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Production of High-Content Fructo-Oligosaccharides

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Abstract : Fructo-oligosaccharides (FOS) are produced from sucrose by Aureobasidium pullulans in yields between 40-60% (w/w). To increase the amount of FOS it is necessary to remove the small, non-prebiotic sugars, present. Two methods for producing high-purity FOS have been developed: the use of microorganisms able to consume small saccharides; and the use of continuous chromatography to separate sugars: simulated moving bed (SMB). It is herein proposed the combination of both methods. The aim of this study is to optimize the composition of the fermentative broth (in terms of salts and sugars) that will be further purified by SMB. A yield of 0.63 gFOS.g Sucrose-1 was obtained with A. pullulans using low amounts of salts in the initial fermentative broth. By removing the small sugars, Saccharomyces cerevisiae and Zymomonas mobilis increased the percentage of FOS from around 56.0% to 83% (w/w) in average, losing only 10% (w/w) of FOS during the recovery process.

Keywords : fructo-oligosaccharides, microbial treatment, Saccharomyces cerevisiae, Zymomonas mobilis
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