

ANTIBACTERIAL ACTIVITY FROM THE SEEDS OF
Annona muricata (SOURSOP)

NOR AZAH BINTI AZME

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

2020

This Final Year Project Report entitled “**Antibacterial Activity from the Seeds of *Annona muricata* (Soursop)**” was submitted by Nor Azah Binti Azme, in partial requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

Dr. Rosli Bin Noormi
Supervisor
Faculty of Applied Sciences
University Teknologi MARA (UiTM)
Negeri Sembilan, Kampus Kuala Pilah
Pekan Parit Tinggi, 72000 Kuala Pilah
Negeri Sembilan

Siti Norazura Binti Jamal
Coordinator FSG 661 AS201
Faculty of Applied Sciences
University Teknologi MARA (UiTM)
Negeri Sembilan, Kampus Kuala Pilah
Pekan Parit Tinggi, 72000 Kuala Pilah
Negeri Sembilan

Dr. Aslizah Binti Mohd Aris
Head School of Biology
Faculty of Applied Sciences
University Teknologi MARA (UiTM)
Negeri Sembilan, Kampus Kuala Pilah
Pekan Parit Tinggi, 72000 Kuala Pilah
Negeri Sembilan

Date: **20 JANUARY 2020**

TABLE OF CONTENTS

	PAGES
ACKNOWLEDGMENTS	i
TABLE OF CONTENTS	ii
LIST OF TABLES	iv
LIST OF FIGURES	v
LIST OF ABBREVIATIONS	vi
ABSTRACT	vii
ABSTRAK	viii
CHAPTER 1: INTRODUCTION	
1.1 Background of Study	1
1.2 Problem Statement	2
1.3 Significance of Study	4
1.4 Objectives of Study	5
CHAPTER 2: LITERATURE REVIEW	
2.1 <i>Annona muricata</i> plant	6
2.2 <i>Annona muricata</i> seed	7
2.3 Uses of <i>Annona muricata</i>	9
2.4 <i>Annona muricata</i> Antibacterial Activity	11
2.5 <i>Staphylococcus aureus</i>	12
2.5.1 Clinical disease of <i>Staphylococcus aureus</i>	14
2.6 <i>Salmonella typhimurium</i>	15
2.6.1 Clinical disease of <i>Salmonella typhimurium</i>	17
CHAPTER 3: METHODOLOGY	
3.1 Materials	18
3.1.1. Raw Materials	18
3.1.2. Chemicals	18
3.1.3. Apparatus	19
3.1.4. Bacterial strain	19
3.2 Method	20
3.2.1 Sample collection	20
3.2.2 Sample preparation	20
3.2.3 Agar preparation	21
3.2.4 Bacterial identification	22
3.2.5 Sample extraction	22
3.2.6 Disc diffusion method	23
3.3 Statistical Analysis	24

CHAPTER 4: RESULTS AND DISCUSSION	
4.1 Disc diffusion method	26
4.2 Statistical analysis	32
CHAPTER 5: CONCLUSION AND RECOMMENDATION	33
CITED REFERENCES	35
APPENDICES	41
CURRICULUM VITAE	48

ABSTRACT

ANTIBACTERIAL ACTIVITY FROM THE SEEDS OF

Annona muricata (SOURSOP)

Annona muricata belongs to the family of Annonaceae and is commonly known by many names, including “soursop”, “durian belanda” and “graviola”. The ability to find new and improved antibacterial agents deriving from natural sources seems worthy in the recent years to combat the increasing number of pathogenic microbial infections. The production of *Annona muricata* into food products bears a significant amount of wastage in the industry which leads to a tons of waste from the seed produced. Hence, seed of *Annona muricata* from production can be utilized to identify its antibacterial properties for waste reduction purpose. A research was conducted on *Annona muricata* seeds retrieved from distinct Senaling, Kuala Pilah, Negeri Sembilan by determining the antibacterial activity against *Salmonella typhimurium* and *Staphylococcus aureus*. From this research, a broad knowledge on *Annona muricata*'s seed antibacterial property could be obtained. The methodology conducted to analyse the antibacterial activity from the seed extract which is disc diffusion. The purpose of this study is to find the antibacterial activity of the seeds of *Annona muricata* using disc diffusion method and to compare the antibacterial activity of different concentration of *Annona muricata* seeds against *Staphylococcus aureus* and *Salmonella typhimurium*. Findings from the disc diffusion method implied the greatest zone of inhibition recorded was *Staphylococcus aureus* which are $15.33\text{mm} \pm 9.50$ at 50mg/mL concentration followed by moderate zone at $13.33\text{mm} \pm 2.89$ at 75mg/mL concentration and the smallest zone is $7.33\text{mm} \pm 2.31$ at concentration 100mg/mL against the *Staphylococcus aureus*. As for *Salmonella* the biggest zone of inhibition is $11\text{mm} \pm 2.65$ at 50mg/mL concentration, followed by $10.33\text{mm} \pm 2.52$ at concentration 25mg/mL and smallest are $7.33\text{mm} \pm 1.15$ at concentration 75mg/mL. As the conclusion the results obtained are evidence that the antibacterial properties from extract of *Annona muricata* seed could be further exploited as a source of antibacterial drug or antibiotic against disease and pathogenic microbial to be utilized for the benefits of medical purpose in the future.