

ADHESIN PROTEINS IN BIOFILMS OF THE FOOD-BORNE PATHOGEN *BACILLUS CEREUS*

Joaquín Caro-Astorga, Alejandro Pérez García, Antonio de Vicente, Diego Romero

Instituto de Hortofruticultura Subtropical y Mediterránea "La Mayora", Universidad de Málaga. Consejo Superior de Investigaciones Científicas. Departamento de Microbiología. Facultad de Ciencias. Campus de Teatinos s/n, 29071 Málaga, España. E-mail: jcaroastorga@uma.es

One of the greatest challenges of the food industry is to reduce food poisoning caused by food-borne pathogenic bacteria. *Bacillus cereus* is one the recurrent bacterial pathogens responsible of many outbreaks. Biofilm formation and sporulation are thought as the most important reservoirs of *B. cereus*. Biofilms are bacterial communities difficult to eradicate from biotic and abiotic surfaces. They are usually composed of exopolysaccharides and proteins. In our study, we are interested in the characterization of the molecular bases leading to biofilm formation in *B. cereus* during the interaction with plants. To start this analysis we have focused on the structural components of the extracellular matrix of these biofilms. Using as a model the well-studied *B. subtilis*, we show in this work the presence in *B. cereus* of an orthologous of *tasA*. TasA forms amyloid-like fibers in the extracellular matrix of *B. subtilis*. We demonstrate that the heterologous expression of this allele in a *B. subtilis* strain lacking the entire *tasA* operon and unable to form biofilm, restores the assembly of biofilm formation. Biochemical and morphological studies of this protein let us think on a possible amyloid-like nature of this protein, which could be involved in cell-cell interaction and biofilm formation as it does in *B. subtilis*.

This work was supported by grant from the National Plan I+D+I of the Ministerio de Economía y Competitividad (AGL-2012-31968), co-financed with FEDER funds (EU). Joaquin Caro-Astorga is supported by a PhD fellowship from the FPI program of the same Ministry.