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Kinetic behaviour of soluble Pectinex Ultra SP-L converting sucrose into fructo-oligosaccharides in batch and continuous fashion

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The enzymatic conversion of sucrose to fructo-oligosaccharides (FOS) catalyzed by Pectinex Ultra SP-L, a commercial enzyme preparation from *Aspergillus aculeatus*, under free condition was studied. A mathematical analysis of the transfructosylation reactions was carried out to estimate the dynamic and steady-state performance of an enzyme membrane reactor (EMR) and to compare the continuous production scheme with the traditional batch process realized in stirred-tank reactor (STR). Kinetic parameters were identified simultaneously from a series of progress curves obtained from STR and EMR experimental runs. Model estimates appeared to fit well to experimental observations under the studied reaction conditions. Although conventional batch reactor outperforms EMR in term of conversion, EMR compares favorably regarding productivity. The on-site industrial implementation of this technology might be attractive for food manufacturers aiming at utilizing a value-added sweetener mixture with prebiotic properties.

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Application of Lactobacillus strains for post-harvest biopreservation of fruit and vegetables

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The post-harvest diseases cause great economical losses in the fruit and vegetables. Against the fungi, which cause the most of the diseases, are extensively used the fungicides, however there are increasing consumer concerns over the presence of pesticide residues in food. An alternative and in the recent years increasingly studied method for the prevention of the diseases is the biocontrol, where antagonistic microorganisms are used for the control of fungi. The genera of *Lactobacillus* is well known and extensively studied, but its applicability as biocontrol agents in post-harvest preservation of fruit and vegetables is poorly investigated. In our study we have investigated the chitinase activity, the antifungal effect and the applicability of several *Lactobacillus* strains to select potential biocontrol agents. Mixed cultures were also developed to enhance the antifungal activity and determined the optimal mould spore and bacteria concentration ratio for the appropriate efficacy.

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