

**METHOD DEVELOPMENT FOR ANALYSIS OF ANTIBACTERIAL  
ACTIVITY OF THES AND ITS DERIVATIVE PRODUCT AGAINST  
BACTERIA**

By

Talitha Marsha  
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SWISS GERMAN UNIVERSITY  


SWISS GERMAN UNIVERSITY  
The Prominence Tower  
Jalan Jalur Sutera Barat No. 15, Alam Sutera  
Tangerang, Banten 15143 - Indonesia

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### STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

Talitha Marsha

Student

Date

Approved by:

Kholis Abdurachim Audah, PhD

Thesis Advisor

Date

Teuku Beuna Bardant, M. Sc.

Thesis Co-Advisor

Date

Dr. Dipl.-Ing. Samuel P. Kusumocahyo

Dean

Date

Talitha Marsha

## ABSTRACT

### METHOD DEVELOPMENT FOR ANALYSIS OF ANTIBACTERIAL ACTIVITY OF THES AND ITS DERIVATIVE PRODUCT AGAINST BACTERIA

By

Talitha Marsha

Kholis Abdurachim Audah, PhD, Advisor  
Teuku Beuna Bardant, M. Sc., Co-Advisor

SWISS GERMAN UNIVERSITY

The emergence of bacterial resistance has created the necessity for studies directed towards the development of new antibacterial agent. However, the antibacterial agents that have been available contained a lot of chemical additives which is harmful for human body. In response, Tetra Hidroxy Ethyl di Sulphate (THES) is now introduced. THES is a sulphate chelating agent trusted to have very low toxicity and have “non-resistant” characteristic as they have unique killing mechanism to fight against bacteria only by binding to the bacteria’s peptidoglycan layer. The aim of this study was to prove the antibacterial properties of THES and to select the best method for evaluating the antibacterial activity of THES and its product against bacteria. In this study, two variants of the agar diffusion method (well and disk), quantitative method established by OECD, and macrodilution assay were employed. Based on the result, the well-variant of the diffusion method was more preferable than the disk-variant. However, the macrodilution technique provided more suitable conditions for testing the antibacterial activity of THES and for determining the minimal inhibitory concentration. Quantitative method established by OECD was found to be excellent for proving the quality of product treated with THES and untreated product.

*Keywords: bacterial resistance, a sulphate chelating agent, THES, antibacterial activity.*



## **DEDICATION**

I dedicate this works for my beloved family



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## TABLE OF CONTENTS

	Page
STATEMENT BY THE AUTHOR.....	2
ABSTRACT.....	3
DEDICATION.....	5
ACKNOWLEDGEMENTS.....	6
TABLE OF CONTENTS.....	7
LIST OF FIGURES.....	10
LIST OF TABLES.....	11
CHAPTER 1 – INTRODUCTION.....	12
1.1 Background.....	12
1.2 Research Problems.....	13
1.3 Research Objectives.....	14
1.4 Significance of Study.....	14
1.5 Research Questions.....	14
1.6 Research Hypotheses.....	14
CHAPTER 2 - LITERATURE REVIEW.....	15
2.1 Bacteria.....	15
2.2 Pathogenic bacteria.....	16
2.2.1 <i>Staphylococcus aureus</i> .....	16
2.2.2 <i>Escherichia coli</i> .....	19
2.3 Antimicrobial discovery.....	23
2.4 THES as newly non-resistant antibacterial agent.....	25
2.5 Antimicrobial carpet product.....	26
2.6 Antibacterial activity testing.....	27

2.6.1	McFarland turbidity standards.....	27
2.6.2	Spectrophotometry .....	28
2.6.3	Diffusion method.....	28
2.6.3.1	Agar disk-diffusion method .....	29
2.6.3.2	Agar well-diffusion method.....	30
2.6.4	Quantitative method for evaluating antibacterial activity of porous antibacterial treated materials established by Organisation for Economic Co-operation and Development (OECD).....	30
2.6.5	Broth Macrodilution Method.....	31
<b>CHAPTER 3 – RESEARCH METHODS .....</b>		<b>33</b>
3.1	Venue and Time.....	33
3.2	Materials and Equipments .....	33
3.2.1	Microorganism .....	33
3.2.2	Chemical Substances and Reagent.....	33
3.2.3	Other Materials.....	33
3.2.4	Equipment .....	33
3.3	Design of Experiment.....	34
3.4	Experiment Procedures.....	36
3.4.1	Medium Preparation.....	36
3.4.1.1	Suspension medium – Müller Hinton broth.....	36
3.4.1.2	Nutrient agar – Bacteriological agar no. 1 .....	36
3.4.2	Sterilization of apparatus.....	36
3.4.3	Slant culture medium.....	36
3.4.4	Pre-culture of bacteria .....	36
3.4.5	McFarland Standard determination .....	36
3.4.6	Antibacterial activity test.....	37
3.4.6.1	Macrodilution method.....	37
3.4.6.2	Agar diffusion method .....	38
3.4.6.2.1	Preparation of inoculum .....	38
3.4.6.2.2	Agar diffusion well-variant .....	38
3.4.6.2.3	Agar diffusion disk-variant .....	38



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3.4.6.3	Quantitative method for evaluating antibacterial activity of porous antibacterial treated materials by OECD.....	39
3.4.6.3.1	Preparation of test inoculum .....	39
3.4.6.3.2	Preparation of test specimens.....	39
3.4.6.3.3	Inoculation of test specimens .....	40
3.4.6.3.4	Recovery of bacteria from the test samples .....	40
3.4.6.3.5	Measurement of Colony Forming Units (CFU) .....	41
3.5.	Data Analysis.....	42
3.5.1.	Statistical analysis .....	42
CHAPTER 4 – RESULTS AND DISCUSSIONS.....		43
4.1	McFarland Standard Analysis .....	43
4.2	Antimicrobial activity of THES and its derivative product.....	43
4.2.1.	Macrodilution method analysis .....	43
4.2.2.	Agar diffusion method.....	47
4.2.3.	Quantitative method established by OECD analysis .....	51
CHAPTER 5 – CONCLUSIONS AND RECOMMENDATIONS.....		57
5.1	Conclusions .....	57
5.2	Recommendations .....	57
APPENDICES .....		59
REFERENCES .....		66
CURRICULUM VITAE.....		77