BOOK OF ABSTRACTS

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Phenotypic and proteomic differences in biofilm formation of two *Lactiplantibacillus plantarum* strains in static and dynamic flow environments

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Abstract

*Lactiplantibacillus plantarum* is a Gram-positive bacteria capable of producing biofilms, which can increase the survival of this food-spoilage organism in the food chain. In our study, we compared two strains, WCFS1 and CIP104448, in their ability to produce biofilms both in a static and dynamic (flow) environment. The response to flow was strain dependent and resulted in a decrease of biofilm produced by WCFS1, but an increase for CIP104448. However, for both strains, the number of culturable cells in the formed biofilms increased under flow conditions. We further analysed the biofilm composition, structure and resistance to enzymatic and disinfectant treatments and found differences both between the two strains and between the two environments in which the biofilms are formed. Using proteomics, we investigated static supernatant, static biofilm and flow biofilm of both strains to determine underlying mechanisms important for the observed phenotypical differences, including increased disinfectant resistance.