

## TABLE OF CONTENT

	<b>page</b>
ACKNOWLEDGEMENT	iv
TABLE OF CONTENT	v
LIST OF TABLES	ix
LIST OF FIGURES	x
ABRIVIATION AND SYMBOLES	xii
ABSTRACT	ii
ABSTRAK	iii
1.0 INTRODUCTION	
1.1 History of antimicrobial resistanc	1
1.2 The need for development of novel anti-MRSA agents	2
1.3 The therapeutic value of medicinal plants in drug discovery	5
1.4 <i>Tinosprora crispera</i> L	7
1.4.1 Traditional use of <i>Tinosprora crispera</i>	8
1.4.2 Previous study on <i>Tinospora crispera</i>	8
1.4.3 Chemical components isolated from <i>Tinosprora crispera</i>	9
1.5 Antimicrobial susceptibility test methods	
1.5.1 Disc diffusion test	10

1.5.2	Dilution methods: Broth dilution	11
1.6	Acute oral toxicity testing	11
1.7	Objective of the study	12
2.0	MATERIALS AND METHODOLOGY	
2.1	Plant material and extract preparation	13
2.1.1	Aqueous extract preparation	13
2.1.2	Ethanol extracts preparation	13
2.1.3	Sterility Proofing of the Extracts	13
2.2	Identification of Bacterial strains	14
2.3	Antimicrobial susceptibility testing	
2.3.1	Disc diffusion test	14
2.3.2	Preparation of impregnated discs	14
2.3.3	Inoculums and inoculation procedure	15
2.3.4	Application of impregnated discs	15
2.3.5	Minimum Inhibitory Concentration (MIC)	16
2.3.6	Preparation of extract dilutions	16
2.3.7	Inoculation procedure	17
2.3.8	Determination of MIC values	17
2.4	Antibacterial effects of several plant solvents	18

2.5	Acute toxicity study	18
2.5.1	Acute oral toxicity study	19
2.5.1.1	Mortality and behavioural observation	19
2.5.1.2	Body weight analysis	19
2.5.1.3	Liver and renal function analysis	20
2.5.1.4	Gross necropsy	20
2.5.1.5	Histological examination	20
3.6	Statistical analysis	21
3.0	<b>RESULTS</b>	
3.1	Bacteriological characteristic study	22
3.2	Antimicrobial susceptibility testing	
3.2.1	Disc diffusion method	23
3.2.2	Minimum Inhibitory Concentration (MIC)	26
3.3	Antibacterial effects of several plant solvents	28
3.4	Acute toxicity study	
3.4.1	Mortality and behavioural changes	28
3.4.2	Analysis of body weight	29
3.4.3	Liver and renal function analysis	30

3.4.4	Gross necropsy and histology	34
4.0	DISCUSSION	
4.1	Experimental findings	
4.1.1	Antimicrobial Susceptibility Test Method	38
4.1.2	Acute toxicity study	41
4.2	Limitation of the study	45
4.3	Future study	45
5.0	CONCLUSION	47
6.0	REFERENCES	48
7.0	APPENDICES	
	APPENDICES A: Gram staining protocol	57
	APPENDICES B: Histology protocol	58
	APPENDICES C: Data tables	61