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BIOPROCESSING OF RECOMBINANT E.COLI PRODUCING β-GLUCURONIDASE ENZYME

IIUM Press
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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IIUM Press

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011
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Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

Bioprocessing Of Recombinant E.Coli Producing β- Glucuronidase Enzyme
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Include Index

ISBN 978-967-418-010-2

Member of Majlis Penerbitan Ilmiah Malaysia - MAPIM
(Malaysian Scholarly Publishing Council)

Printed by:
IIUM PRINTING SDN. BHD.
No. 1, Jalan Industri Batu Caves 1/3,
Taman Perindustrian Batu Caves,
Batu Caves Centre Point,
68100 Batu Caves.
Selangor Darul Ehsan

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Chapter 11

Debottleneck Strategy and Economic Analysis of β-Glucuronidase Enzyme Production

Maizirwan Mel, Mohd Firdaus Kamuri, and Dominic Chwan Yee Foo

1. Introduction

Process simulator and other modeling tools are gaining recognition and popularity in the biotech industry. Task handled by the process simulator include material and energy balance of integrated processes, equipment sizing, cost analyses, scheduling of batch operations, environmental impact assessment, throughput analyses and debottlenecking (Shanklin et al., 2001, Petrides et al., 1994 and 1995; Athimulam et al., 2006; Tan et al., 2006).

After determined the process flow for β-glucuronidase production and its operating conditions, SuperPro-Designer will be applied to develop a model of the integrated processes. A process flowsheet will be developed reflecting the overall processes required to produce β-glucuronidase (Hamzah et al., 2006) in industrial scale starting from inoculation of *E. coli in* a test tube to the downstream processing. According to Demetri *et al.* (2002), a flowsheet is developed by putting together the required unit procedures and connecting them with material flow streams. A unit procedure is set of operations that