



# 曹祖宁可再生资源论坛

## GEORGE TSAO RENEWABLE RESOURCE FORUM

### 第十二讲

#### Lecture 12

**Title:** Energetic and Environmental Integration of Sugar Cane Byproducts Factories

**Speaker:** Dr. Manuel Díaz de los Ríos

*Chemical engineer at the Chemical Engineering  
Department of the Cuban Research Institute of Sugar  
Cane Derivatives (ICIDCA)*

#### Background:

In Cuba some Sugar cane mills have ethanol and fodder yeast productions closed which use molasses as raw materials. Although ethanol is an economical feasible production, its waste waters, usually called vinasses, are very aggressive

for the environment because its high organic charge which treatment increase the ethanol productions cost. Nevertheless, fodder yeast produced by the aerobic propagation of *Candida utilis* yeast have a higher production cost because the prices of the carbon source (molasses) and the energy demand for yeast drier and the electricity consumptions. The integration of these two productions with the biogas generation using the wastes waters from both industries represents an interesting environmental and energy solution for this combined production.

Different alternatives of process integrations of these factories are evaluated in this work. The use of the waste waters coming from ethanol and yeast production for biogas generation, as well as the use of vinasse as carbon source for the yeast production to satisfy the energy needed for this plant are evaluated and compared.

The use of other sugar mills organic wastes as trash and filter mud are alternatives not evaluated in this work that may contribute to the energy generations for both the ethanol and yeast factories and to sell the energy surplus to the grid.

**Time:** 10:00-11:30 am, October 19th(Friday), 2018

**Location:** Room 319, Yingshi Building

**All are welcome to attend the lecture!**

举办方：清华大学化工系应化所

