

TABLE OF CONTENT

COVER	ii
APPROVAL PAGE	ii
PLAGIARISM FREE DECLARATION	iii
PREFACE AND ACKNOWLEDGEMENT	iv
TABLE OF CONTENT	v
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF APPENDIXS	ix
ABSTRACT	x
CHAPTER I INTRODUCTION	1
1.1 Background	1
1.2 Research Problems	4
1.3 Objectives	4
1.4 Benefits	4
CHAPTER II LITERATURE REVIEW	5
2.1 Pigmented Corn	5
2.2 Anthocyanins	5
2.3 Ultrasound-Assisted Extraction (UAE)	8
2.4 Method Validations	11
2.5 Design of Experiments	14
2.6 Response Surface Methodology (RSM)	15
2.7 Hypothesis	15
CHAPTER III MATERIALS AND METHODS	16
3.1 Time and Location	16
3.2 Materials and Instruments	16
3.2.1. Materials	16

3.2.2. Instruments.....	17
3.3 Research Procedure	18
3.3.1. Sample Preparation	18
3.3.2. Identification of Anthocyanins Using UHPLC-PDA-QToF-MS .	18
3.3.3. Extraction Optimization.....	19
3.3.4. Determination of Anthocyanins Using UHPLC-UV-Vis	20
3.3.5. Optimal Extraction Time	21
3.3.6. Method Validation	21
3.3.7. Application on Pigmented Corn	22
3.4 Experimental Design	22
3.5 Data Analysis.....	23
CHAPTER IV RESULT AND DISCUSSION	24
4.1 Performance of the Chromatographic Method	24
4.2 Effect of the UAE Operating Variables in the Anthocyanins Recovery	25
4.3 The Prediction Model Using Response Surface Methodology.....	27
4.4 Optimization Condition and Verification	30
4.5 Optimal Extraction Time	31
4.6 Validation of the UAE Method.....	32
4.7 Applying the Optimized Method to Different Pigmented Corn	32
4.8 Identification Anthocyanin in Pigmented Corn Kernel	34
CHAPTER V CONCLUSION AND SUGGESTIONS	35
5.1 Conclusion	35
5.2 Suggestion	35
REFERENCE.....	36
APPENDIX	42