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Brazilian technology of fuel ethanol fermentation: New perspectives to improve the technology and diversification

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Currently, the Brazilian bioprocess of fuel ethanol production is based on molasses and/or cane juice as substrate, and by fed-batch, continuous or mixed process. This bioprocess is operated in high scale with a stable cell recycle and high yeast concentration. The ethanol efficiency is controlled by several industrial parameters of fermentation and depending on the balance of these parameters and the control of some chemical and microbiological inhibitors. Sucrose and ethanol concentration, acid treatment of yeast cells, temperature and pH, yeast cells flocculation, and some chemical (lactic acid, sulphite) and biological (*Lactobacillus fermentum*) inhibitors will be discussed as a challenge to improve the bioprocess. The chemical control of microbial contaminants by monensin and some new alternatives will be shown. Recent studies of the control the yeast flocculation by reuse of enzymes as well as the use of bagasse for the production of xylo-oligosaccharides as an alternative of diversification will be presented.

Biography

Pedro de Oliva Neto is a Professor of the graduation courses - Biotechnology Engineering and Biological Science at São Paulo State University, Brazil. He has earned Bachelor's in Biological Science from UNESP – São Paulo – Brazil (1986), Master's in Food Science from Universidade Estadual de Campinas - UNICAMP (1990), São Paulo – Brazil, Doctorate in Food Engineering from UNICAMP (1995). He has vast experience in industrial microbiology, first and second generation bioethanol, special sugars, biopolymers, yeasts and derivatives, enzymes production and inhibitory products against microorganisms.

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