

TABLE OF CONTENTS

APPROVALii
DECLARATION.....	iii
IDENTITY	iv
ABSTRACT	vii
ACKNOWLEDGEMENT.....	viii
TABLE OF CONTENTS	x
LIST OF TABLES	xiii
LIST OF FIGURES	xiv
LIST OF APPENDICES	xv
ABBREVIATIONS AND SYMBOLS	xviii
 CHAPTER 1 INTRODUCTION.....	1
1.1.Background of Research.....	1
1.2.Problem Statement.....	2
1.3.Theoretical Base	3
1.4.The Aim of Research	4
1.5.The Outcome of Research.....	4
1.6.Hypotheses	5
 CHAPTER 2 LITERATURE REVIEW.....	6
2.1. <i>Moringa oleifera</i> Lam.....	6
2.1.2Beneficial Contents in <i>Moringa oleifera</i> Lam	8
2.1.3.Antioxidant in <i>Moringa oleifera</i> Lam.....	10
2.2.High Temperature Constraints.....	11
2.3.Reactive Oxygen Species (ROS) and Oxidative Stress	11
2.4.Antioxidant as a Free Radicals Scavenger.....	12
2.5.Testis.....	13
2.5.1.Anatomy of Testis.....	13
2.5.2.Histology of Testis.....	14

2.5.3.Leydig Cells.....	16
2.5.4.Sertoli Cells.....	16
2.5.5.Function of Testis	17
2.6.Rat (<i>Rattus norvegicus</i>)	18
 CHAPTER 3 MATERIALS AND METHODS	21
3.1.Experimental Design.....	21
3.2.Number of Replicates	21
3.3.Research Variables	22
3.3.1.Independent Variable.....	22
3.3.2.Dependent Variables.....	22
3.3.3.Controlled Variables	22
3.4.Operational Definition of Variables	22
3.4.1. <i>Moringa oleifera</i> Lam Extract.....	22
3.4.2.High Temperature Induction.....	22
3.4.3.Testes Histopathological Profile	22
3.5.Research Location and Time	23
3.6.Research Materials and Equipments.....	23
3.6.1.Experimental Animal.....	23
3.6.2.Research Materials.....	23
3.6.3.Research Equipments.....	23
3.7.Research Procedure.....	24
3.7.1. <i>Moringa oleifera</i> Lam Extract Solution (MOES).....	24
3.7.2.Determination of Dosage	24
3.7.3.Rats Acclimation and Maintenance	24
3.7.4.Treatments	25
3.7.5.Evaluation Methods	25
3.8.Data Analysis.....	26
3.9.Research Flowchart.....	27
 CHAPTER 4 RESEARCH RESULT	28

4.1.The Numbers of Leydig Cells.....	28
4.2.The Numbers of Sertoli Cells	30
CHAPTER 5 DISCUSSION	33
5.1.Leydig Cells.....	34
5.2.Sertoli Cells.....	36
CHAPTER 6 CONCLUSION AND SUGGESTION	38
6.1.Conclusion	38
6.2.Suggestion.....	38
SUMMARY	39
REFERENCES	42
APPENDICES	49