

BIOPROCESSING OF LACTIC ACID BY FERMENTATION TECHNIQUE

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Contents

PREFACE	vii
SYNOPSIS	ix
CHAPTER	
1 Lactic Acid, its Processing and Utilization in Industry: A review	1
<i>Nur Aimi Mohd Nasir, Nurhafizah Seeni Mohamed, Maizirwan Mel</i>	
2 Media Screening of Lactobacillus rhamnosus Fermentation for Lactic Acid Production	17
<i>Mohamed Ismail Abdul Karim, Maizirwan Mel, Parveen Jamal, Mohammad Ramlan Mohammad Salleh, Noraini Alamin</i>	
3 Optimization of Media for Lactobacillus rhamnosus Fermentation for Lactic Acid Production	25
<i>Maizirwan Mel, Mohamed Ismail Abd Karim, Mohammad Ramlan Mohammad Salleh, Noraini Alamin Mohammad Amin</i>	
4 Effect of pO₂ level on the Fermentation of Lactobacillus rhamnosus	37
<i>Maizirwan Mel, Mohamed Ismail Abdul Karim, Parveen Jamal, Mohammad Ramlan Mohammad Salleh, Rohane Abdullah</i>	
5 Process Optimization of Lactic Acid Fermentation in Bioreactor	51
<i>Maizirwan Mel, Mohamed Ismail Abdul Karim, Parveen Jamal, Mohammad Ramlan Mohammad Salleh, Ruzi Aini Zakaria</i>	

- 6 Determination of Critical pO₂ level and Process Online Monitoring of Lactic Acid Fermentation by *Lactobacillus rhamnosus*** **63**
Maizirwan Mel, Mohamed. Ismail Abdul Karim, Mohammad Ramlan Mohammad Salleh, Rohane Abdullah
- 7 Effect of Different Process Conditions on Lactic Acid Production by *Lactobacillus rhamnosus*** **73**
Maizirwan Mel, Mohamed Ismail Abdul Karim, Parveen Jamal, Mohammad Ramlan Mohammad Salleh, Ruzi Aini Zakaria
- 8 Synthesis Lactic Acid from Kenaf Bast by Using *Lactobacillus rhamnosus*** **83**
Nurhafizah Seeni Mohamed, Nur Hanis Mohd Sibi, Nur Aimi Mohd Nasir, Mohd Adlan Mustafa Kamalbhryn, Maizirwan Mel, Hazleen Anuar, Rashidi Othman
- 9 Factors Affecting the Hydrolysis Process of Kenaf Biomass for Lactic Acid Production** **93**
Nurhafizah Seeni Mohamed, Maizirwan Mel, Hazleen Anuar, Rashidi Othman, Nur Aimi Mohd Nasir, Mohd Adlan Mustafa Kamalbhryn
- 10 Growth Kinetic Study of *Rhizopus oryzae* via Fermentation of Lactic Acid from Kenaf Biomass** **101**
Nur Aimi Mohd Nasir, Mohd Adlan Mustafa Kamalbhryn, Nurhafizah Seeni Mohamed, Hazleen Anuar, Maizirwan Mel, Rashidi Othman
- 11 Effect of Process Parameters on Distribution Coefficient of Lactic Acid by using Alamine 336** **113**
Parveen Jamal, Maizirwan Mel, Mohamed Ismail Abdul Karim, Iis Sopyan, Siti Fatihah Othman
- 12 Optimization of Process Parameters using Response Surface Design on Distribution Coefficient of Lactic Acid** **125**
Parveen Jamal, Maizirwan Mel, Mohamed Ismail Abdul Karim, Nur Syahida, Raha Ahmad Raus

Chapter 11

Effect of Process Parameters on Distribution Coefficient of Lactic Acid by using Alamine 336

Parveen Jamal, Maizirwan Mel, Mohamad Ismail Abdul Karim, Iis Sopyan, and Siti Fatihah Othman

Abstract

This chapter discussed about the effect of process parameters on distribution coefficient of lactic acid by using Alamine 336. In the recent years, the interest towards process development for maximum recovery of lactic acid from fermentation broth has increased because of the increasing demand of pure and naturally produced lactic acid. In this study, various process parameters were selected to determine their optimum levels for recovery of lactic acid. Different levels of initial lactic acid concentration, pH, stirring rate, the amount of Alamine 336 in 1-octanol, the ratio of organic phase volume to aqueous phase volume, V_{org}/V_{aq} , were used to investigate the effect on the distribution coefficients of the lactic acid, K_D , which affect the percentage extraction of lactic acid. Maximum recovery of lactic acid (14.18 g/L) has been achieved with the developed process conditions. The total recovery was 94.5%, (w/w) and KD value was 17.241.

Keywords: *distribution coefficient, lactic acid, alamine 336, extraction.*