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### Meeting Information

**When:**

April 27 - 30, 2015

**Where:**

San Diego, CA

#### Economic and environmental assessment of the fructooligosaccharides production by different fermentation processes. A comparative study

Tuesday, April 28, 2015

Aventine Ballroom ABC/Grand Foyer, Ballroom Level

*Prof. Solange I. Mussatto<sup>1</sup>, Mr. Luís M. Aguiar<sup>2</sup>, Ms. Mariana I. Marinha<sup>2</sup>, Ms. Rita C. Jorge<sup>2</sup> and Prof. Eugénio C. Ferreira<sup>2</sup>, (1)Department of Biotechnology, Delft University of Technology, Delft, Netherlands, (2)Centre of Biological Engineering, University of Minho, Braga, Portugal*

The economic analysis and environmental impact assessment of three different processes for fructooligosaccharides (FOS) production was evaluated. The processes included: submerged fermentation of sucrose solution by *Aspergillus japonicus* using free cells (FCF) or using the cells immobilized in corn cobs (ICF), and solid-state fermentation (SSF) using coffee silverskin as support material and nutrient source. The scale-up was designed using laboratorial scale data as initial support and an annual productivity of 200 t was defined based on a general market analysis. According to the results, the three processes are economically feasible. Nevertheless, SSF is the most promising for industrial production of FOS since it is able to generate greater amounts of this product (232.6 t) than the other processes (148.9 t and 158.3 t by FCF and ICF, respectively), and the FOS can be obtained with a little higher purity (98.6%) than the those obtained by FCF or ICF. SSF reaches also the highest annual profit (6.55 M€) and presents the lowest payback time (2.27 years). In the environmental aspect, SSF is also the most favorable process since it generates the lowest amount of wastewater and presents a global environmental impact indicator and a carbon footprint value lower than those obtained for FCF and ICF processes.

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