The putative different roles of TasA and CalY in the biofilm formation of *B. cereus*

A. Álvarez-Mena[1], M. L. Antequera-Gómez[1], L. Díaz-Martínez[1], J. Caro-Astorga[1], O. P. Kuipers[2], A. de Vicente[1], D. Romero[1]

[1]Institute for Mediterranean and Subtropical Horticulture "La Mayora", Spanish National Research Council–University of Malaga, Bulevar Louis Pasteur 31 (Campus Universitario de Teatinos), 29071, Málaga, Spain; [2] Department of Molecular Genetics, Groningen Biomolecular Sciences and Biotechnology Institute, Centre for Synthetic Biology, University of Groningen, Nijenborgh 7, 9747 AG Groningen, The Netherlands

alvarezmena@uma.es

Bacillus cereus is a human pathogen responsible of many food poisoning due to the ingestion of contaminated vegetables or processed foods. The biofilm development and spore formation, are essential stages in the survival and transmission of the bacteria and hence the production of harmful toxins for the consumer. During the biofilm formation, a subpopulation is differentiated to extracellular matrix producers, mainly composed by exopolysaccharides, proteins and extracellular DNA. One of the most fascinating compounds of this matrix are the amyloid proteins, that shows a high tendency to fibrillate and have a multifunctional role in the bacterial physiology.

In earlier studies it was identified that *B. cereus* possess two orthologues genes to the *tasA* gene in *B. subtilis*, initially described as essential in the assembly of amyloid fibers, and they were named as *tasA* and *calY* respectively. Both genes are located in the same genomic region and the deletion of each one leads to a different phenotype related with a deficient biofilm. In the case of the *tasA* mutant the biofilm finally detaches from the well at 72 hours, and the *calY* mutant shows a thinner ring phenotype in comparison with the wild type strain. Those preliminary results could indicate that TasA and CalY have different roles in the biofilm formation. The level of *tasA* and *calY* expression in the biofilm was higher than in planktonic cells, and it could be differentiated three different subpopulations: both genes are expressed, only *calY* or none of them. Amyloid proteins have been described as being involved in adhesion and host-colonization. A study of the dynamic of *tasA* gene expression show that is influenced by the type of vegetable surface.

The results mentioned above indicate that TasA and CalY might complementarily contribute to biofilm formation.

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