



LIST OF CONTENTS

VALIDATION SHEET.....	ii
STATEMENT SHEET.....	iii
PREFACE.....	iv
LIST OF CONTENTS.....	v
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
LIST OF APPENDICES.....	viii
ABSTRACT.....	ix
ABSTRAK.....	x
I. INTRODUCTION	
1. Background.....	1
2. Objectives.....	2
II. LITERATURE REVIEW	
1. Bioremediation.....	3
2. Marigold (<i>Tagetes sp.</i>).....	3
3. TPH Degradation Bacteria.....	4
4. Biochar.....	6
III. MATERIALS AND METHODS	
1. Materials.....	7
2. Methods.....	8
IV. RESULTS AND DISCUSSIONS	
1. Chemical Properties of the Soil.....	13
2. TPH Analysis.....	14
3. Bacterial Analysis.....	16
V. CONCLUSIONS AND SUGGESTIONS	21
1. Conclusions.....	21
2. Suggestions.....	21
REFERENCES.....	22
APPENDIX.....	29



LIST OF TABLES

Table 1.	Experimental design	10
Table 2.	Soil chemical properties before planting	13



LIST OF FIGURES

Figure. 1.	Principles of aerobic TPH degradation process by microorganisms.....	5
Figure. 2.	Grouping of sample, control, and analysis	9
Figure. 3.	TPH degradation group A and B as control.....	15
Figure. 4.	TPH degradation group D and E as control.....	15
Figure. 5.	TPH remaining at day 49 with different sampling location.....	17
Figure. 6.	Number of bacteria growth D and E on the TSB medium.....	17
Figure. 7.	Number of bacteria growth D and E on the CFMM.....	18
Figure. 8.	Number of bacteria growth D and E the NSW medium.....	18
Figure. 9.	DNA visualization based on PCR-DGGE.....	19
Figure. 10.	PCR-DGGE result in NTSYS 2.2.....	20



LIST OF APPENDICES

Appendix 1.	Manufacturing of Luria Bertani (LB) Agar	29
Appendix 2.	Manufacturing of Marine Agar	30
Appendix 3.	Manufacturing of Marine Broth	30
Appendix 4.	Manufacturing of CFMM.....	30
Appendix 5.	Manufacturing of Natural Seawater (NSW).....	30
Appendix 6.	Manufacturing of Tryptone Soya Broth (TSB).....	30
Appendix 7.	Bacteria Number: TSB Medium	31
Appendix 8.	Bacteria Number: NSW Medium	33
Appendix 9.	Bacteria Number: CFMM.....	36
Appendix 10.	TPH Calculation.....	39
Appendix 11.	Sample A and B's T-test Bacterial Count Analysis in TSB.....	45
Appendix 12.	Sample A and B's T-test Bacterial Count Analysis in CFMM.....	45
Appendix 13.	Sample A and B's T-test Bacterial Count Analysis in NSW.....	45
Appendix 14.	Sample D and E's T-test Bacterial Count Analysis in TSB.....	46
Appendix 15.	Sample D and E's T-test Bacterial Count Analysis in NSW.....	46
Appendix 16.	Sample D and E's T-test Bacterial Count Analysis in CFMM.....	46
Appendix 17.	T-test TPH Analysis A and B Samples.....	47
Appendix 18.	T-test TPH Analysis D and E Samples.....	47