



PRODUCTION OF MESOXALIC ACID FROM GLYCEROL OXIDATION BY  
LACCASE/2,2,6,6-TETRAMETHYLPYPERIDINE-1-OXYL (LACCASE/TEMPO)  
SYSTEM: EFFECT OF PROCESS PARAMETERS AND KINETIC STUDY

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## TABLE OF CONTENTS

<b>DECLARATION</b>	
<b>TITLE PAGE</b>	i
<b>ACKNOWLEDGEMENTS</b>	iii
<b>ABSTRAK</b>	iv
<b>ABSTRACT</b>	v
<b>TABLE OF CONTENTS</b>	vi
<b>LIST OF TABLES</b>	ix
<b>LIST OF SCHEMES</b>	x
<b>LIST OF FIGURES</b>	xi
<b>LIST OF SYMBOLS</b>	iii
<b>LIST OF ABBREVIATIONS</b>	iv
<b>CHAPTER 1 INTRODUCTION</b>	1
1.1 Background	1
1.2 Motivation	2
1.3 Problem statement	3
1.4 Objectives	3
1.5 Scope of study	3
1.6 Significant of study	4
<b>CHAPTER 2 LITERATURE REVIEW</b>	5
2.1 Glycerol from biodiesel production plant	5
2.1.1 Introduction	5
2.1.2 Physical and chemical properties of glycerol	7
2.1.3 Impurities of glycerol from biodiesel industry	8
2.1.4. Glycerol to value added chemicals	9

2.2 Oxidation of glycerol	12
2.3 Laccase-Mediator System (LMS)	17
2.4 Laccase	20
2.4.1 Introduction	20
2.4.2 Molecular Properties	21
2.4.3 Characteristics of laccase	23
2.4.3.1 Influence of pH on laccase activity	23
2.4.3.2 Influence of temperature on laccase activity	24
2.4.3.3 Influence of inhibitors on laccase activity	24
2.4.4 Application of laccase	25
2.4.4.1 Decolourisation of Dyes	25
2.4.4.2 Biosensors and Biofuel Cells	26
2.4.4.3 Paper Industry	27
2.4.4.4 Food and Beverage Industry	28
2.5 TEMPO	28
2.6 Kinetic model	30
2.7 Summary	32
<b>CHAPTER 3 METHODOLOGY</b>	<b>33</b>
3.1 Overview	33
3.2 Chemicals and materials	34
3.3 Preliminary Experiment	35
3.4 Catalysis Study – Effect of reaction conditions	35
3.5 Analytical Method	37
3.5.1 Analysis of oxidation products	37
3.5.2 Laccase activity assay	37
3.5.3 Electrochemical measurement	38
3.5.4 Native PAGE (n-PAGE) imaging method	38
3.6 Kinetic model development	39

<b>CHAPTER 4 RESULTS AND DISCUSSION</b>	<b>41</b>
4.1 Preliminary experiment	41
4.2 Effect of important parameters on the glycerol oxidation	47
4.2.1 Effect of temperature	47
4.2.2 Effect of different pH	52
4.2.3 Effect of Gly to TEMPO ratio	57
4.2.4 Effect of TEMPO to Laccase ratio	62
4.2.5 Comparison with baseline data	65
4.3 Kinetic Study	66
<b>CHAPTER 5 CONCLUSION AND RECOMMENDATIONS</b>	<b>75</b>
5.1 Conclusion	75
5.2 Recommendations	77
REFERENCES	78
APPENDIX A	93
APPENDIX B	97
APPENDIX C	140
APPENDIX D	143

## LIST OF TABLES

















<b>Table</b>	<b>Title</b>	<b>Page</b>
2.1	Characteristic of different categories of glycerol	8
2.2	Valuable chemicals attained from different reactions with glycerol.	10
3.1	Parameters and the range of study.	36
4.1	The best condition and MA attained for each parameter.	66
4.2	k values (obtained from MATLAB), activation energy and pre-exponential factor for the four temperatures studied.	71

## LIST OF SCHEMES

<b>Table</b>	<b>Title</b>	<b>Page</b>
3.1	Flowchart of the methodology	34
3.2	Experimental set up diagram.	36
3.3	Sequence of computing in MATLAB(ODE = Ordinary Differential Equation; SSE = Sum of Squares Error).	40
4.1	Reaction pathway, denotation of components and steps.	68

## LIST OF FIGURES

Figure	Title	Page
2.1	Estimated world biodiesel production until Year 2024	6
2.2	Structure of glycerol.	7
2.3	Glycerol oxidation pathways.	13
2.4	The role of a mediator in the enzymatic reaction.	18
2.5	Proposed mechanism for laccase/TEMPO-catalysed oxidation of alcohols	20
2.6	Catalytic cycle of a four-copper laccase.	23
2.7	Mechanism of alcohol/oxidation with TEMPO/NaOCl.	30
2.8	Reaction pathway on selective oxidation of glycerol.	31
4.1	HPLC chromatograms for sample taken at t = 76 hrs; (a) DAD signal, (b) RID signal.	42
4.2	Concentration of Gly and products with respect to time for the oxidation of glycerol by 30 mM TEMPO with the presence of 10U/ml Laccase at 25 °C as control (■ = Gly; ● = Gled; ▲ = GA; ▼ = TA; ◆ = MA). Insert plots showing the magnification of the products appearance region.	44
4.3	Composition of Gly and products (MA) versus time for the oxidation of Gly catalysed by TEMPO/laccase in 24 hrs (reproduction of data from Liebinger <i>et al.</i> (2009), ▨ = Gly; ▩ = MA; current preliminary results, ▧ = Gly, ▦ = MA).	45
4.4	Gel imaging result under gel documentation system (AlphaEase® FC Imaging System) with the lens control settings of brightness 28, zooming 70, focus 0.7, fluorescein, SYBR Gold (520nm), normal sensitivity/high resolution.	46
4.5	Cyclic voltammogram of laccase. Measurement obtained at a scan rate of 0.1 V/s.	47
4.6	Effect of temperature on the composition of reaction mixtures. Symbols represent: (■ = 5 °C; ● = 19 °C; ▲ = 33 °C; ▼ = 47 °C; ◆ = 61 °C). (a) Glycerol, (b) glyceraldehyde, (c) glyceric acid, (d) tartronic acid, (e) mesoxalic acid; pH = 4.5; stirring speed = 180 rpm; Gly/TEMPO (molar ratio) = 10:3 and TEMPO/laccase = 9:3 (unit ratio = mM: U/ml).	48

- 4.7 Percentage conversion of glycerol and products concentration at 76 hrs of reaction for various temperatures (  = Gled;  = GA;  = TA and  = MA; ● = Gly). 50
- 4.8 Concentration of glycerol and products obtained from oxidation of glycerol at different pH. Symbols represent: ■ = pH 3.5; ● = pH 4; ▲ = pH 4.5; ▼ = pH 5; ◆ = pH 5.5; ◀ = pH 6; ▶ = pH 6.15; reaction temperature = 19 °C; stirring speed = 180 rpm; Gly/TEMPO (molar ratio) = 10:3 and TEMPO/laccase = 9:3 (unit ratio = mM: U/ml). 54
- 4.9 Percentage conversion of glycerol and products concentration at 76 hrs of reaction for various pH. (  = Gled;  = GA;  = TA and  = MA; ● = Gly). 55
- 4.10 The time of compound detection versus pH of the reaction mixture. Symbols represent: × = Gled; ▲ = GA; ■ = TA; ◆ = MA. 56
- 4.11 Concentration profile of reactant and products obtained from oxidation of glycerol at different ratio of Gly to TEMPO (molar ratio). Symbols represent: ■ = 1:0; ● = 100:3; ▲ = 50:3; ▼ = 10:3; ◆ = 1:3; reaction temperature = 19 °C; stirring speed = 180 rpm; pH = 5.5 and TEMPO/laccase = 9:3 (unit ratio = mM: U/ml). 59
- 4.12 Percentage conversion of glycerol and products concentration at 76 hrs of reaction for various ratio of Gly to TEMPO (  = Gled;  = GA;  = TA;  = MA; ● = Gly). 60
- 4.13 Concentration of products obtained from oxidation of glycerol at different ratio of TEMPO to laccase (unit ratio = mM: U/ml). Symbols represent: ■ = 9:0; ● = 9:1; ▲ = 9:2; ▼ = 9:3; ◆ = 9:4; reaction temperature = 19 °C; pH = 5.5; stirring speed = 180 rpm and Gly/TEMPO (molar ratio) = 1:3. 63
- 4.14 Percentage conversion of glycerol and products concentration at 76 hrs of reaction for various ratio of Gly to TEMPO (  = Gled;  = GA;  = TA;  = MA; ● = Gly). 64
- 4.15 Proposed mechanism on glycerol oxidation by laccase/TEMPO system. 67
- 4.16 Parity plots for the temperature studied: (a) 5 °C; (b) 19 °C; (c) 33 °C; (d) 47 °C; (e) 61 °C. Symbols represent: (■ = Gly; ◆ = Gled; ▲ = GA; × = TA; ● = MA). 69
- 4.17 Arrhenius plots for the steps; (a) = step 1; (b) = step 2; (c) = step 3; (d) = step 4. 70



## LIST OF SYMBOLS

$\epsilon$	extinction coefficient
$l$	light path
$A$	absorbance
min	minute
hrs	hours
$k$	rate constant
$^{\circ}\text{C}$	degree celcius
K	Kelvin
C <sub>x</sub>	Concentration of compound x
cP	centipoise
ppm	part per million
M	mol/L
Pa	pascal
$r$	reaction rate
E <sub>0</sub>	redox potential

## LIST OF ABBREVIATIONS

ABTS	2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid)
APHA	American Public Health Association
BaCl <sub>2</sub>	Barium chloride
CI	Chilling injury
CPHM	4-chlorophenylhydrazone of mesoxalic acid
CV	Cyclic voltammetry
DAD	Diode Array detector
DHA	Dihydroxyacetone
DNA	Deoxyribonucleic acid
EDTA	Ethylenediaminetetraacetic acid
FA	Formic acid
GA	Glyceric acid
GCE	Glassy carbon electrode
Gled	Glyceraldehyde
Gly	Glycerol
H <sub>5</sub> IO <sub>6</sub>	Periodic acid
HA	Hydroxylapatite
HIV	Human immunodeficiency virus
HPLC	High-performance liquid chromatography
ILA	Insulin-like activity
L-DOPA	L-3,4-dihydroxyphenylalanine
LMS	Laccase mediated system

MA	Mesoxalic acid
$\text{Na}_2\text{C}_3\text{O}_5$	Sodium mesoxalate
NHE	Normal hydrogen electrode
ODE	Ordinary differential equation
OECD-FAO	Organisation for Economic Co-operation and Development-Food and Agriculture Organization
pI	Isoelectric point
PLGA	Poly(lactic-co-glycolic acid)
RID	Refractive index detector
RNA	Ribonucleic acid
RT	Reverse transcriptase
SCE	Saturated calomel electrode
SDS-PAGE	Sodium dodecyl sulfate polyacrylamide gel electrophoresis
TA	Tartronic acid
TEMPO	2,2,6,6-Tetramethylpiperidine-1-oxyl
USDA	United States Department of Agriculture