

**BINDER SELECTION IN *CYMBOPOGON CITRATUS* EXTRACT
PULVERIZATION PROCESS FOR
OPTIMUM AGI ACTIVITY AND STABILITY**

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

Binder Selection in *Cymbopogon citratus* Extract Pulverization Process for Optimum AGI Activity and Stability

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Lemongrass, or *Cymbopogon citratus*, is a plant most known for its fragrant qualities and applications as a spice. There has also been research about Lemongrass pertaining to its anti-diabetic qualities. This quality is brought upon by alpha-glucosidase inhibitors (AGI) contained within Lemongrass, these inhibitors help reduce the rate at which blood sugar rises by inhibiting the enzymes responsible for breaking down simple sugars with 1,4-glycosidic linkages. Previously, an industrial manufacturing of Lemongrass powder is ongoing at PT. Deltomed, however due to lack of a binder, the spray dried powder was unstable and hygroscopic. This research aims to find a viable binder that would still preserve the intended use as a herbal alternative to anti-diabetic medicines. The common binder Maltodextrin was found to increase the glucose content of the sample by a significant amount, so other binders must be used. Alternative binders picked were Gum Arabic and Carboxymethyl Cellulose due to their good binder properties while not contributing to the glucose content of the binder. Through the Design Expert program a binder ratio of 8:91:1 (Maltodextrin : Gum Arabic : CMC) was produced.

Keywords: *Lemongrass, Glucose Content, alpha-glucosidase inhibitors, Cymbopogon citratus, Maltodextrin, Gum Arabic, Carboxymethyl Cellulose, Binder, AGI.*



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DEDICATION

This research is dedicated to the country I love, Indonesia.



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Table of Contents

CHAPTER 1 - INTRODUCTION	11
1.1. Background	11
1.2. Research Problems	14
1.3. Research Objectives	14
1.4. Significance of Study	14
1.5. Research Questions	14
CHAPTER 2 - LITERATURE REVIEW	15
2.1. Herbal Medicine Classifications	15
2.2. Diabetes Mellitus	16
2.3. Glucose Content	18
2.4. Alpha Glucosidase Inhibitors (AGIs)	18
2.5. Glycemic Index (GI)	20
2.6. Bioactive Compounds of AGI	21
2.7. Spray Drying	22
2.8. Microencapsulation	23
CHAPTER 3 - RESEARCH METHODOLOGY	26
3.1. Venue and Time	26
3.2. Materials and Equipment	26
3.2.1. Materials	26
3.2.2. Equipment	26
3.3. Experimental Procedure	29
3.3.1. Extractor Testing	30
3.3.2. Binder Property Test	31
3.3.3. Binder Screening	33
3.3.4. Validation	35
3.4. Experimental Design	36
3.4.1. Binder Screening Through Oven Drying	36
3.4.2. Modified Binder Screening Through Oven Drying	38
3.5. Analytical Method	42
3.5.1. AGI Inhibition Test	42
3.5.2. Total Soluble Solid (TSS%) and Moisture Content	44
3.5.3. Glucose Content	44
3.5.4. Solubility Determination	46

3.5.5. AGI Validation Test.....	48
3.6. Statistical Analysis.....	49
CHAPTER 4 – RESULT AND DISCUSSION	50
4.1. Extractor (Macerator & Percolator)	50
4.1.1. Extractor Yield and TSS%	50
4.2. Batch Evaporation using Rotary Evaporator	51
4.3. Solubility Determination.....	52
4.3.1. Initial Solubility Test	52
4.3.2. Hot Plate Solubility Test.....	54
4.3.3. CMC Solubility Limit Test.....	55
4.4. Cost Analysis.....	56
4.5. Binder Screening	56
4.5.1. Oven Drying	57
4.5.2. Glucose Content Test.....	58
4.6. Bulk Evaporation using Lab Evaporator.....	62
4.7. Modified Binder Screening.....	62
4.7.1. Glucose Content and Activity Test.....	63
4.8. Spray Dry Results.....	66
4.9. AGI Validation Test	67
4.10. Design Expert Conclusions	68
CHAPTER 5 – CONCLUSIONS.....	70
Appendices.....	71
REFERENCES.....	82
CURRICULUM VITAE.....	88

LIST OF FIGURES

Figure 1. Logo for Herbal Classifications in Indonesia	15
Figure 2. Mechanism of Action of AGI	20
Figure 3. Extractor Picture	27
Figure 4. Rotary Evaporator Picture	27
Figure 5. Lab Evaporator Picture	28
Figure 6. Spray Dryer Picture	29
Figure 7. Extractor Testing Flowchart	31
Figure 8. Binder Property Test Flowchart	32
Figure 9. Binder Screening Flowchart	34
Figure 10. Validation Flowchart	36
Figure 11. Design Expert Binder Screening Ratio	37
Figure 12. Design Expert Modified Binder Screening Ratio	39
Figure 13. Initial Solubility Test Photo (Left Column: Maltodextrin, Middle Column: Gum Arabic, Right Column: CMC)	53
Figure 14. Binder Screening Dry Sample	57
Figure 15. Design Expert Optimization Result	68

List of Tables

Table 1. Excel of Binder Screening Ratio	38
Table 2. Initial Weight for Modified Binder Screening.....	40
Table 3. Excel of Batch 1 for Modified Binder Screening.....	41
Table 4. Excel of Batch 2 for Modified Binder Screening.....	41
Table 5. Excel of Batch 3 for Modified Binder Screening.....	42
Table 6. Reagent Excel for Activity Determination	43
Table 7. Glucose Content Calculation Excel	45
Table 8. Initial Solubility Test.....	47
Table 9. Hot Plate Solubility Test.....	47
Table 10. CMC Solubility Limit Test.....	48
Table 11. Extraction Yield Comparison	51
Table 12. Initial Solubility Test Results	52
Table 13. Hot Plate Solubility Test Result Table	54
Table 14. CMC Solubility Limit Test Result Excel.....	55
Table 15. Cost Comparison Between Binder Ratios.....	56
Table 16. Binder Glucose Test Results.....	58
Table 17. Sample Glucose Test Results.....	60
Table 18. Modified Binder Screening Test Results.....	63
Table 19. Evaporation Sample and Percolation Sample Activity Test	65