

**Abstract submission for the 12th meeting on Bacterial Genetics and Ecology (BAGECO), in Ljubljana, Slovenia, from 9th – 13th June 2013:**

Conference Topic : Free topics

**Functional screening of a winter and a spring genomic DNA libraries obtained from soils in a winter wheat crop**

Stroobants Aurore<sup>1</sup>, Portetelle Daniel<sup>1</sup>, Vandebol Micheline<sup>1</sup>

<sup>1</sup> Unité de Microbiologie et Génomique, Université de Liège, Gembloux Agro-Bio Tech, Avenue Maréchal Juin 6, 5030 Gembloux, Belgium, e-mail: [aurore.stroobants@ulg.ac.be](mailto:aurore.stroobants@ulg.ac.be)

Soils are very rich environments where the diversity of microorganisms is very high. These microorganisms play important role in the degradation of organic matter with enzymes able to degrade it. The aim of this work is to discover by functional screening new enzymatic activities of microorganisms from soils collected in winter and spring in a winter wheat crop. The genomic DNA was extracted from both soils to construct two libraries in *Escherichia coli*. These libraries were then screened for several enzymes such as lipase, beta-glucosidase, cellulase,  $\alpha$ -amylase,... At this time, 2 beta-glucosidases and 3 lipases have already been found in the winter library and 3 beta-glucosidases and 1 lipase in the spring library. Sequence analyses with the BLASTX program revealed that two beta-glucosidases have less than 65% of sequence identity with known beta-glucosidases, one have 64% of identity with a known beta-galactosidase and one have 59% of identity with a glycoside hydrolase. The fifth seems to be a phosphorylase kinase (54% identity) which have a glucoamylase domain responsible for the activity. This ORF is interrupted by a transposase. Three of the four lipases have less than 60% of sequence identity with known lipases/esterases. The fourth show 55% of identity with a known beta-lactamase.