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Influence of the Carbon Source on Sporulation Genes in Bacillus species

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Bacillus probiotic have been extensively studied and isolated since many years from different food products. Although generally used in dairy products, they also widely used in various commercial food such as fermented meats, cereals, baby foods, fruits juices and ice creams.

The interest to study the Bacillus species is related to their ability to produce spores that have several advantages compared to non-spores-forming Lactobacillus species which are used as probiotics. Their benefits are linked to spore resistance to heat, chemical agents and enzyme degradation. In the form of spore, Bacillus species can be stored at room temperature, without any deleterious effect on their viability. They can survive in acid conditions of the stomach and so grow in the intestines in which they can play the role of probiotics.

In the present study, we follow the expression of spoIIE gene, which plays a crucial role in B. subtilis, B. licheniformis and B. coagulans sporulation, by following the expression of a chimeric gfp gene under the control of spoIIE promoter. In our studies, cultures were carried out in Erlenmeyer flasks (250 ml), in the absence and in presence of two carbon sources: glucose and xylose.

Our results shows that in both B. *licheniformis* DSM13 /PspoIIE-gfp and B. subtilis PspoIIE-gfp, the expression of spoIIE gene was slightly affected by the presence of xylose in the culture media. While the presence of glucose inhibit the expression of spoIIE gene and the sporulation of the strain.

Biography:

Kabanyana Jeanne-Françoise was born in Rwanda, in 1977. She received the advanced diploma in biomedical sciences from Kigali health Institute, in 2004, and the bachelor degree in biotechnology in Institute of higher education of Ruhengeri, in 2010.

Since 2006 till 2012 she has walked in Rwanda standard board as quality testing laboratory officer. In october 2012, she joined the University of Liège where she received the master's degree in biochemistry, molecular and cellular biology, bioindustry specialisation, in 2014. Her current Ph.D. research interest include bacillus probiotics, bacteria transformation and spore production.