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BIOPROCESSING OF RECOMBINANT E.COLI PRODUCING β-GLUCURONIDASE ENZYME

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Chapter 10

Modeling the Growth Kinetics Of *Escherichia coli* Fermentation In Bioreactors

Ibrahim Ali Noorbatcha, Wan Norulhazrina Wan Hassan and Maizirwan Mel

1. Introduction

Microbial processes are usually analyzed using structured or unstructured models. Structures models take into account some basic aspects of cell structure, function and composition. In unstructured models, however only cell mass is employed to describe the biological system. In this study, an unstructured model for cell growth, product formation, and glucose consumption was found to characterize the fermentation process. We have analyzed the growth kinetics of thermophilic *b*-Glucuronidase enzyme (Miksch et al., 1997) by recombinant *Escherichia coli (E. coli)*, using different types of model such as Monod, Logistic and Contois models.

b-glucuronidase is the enzyme that is responsible for the degradation of various polysaccharides or the cleavage of glucurono-conjugates. It is widely distributed in animal, plants, insects and bacteria, with particularly high concentrations in liver. It is classified as hydrolase, which catalyzes the hydrolysis of *b*-glucuronidase