

6th World Congress on

BIOFUELS AND BIOENERGY

September 05-06, 2017 | London, UK

Bioethanol from lignocellulosic biomass: Current findings determine research priorities

Qian Kang¹, Jan Baeyens², Raf Dewil¹ and Lise Appels¹

¹KU Leuven, Belgium

²Beijing University of Chemical Technology, China

“Second generation” bioethanol, with lignocellulose material as feedstock, is a promising alternative for first generation bioethanol. This paper provides an overview of the current status and reveals the bottlenecks that hamper its implementation. The current literature specifies a conversion of biomass to bioethanol of 30 to ~50% only. Novel processes increase the conversion yield to about 92% of the theoretical yield. New combined processes reduce both the number of operational steps and the production of inhibitors. Recent advances in genetically engineered microorganisms are promising for higher alcohol tolerance and conversion efficiency. By combining advanced systems and by intensive additional research to eliminate current bottlenecks, second generation bioethanol could surpass the traditional first generation processes.

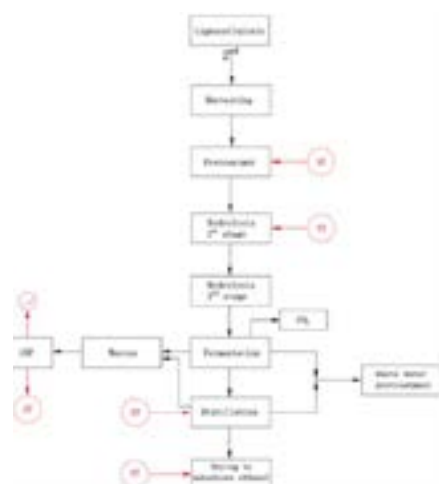


Figure 1: Second generation biomass-to-ethanol production (ST: steam addition)

Biography

Qian Kang completed her Chemical Engineering Bachelor’s study at the Tianjin University in China (2008). She completed PhD studies at the Beijing University of Chemical Technology in China, where she was a member of the PhD research team of Prof. Tan and is currently Postdoc at the Catholic University of Leuven, within the team of Prof. Dewil and Prof. Baeyens. Her main PhD research focus was to improve the energy consumption of the production of Bio-ethanol, especially in combination with membrane technology. Her immediate research actions focus upon energy and exergy analysis of the next generation of concentrated solar power plants (hybrid combined cycle). Within the framework of this renewable fuel, she has participated in different conferences (Beijing, Tianjin, Korea, London). She has (co-)authored 8 publications in international peer-reviewed journals.

qian.kang@kuleuven.be