

# 3<sup>rd</sup> International Conference on Ecology, Ecosystem and Conservation Biology

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### Phosphoproteome analysis of *Trichoderma reesei* reveals a post translation regulation of secreted glycosyl hydrolases

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*Trichoderma reesei* is the major producer of cellulases and hemicellulases and the regulation of these enzymes expression is not fully understood. Phosphorylation events are known to be involved in the regulation of various cellular processes, including metabolism, transcription, translation regulation, protein degradation, homeostasis, signaling, and protein secretion, among others. In *T. reesei*, protein phosphorylation

pattern changes in a carbon dependent way. In order to have a broad understanding of the phosphorylation events and how it affects different cellular functions, once *T. reesei* is grown in sugarcane bagasse, the main biomass for bioethanol production in Brazil, we conducted an experiment in which we identified phosphorylated proteins by LC-MS/MS. CBHI was identified as a phosphorylated protein in the intracellular protein extract, with five phosphorylation sites. In order to test the importance of the phosphorylation for this enzyme, CBHI was purified from the secretome of *T. reesei* and dephosphorylated in order to detect any enzymatic activity difference caused by phosphorylation. CBHI activity was about 60% less after dephosphorylation. The broad phosphorylation pattern that happens in *T. reesei* when it is cultivated in sugarcane bagasse

provides novel information about several proteins and phosphosites not previously described. This work shows for the first time that some secreted glycosyl hydrolases are phosphorylated in the condition tested and suggests that CBHI activity is modulated by phosphorylation.

#### Biography

Liliane Ribeiro has completed her PhD at the age of 30 years from University of Sao Paulo and Postdoctoral studies from University of Maryland working with identification of new targets of kinases. Currently she is a Post-doc fellow at University of Sao Paulo, where she studies phosphorylation events related to the carbon source offered to the fungus. She has published 12 papers in reputed journals in the microbiology field so far.

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