Workshop

"Characterizing antimicrobial activity quicker and more efficiently in foods of food environments"

30th March 2016, 2:00 – 4:00 PM CET

This workshop is organized by **EuFooD-STA** project, a knowledge alliance between universities and food companies. Its objectives are to help food companies to optimize the use of antimicrobials in their products or in their manufacturing environment by i) better characterizing the antimicrobial activity as preservatives and iii) use rapid methods to evaluate antimicrobial activity in biofilm structures.

Food antimicrobials may be defined as chemical compounds present or added in foods or in food processing environments that inhibit the growth of undesirable microorganisms or inactivate them. In order to optimize the use of food antimicrobials, their effectiveness has to be accurately evaluated.

For food preservatives, Minimum Inhibitory Concentrations (MIC) determination is the most common way to evaluate the inhibitory efficiency, using agar diffusion or broth dilution methods. The latter can easily be improved by a simple modeling approach based on mathematical analyses of growth curves. A accurate value of MIC can be obtained with a confidence interval, together with an added value, the Non Inhibitory Concentration (the concentration below which the antimicrobial agent has no inhibitory effect). The accurate determination of these two values helps in adjusting concentrations of preservatives in foods and optimizing their efficiency, in particular in the case of combinations.

The effectiveness of biocides used in food processing environments is generally evaluated by determination of Minimal Bactericidal Concentration (MBC) (obtain a certain log reduction of the population: 4-log, 5-log). Most of the time, this evaluation is done by plate counting after challenging planktonic cells or sometimes biofilms with selected concentrations. New perspectives exist using confocal laser scanning microscopy: dynamics of antimicrobial action can give informations on bacterial resistance within in–situ biofilm structures.

PROGRAMME

Speaker: Prof. Florence DUBOIS-BRISSONNET (AgroParisTech)

- 2:00: Characterization of inhibitory effects of preservatives
  - Better characterization of inhibitory activity
  - Optimization of combinations

- 3:00: Characterization of lethal effects of biocides and disinfectants
  - Better characterization of lethal activity
  - Inputs of microscopic techniques

Overall discussion – conclusions

Organizing committee:

EuFooD-STA: Maria-Ana marquez (Frulact), Pilar Morais (Frulact), Florence Dubois-Brissonnet (AgroParisTech, FR), Gerhard Schleining (BOKU, AT), Line Friis Lindner (BOKU, AT)