitory activity than leaf ethanolic extract against *Enterobacter aerogenes*, *Serratia marcescens* and *Staphylococcus aureus*. Results from measured diameter zone of inhibition exhibited that root ethanolic extract was more effective than the leaf ethanolic extract, however, *E. aerogenes*, *S. marcescens* and *S. aureus* were resistant to these ethanolic extracts.

Poison-plate method was used to determine the fungicidal activity of *P. auriculata* extracts against *Fusarium oxysporum*. Root ethanolic extract exhibited significant growth inhibition of mycelia compared to the negative. *P. auriculata* leaf ethanolic extract showed lower inhibition. Results revealed higher inhibitory activity of root ethanolic extract compared to the leaf ethanolic extract.

The biochemical compound, plumbagin, showed significant inhibitory activity against the tested microorganisms. Plumbagin was more effectively extracted from the roots since the root extract showed greater activity than the leaf extract against all microorganisms. With further studies, Plumbagin from the root extract of *Plumbago auriculata* may be a promising source of antibacterial and antifungal drug for infectious diseases.

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An undergraduate thesis submitted to the faculty of the Department of Medical Technology, College of Nursing, Cavite State University in partial fulfillment of the requirements for graduation with the degree of Bachelor of Science in Medical Technology with Contribution No. **SP CON-MT No. 2015-10**. Prepared under the supervision of Prof. Ronalyn S. Sanchez, RMT.

INTRODUCTION

Multi-drug resistant bacteria is of great problem today. Antibiotics has served us and treated infectious diseases caused by bacteria for more than seven decades. Since the 1940's, these type of chemotherapeutic medication has greatly reduced morbidity and mortality rates of patients. However, these drugs have been so widely used and for so long, those bacteria have adapted to them, making these drugs less effective. Some bacteria even developed resistance to multiple forms of antibiotics, making them difficult to treat. As of today, some multi-drug resistant strains have no available antibiotic that are effective against them like Vancomycin-resistant *Staphylococcus aureus* (VRSA). (Centers for Disease Control and Prevention, n.d.)

New sources of antibiotics have taken the interest of most researchers due to the uprising resistance of pathogenic bacteria, especially the ones to cause nosocomial infections. Plants, however, are efficient source of antimicrobial drugs in the past and in