

RESEARCH FINAL REPORT

**NANOCRYSTALLINE CELLULOSE FROM OIL PALM EMPTY
FRUIT BUNCHES AS DRUG CARRIER**



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2018

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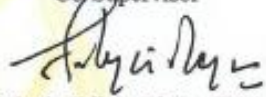
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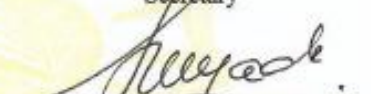

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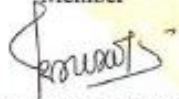
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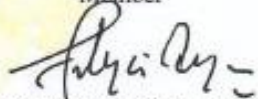
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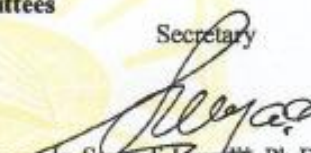

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PREFACE

The authors would like to thank God for His blessing that the Research Project entitled Nanocrystalline From Oil Palm Empty Fruit Bunches as Drug Carrier has been accomplished. This report is a prerequisite in achieving Bachelor of Engineering degree in Chemical Engineering.

The authors realize that the completion of this report is achieved by the help of many people. There for, the authors would like to thank the persons below:

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7. Our parents and family who have given a lot of help and support, both materially and morally
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The authors realize that this report is far from perfect, therefore any critics and comments which will better improve the research is gladly accepted. Lastly the authors hope that the report will be useful to all readers who need information regarding the research of the report.

Surabaya, 6th June 2018

The authors

TABLE OF CONTENTS

LETTER OF APPROVAL.....	ii
COPY RIGHT AGREEMENT	iv
LETTER OF DECLARATION	vi
PREFACE	viii
TABLE OF CONTENTS.....	x
TABLE OF FIGURES	xii
TABLE OF TABLES.....	xiv
ABSTRACT.....	xvi
CHAPTER I INTRODUCTION	1
I.1 Background.....	1
I.2 Research Objectives.....	2
I.3. Problem Limitations	2
CHAPTER II LITERATURE REVIEW.....	3
II.1 Lignocellulosic Material	4
II.2 Oil Palm Empty Fruit Bunches	5
II.3 Delignification	6
II.4 Acid Hydrolysis	7
II.5 Adsorption	8
II.6 Adsorption and Desorption Kinetic	11
II.7 Tetracycline	15
CHAPTER III EXPERIMENTAL METHOD	13
III.1 Design of Experiment.....	13
III.2 Materials and Equipments	16
III.3 Process Variables	16
III.4 Experimental Procedures.....	23
CHAPTER IV RESULT AND DISCUSSION	28
IV.1. Pre-treatment (Delignification)	28
IV.2. Acid Hydrolysis	30
IV.3. FTIR Analysis	33
IV.4. Adsorption Kinetics	34
IV.5. Desorption Kinetic	37
IV.6. Isothermal Adsorption	39
CHAPTER V CONCLUSION AND RECOMMENDATION	43
V.1. Conclusion	43
V.2. Recommendation.....	43
REFERENCES	44
APPENDIX A	49
APPENDIX B	52
APPENDIX C	57

APPENDIX D 60
APPENDIX E 61
APPENDIX F 63
APPENDIX G 65
APPENDIX H 68

TABLE OF FIGURES

Figure II.1. Molecular Structure of Cellulose	6
Figure III.1. Flow Diagram of NCC Production	17
Figure III.2. Flow Diagram of tetracycline adsorption and desorption	18
Figure III.3. Flow Diagram of adsorption isotherm of tetracycline antibiotic	19
Figure IV.1. OPEFB after acetic acid peroxide and ADS	30
Figure IV.2. The yield of NCC Production	31
Figure IV.3. Main Effects Plot for Means	32
Figure IV.4. FTIR Spectrum of NCC	33
Figure IV.5. Graph of Pseudo First-Order Kinetic Adsorption	35
Figure IV.6. Graph of Pseudo Second-Order Kinetic Adsorption	36
Figure IV.7. Graph of Pseudo First-Order Kinetic Desorption	37
Figure IV.8. Graph of Pseudo Second-Order Kinetic Desorption	38
Figure IV.9. Graph of Freundlich Adsorption Isotherm	39
Figure IV.10. Graph of Langmuir Adsorption Isotherm	40
Figure IV.11. Graph of Temkin Adsorption Isotherm	41
Figure A.1. H ₂ SO ₄ 45% with ratio 1:15(w/v)	32
Figure A.2. H ₂ SO ₄ 45% with ratio 1:30(w/v)	33
Figure A.3. H ₂ SO ₄ 64% with ratio 1:15(w/v)	33
Figure A.4. H ₂ SO ₄ 64% with ratio 1:30(w/v)	33
Figure A.5. H ₂ SO ₄ 80% with ratio 1:15(w/v)	34

Figure A.6. H ₂ SO ₄ 80% with ratio 1:30(w/v)	34
Figure E.1. Maximum Wavelength Determination	61
Figure E.2. Standard Curve of Tetracycline	62

TABLE OF TABLES

Table II.1. Advantages and Disadvantages of Various Methods of NCC Isolation	5
Table II.2. The composition of OPEFB	8
Table II.3. Various Delignification Processes	9
Table IV.1. Van Soest Analysis of OPEFB	28
Table IV.2. The yield of NCC Production	30
Table IV.3. Table of Response for Means	31
Table IV.4. Selected Functional Group of NCC	33
Table IV.5. Parameter of Pseudo first-order and Pseudo second-order of adsorption kinetic of tetracycline into NCC	34
Table VI.6. Parameter of Pseudo First-order and Pseudo second-order of Desorption Kinetic of Tetracycline into NCC	37
Table VI.7. Parameter of Various Adsorption Isotherm of Tetracycline into NCC	39
Table C.1. Van Soest Analysis of OPEFB Before Delignification	57
Table C.2. Van Soest Analysis of OPEFB After Delignification with Acetic Acid Peroxide	58
Table C.3. Van Soest Analysis of OPEFB After Delignification with Acetic Acid Peroxide and ADS	58
Table D.1. Mass of Cellulose from OPEFB to Produce NCC .	60
Table D.2. Mass of NCC at manipulated variable	60
Table D.1. The yield of NCC Production	60
Table E.1. Absorbance Value from Certain Concentration of Tetracycline Solution	62

Table F.1. The Adsorption Kinetic Data	63
Table G.1. Desorption Kinetic Data (pH=3)	65
Table G.2. Desorption Kinetic Data (pH=7)	66
Table H.1. The Adsorption Isotherm Data	68

ABSTRACT

The application of nanocrystalline cellulose (NCC) as drug delivery is studied in last six years, having advantages such as non-toxic, high biocompatibility, biodegradable, and high area to volume ratio making NCC good drug delivery agent. Nanocrystalline cellulose is a renewable nano size material from cellulose, which can be obtained from various bio waste. Oil palm empty fruit bunches (OPEFB) can be used as cellulose resources because of its abundant availability in Indonesia and high cellulose content.

In this research, NCC for drug delivery is obtained from OPEFB through delignification and acid hydrolysis process. The effect of temperature and time in Acid hydrolysis process on yield of NCC will investigated. The performance of nanocrystalline cellulose from oil palm empty fruit bunch as drug delivery will be researched using adsorption-desorption kinetic method under simulated body fluid and its drug adsorption capacity will be investigated using isotherm adsorption method.

