

TABLE OF CONTENTS

ABSTRACT	iv
TABLE OF CONTENTS	vii
CHAPTER I.....	1
INTRODUCTION	1
1.1 Research Background	1
1.2 Research Problem Formulation.....	3
1.3 Research Objectives.....	3
1.4 Research Benefits.....	3
1.5 Authenticity of Research.....	3
Tabel 1. The Authenticity of Research.....	3
CHAPTER II.....	6
OVERVIEW	6
2.1 Pineapple (<i>Ananas comosus</i> (L.) Merr.)	6
2.2 Content of Pineapple Fruit (<i>Ananas comosus</i> (L.) Merr.)	7
2.3 Compound Content of Pineapple Fruit Peel (<i>Ananas comosus</i> (L.) Merr.)	
8	
2.4 Extraction.....	13
2.5 Serum	15
2.6 Sun Protection Factor (SPF)	16
2.5 Material Monograph	16
2.6 Halal Product Analysis	20
2.7 Theoretical Framework.....	22
2.8 Conceptual Framework	22
2.9 Hypothesis.....	23
3.1 Research Type and Design.....	24

3.2 Period and Location of Research	24
3.3 Research Variables.....	24
3.4 Variable Operational Definition	24
3.5 Research Tools and Materials.....	26
3.6 Research Procedures	26
3.7 Data Analysis	31
3.8 Halal Product Analysis	32
3.10 Research Flowchart	
33	
1.1 Determination of Pineapple Plant	35
1.2 Pineapple Peel Extraction	35
1.3 Percent Yield Value of Pineapple Fruit Peel Extract (<i>Ananas comosus</i> (L.) Merr.).....	37
1.4 Phytochemical screening	39
1.5 Formulation of SPF Serum of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.).....	40
1.6 Evaluation results of SPF preparation of pineapple peel extract serum .	44
1.7 Sun Protection Factor (SPF) value results	58
1.8 Halal Product Analysis	63
CHAPTER V	70
CONCLUSIONS AND RECOMMENDATION.....	70
5.1 Conclusions.....	70
5.2 Recommendation	70

G O N T O R
 UNIVERSITAS DARUSSALAM GONTOR

TABLE OF IMAGES

Figure 1. Pineapple Plant Morphology	6
Figure 2. Structure Vitamin C.....	9
Figure 3. Flavonoid Structure.	11
Figure4. Tannin Structure.	12
Figure 5. Alkaloid Structure.....	13
Figure 6. Na-CMC Structure.....	17
Figure 7. Glycerin Structure.....	18
Figure 8. Theoretical Framework.....	22
Figure 9. Conceptual Framework.....	22
Figure 10. Research Flow Chart.....	33
Figure 11. Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	37
Figure 12. Before (A) and after (B) phytochemical screening of flavonoid compounds	40
Figure 13. Homogeneity Test Result of Serum SPF of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	47
Figure 14. Stability test results (F0) of SPF Serum of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	56
Figure 15. Stability test results (F1) of SPF Serum of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	56
Figure 16. Stability test results (F2) of SPF Serum of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	57
Figure 17. Stability test results (F3) of SPF Serum of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	57

**UNIDA
GONTOR**
UNIVERSITAS DARUSSALAM GONTOR

LIST OF TABLES

Tabel 1. The Authenticity of Research	3
Table 2. Efectiveness SPF Value	16
Table 3. SPF Formula of Pineapple Peel Extract Serum (<i>Ananas comosus</i> (L.) Merr.).	24
Table 5. Variable Operational Definition.....	24
Tabel 6. Ingredients used in grams	27
Tabel 7. Nilai EE x I at every wavelength	30
Table 8. Research Schedule	34
Table 9. Yield of Pineapple Peel Simplisia.....	38
Table 10. Phytochemical Screening Results of Pineapple peel Extract (<i>Ananas comosus</i> (L.) Merr.)	39
Table 11. Pre-Preparation Formula of Pineapple Serum SPF (<i>Ananas comosus</i> (L.) Merr.).	40
Table 12. Results of All Tests on SPF Serum of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr)	41
Table 13. Results of Organoleptic Examination of SPF Serum Pineapple peel extract (<i>Ananas comosus</i> (L.) Merr.)	44
Table 14. Homogeneity Test Result of Serum SPF of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	45
Table 15. Results of pH Test of Serum SPF of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	47
Table 16. Results of SPF Spreadability Test of Pineapple Peel Extract Serum (<i>Ananas comosus</i> (L.) Merr.)	49
Table 17. Viscosity Test Result of SPF Serum of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	52
Table 18. SPF Stability Test Results of Serum Extract of Pineapple Peel (<i>Ananas comosus</i> (L.) Merr.)	54
Table 19. Absorbance results of each Formulation of Serum of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	58
Table 20. Result of SPF Value of Serum of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	59
Table 21. SPF Value Effectiveness	61
Table 22. Product Analysis Data of Halal SPF Serum of Pineapple Peel Extract (<i>Ananas comosus</i> (L.) Merr.)	63