



Poster code:

B3

Biobutanol Production through Simultaneous Saccharification and Fermentation

Nur Atheera Aiza Md Razali, Mohamad Faizal Ibrahim, Ezyana Kamal
Bahrin, Suraini Abd-Aziz*

Department of Bioprocess Technology, Faculty of Biotechnology and Biomolecular Sciences,
Universiti Putra Malaysia, 43400 UPM Serdang, Serdang, Selangor, Malaysia

*Corresponding author's e-mail: suraini@upm.edu.my

Abstract. Simultaneous saccharification and fermentation is a feasible process for biobutanol production. Biobutanol serves as alternative to the depleting fossil fuels source and also environmental friendly. Oil palm empty fruit bunch (OPEFB) is one of the renewable lignocellulosic biomass that can be utilized as substrates in the process. Simultaneous saccharification and fermentation incorporates one-step addition of microorganism, cellulase enzymes and biomass in a vessel. The simultaneous system works by employing *Clostridium acetobutylicum* ATCC 824 with Acremonium cellulase to hydrolyze 2% NaOH alkali pretreated OPEFB with autoclave. Enhancement of simultaneous saccharification and fermentation through one factor at a time followed by statistical analysis using Response Surface Methodology (RSM) aimed for high yield of biobutanol. The system will further undergo scaling up process. This research is expected to contribute to fuel sustainability in the future.

Keywords: Biobutanol; Simultaneous saccharification and fermentation; Optimization; Lignocellulosic biomass