5th Conference on Physiology of Yeast and Filamentous Fungi

4 – 7 June 2013
Montpellier, France

SYMPOSIUM BOOK

Organised by UMR1083 SPO,
INRA, 2 place Viala, F-34060
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Under the auspices of the European Federation of Biotechnology
High expression levels of *Aspergillus niger* β-galactosidase in *Ashbya gossypii*

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*Ashbya gossypii* is a filamentous Saccharomycete that has been recently considered as a host for the expression of recombinant proteins. However, the expression levels obtained were low, even though similar to those observed in *Saccharomyces cerevisiae* for the same proteins. Here, to further assess the potential of this fungus as a recombinant protein producer, the β-galactosidase from *Aspergillus niger* was successfully expressed and secreted by the *A. gossypii* ATCC10895 strain from 2-micron plasmids carrying the native signal sequence, under the regulation of four different promoters: *A. gossypii* TEF and GPD promoters, and *S. cerevisiae* ADH1 and PGK1 promoters. The native TEF promoter revealed to be the best promoter for the expression of recombinant β-galactosidase in *A. gossypii*, leading to 2 and 7 times more extracellular activity than the GPD promoter and the heterologous promoters, respectively. Furthermore, the levels of recombinant β-galactosidase activity secreted by *A. gossypii* were up to 37 times higher than those secreted by the *S. cerevisiae* CEN.PK 113-7D strain transformed with the same plasmids. In addition, *A. gossypii* expressed 2.5 times more extracellular β-galactosidase activity than the previously reported *A. niger* β-galactosidase producing *S. cerevisiae* NCYC869-A3/pVK1.1 strain. Partial characterization of the recombinant β-galactosidase secreted by *A. gossypii* revealed that this enzyme is extensively glycosylated, as the recombinant β-galactosidase expressed in yeast and the native *A. niger* β-galactosidase. These results highlight the potential of *A. gossypii* as a recombinant protein producer and open new perspectives to further optimize recombinant protein secretion in this fungus.

Acknowledgments: This work was financially supported by Fundação para a Ciência e a Tecnologia (FCT), Portugal, through Project AshByofactory (grant PTDC/EBB-EBI/101985/2008), MIT-Portugal Program (PhD grant SFRH/BD/39112/2007 to T. Q. Aguiar) and grant SFRH/BDP/63831/2009 to C. Oliveira.

Keywords: *Ashbya gossypii; Aspergillus niger* β-galactosidase; high recombinant β-galactosidase secretion levels; *A. gossypii* GPD and TEF promoters; *Saccharomyces cerevisiae* PGK1 and ADH1 promoters