

## ***Zymomonas mobilis* biofilm reactor using lignocellulosic materials as substrates**

### **Tatsaporn Todhanakasem**

Assistant professor

Department of Agro- Industry, Faculty of Biotechnology|

Assumption University

592/3 Ramkhumhaeng 24, Huamak, Bangkapi, Bangkok,

Thailand 10240

Email: [Tatsaporntdh@au.edu](mailto:Tatsaporntdh@au.edu)



### **Abstract**

*Z. mobilis* biofilm has previously exhibited high potential to enhance ethanol production by presenting a higher viable cell number, higher metabolic activity and higher resistance to toxic inhibitors than planktonic cells. *Z. mobilis* biofilm was approximately 2-3 folds more resistant to model toxic inhibitors from lignocellulosic hydrolysate (formic acid, acetic acid, furfural and 5-HMF) than planktonic cell. *Z. mobilis* biofilm reactor could be potentially used in the bioethanol production using lignocellulosic substrates under the batch, continuous and repeated batch processes. Different types of biotic, abiotic and plastic composited agricultural waste could be applied as carriers in the bioprocesses. *Z. mobilis* biofilm reactor represents various benefits in term of high bacterial populations, less fermentation times, high productivity, high cell stability, resistance to the high concentration of substrate and product, and eventually facilitate the product recovery.

### **Brief Biography**

Asst. Prof. Dr. Tatsaporn Todhanakasem is being a chairperson of Agro- Industry Department, Assumption University for 7 years. She received Ph.D. degree in Food Biotechnology from Assumption University joint program with University of California, Davis while she spent the whole Ph.D. studied at UC Davis during 2003- 2007. She received her M.Sc. degree (Biotechnology) from The University of New South Wales, Australia. She has joined Assumption University since the year 2001. She is also being a committee in Thai Society of Biotechnology (TSB). Her research interest focuses on the production of bio-based materials from agricultural wastes, molecular biology, microbial physiology and food safety. She has published 20 papers in international journals in SCOPUS and SCI index.