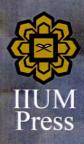
BIOPROCESSING OF LACTIC ACID BY FERMENTATION TECHNIQUE

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Chapter 6

Determination of Critical pO₂ Level and Process Online Monitoring of Lactic Acid Fermentation by Lactobacillus rhamnosus

Maizirwan Mel, Mohamed Ismail Abdul Karim, Mohammad Ramlan Mohammad Salleh, and Rohane Abdullah

Abstract

This chapter discussed about the influenced of critical point of dissolved oxygen (pO₂) level control on *Lactobacillus rhamnosus* fermentation producing lactic acid in laboratory scale fermenter using different pO₂ level operating conditions. The pO₂ level have been selected to be the main parameter in order to determine whether *L.rhamnosus* can significantly grow and produce lactic acid or not due to its aerobic characteristic. Together with pO₃, other parameters such as fixed agitation and pH control were also chosen. In this research, the best condition for production of lactic acid has been obtained at Run 1 with 16.85 g/L or 1.68% production yield at condition of 5% pO₃ level, agitation speed of 100 rpm and pH 6.

Keyword(s): Lactic acid, Lactobacillus, fermentation, pO, critical