

# **An Undergraduate Laboratory Fermentation Experiment for the Production of Ethanol by *Saccharomyces cerevisiae***

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## **ABSTRACT**

Ethanol has many applications as a raw material and solvent and is used in chemical, food, and pharmaceutical industries. Over four million tons of industrial ethanol are produced in the world each year. Eighty percent of this ethanol is produced by fermentation. The conditions for ethanol production can be optimized to increase productivity and reduce costs.

The fermentation of the yeast *Saccharomyces cerevisiae* using glucose as a carbon and energy source was studied via a batch process in a new biochemical engineering laboratory at CBU. The experimental setting consists of a fully automated state-of-the-art fermentor BioFlo110 which is manufactured by the New Brunswick Co.

In addition to providing a new experiment for our undergraduate laboratory, the experimental data from this experiment obtained at various operating conditions provide useful information for the design of a full-scale process.