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# Optimization of fed-batch enzymatic hydrolysis from alkali-pretreated sugarcane bagasse for high-concentration sugar production

Yueshu Gao [1,2], Jingliang Xu [1], Zhenhong Yuan [1*1],Yu Zhang [1], Yunyun Liu[1]， Cuiyi Liang[1]

*1. Key Laboratory of Renewable Energy, Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences, Guangzhou 510640, P.R. China*

*2. University of Chinese Academy of Sciences, Beijing 100049, P.R. China*

**Abstract**: Fed-batch enzymatic hydrolysis process from alkali-pretreated sugarcane bagasse was investigated to increase solids loading, produce high-concentration fermentable sugar and finally to reduce the cost of the production process. The optimal initial solids loading, feeding time and quantities were examined. The hydrolysis system was initiated with 12% (w/v) solids loading in flasks, where 7% fresh solids were fed consecutively at 6 h, 12h, 24h to get a final solids loading of 33%. All the requested cellulase loading (10 FPU/g substrate) was added completely at the beginning of hydrolysis reaction. After 120 h of hydrolysis, the maximal concentrations of cellobiose, glucose and xylose obtained were 9.376g/L，129.50g/L，56.03g/L, respectively. The final total glucan conversion rate attained to 60% from this fed-batch process.

**Keywords**： Sugarcane bagasse, Fed-batch process, Enzymatic hydrolysis, High-concentration sugars

## 1. Introduction

Over the last few years, several studies have begun to investigate the effects of

*Corresponding author: Zhenhong Yuan. Tel.: +86 20 87057735; fax: +86 20 87057737. E-mail address: yuanzh@ms.giec.ac.cn (Z. H. Yuan).