SECRETOME ANALYSIS OF THE XYLANOLYTIC YEAST *Pseudozyma brasiliensis* GROWTH ON DIFFERENT CARBON SOURCES

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Recently, a novel basidiomycete yeast species, *Pseudozyma brasiliensis*, was isolated by our group; this species produces an endo-β-1,4-xylanase with a higher specific activity in comparison with other fungal xylanases. This enzyme is essential for breaking down the polysaccharide xylan (the major type of hemicellulose) into xylooligosaccharides and has an important role in second-generation bioethanol production and several industrial processes. In spite of the *P. brasiliensis* biotechnological potential, there is no information about how it breaks down polysaccharides. For the first time, we characterized the secretome of *P. brasiliensis* that was grown on different potential carbon source inducers (glucose, xylose, xylan and cellobiose) and also under starvation conditions. The supernatant was concentrated and the proteins were analyzed by LC-MS/MS (Q-Tof, Ultima). The growth and consumption of each carbohydrate were evaluated daily and measured using spectrophotometer and HPAEC-PAD, respectively. The activity of some enzymes (endo-β-1,4-xylanase, endo-β-1,4-mannanase, α-L-arabinofuranosidase, β-D-glucosidase and β-D-xylosidase) were measured using concentrated supernatant, intracellular content and yeast lysates by DNS method. The proteomics data revealed a total of 71 proteins, of which 20 are enzymes related to carbohydrate degradation. The findings suggest that *P. brasiliensis* evolved different mechanisms to utilize sugars from cellulose and hemicellulose. β-D-glucosidase and β-D-xylosidase activities associated with the yeast membrane or cell wall were detected, and this proximity between the enzymes and membrane transporters can maximize the uptake of free sugars, representing an adaptive advantage for *P. brasiliensis*. 
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