

ARTIGO

SILVA, A. S. et al. Synthesis of disaccharides using β -glucosidases from *Aspergillus niger*, *A. awamori* and *Prunus dulcis*. **Biotechnology Letters**, v. 39, n. 11, p. 1717-1723, 2017.

RESUMO: *Objective* Glucose conversion into disaccharides was performed with β -glucosidases from *Prunus dulcis* (β -Pd), *Aspergillus niger* (β -An) and *A. awamori* (β -Aa), in reactions containing initial glucose of 700 and 900 g l⁻¹. *Results* The reactions' time courses were followed regarding glucose and product concentrations. In all cases, there was a predominant formation of gentiobiose over cellobiose and also of oligosaccharides with a higher molecular mass. For reactions containing 700 g glucose l⁻¹, the final substrate conversions were 33, 38, and 23.5% for β -An, β -Aa, and β -Pd, respectively. The use of β -An yielded 103 g gentiobiose l⁻¹ (15.5% yield), which is the highest reported for a fungal β -glucosidase. The increase in glucose concentration to 900 g l⁻¹ resulted in a significant increase in disaccharide synthesis by β -Pd, reaching 128 g gentiobiose l⁻¹ (15% yield), while for β -An and β -Aa, there was a shift toward the synthesis of higher oligosaccharides. *Conclusion* β -Pd and the fungal β -An and β -Aa β -glucosidases present quite dissimilar kinetics and selective properties regarding the synthesis of disaccharides; while β -Pd showed the highest productivity for gentiobiose synthesis, β -An presented the highest specificity.

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