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Bacteriocin production by *Enterococcus* spp. strains isolated from Cotija cheese

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Cotija cheese is an artisanal Mexican food produced from whole raw milk. No thermal step, neither starter cultures are used in the process. After a three month ripening stage, it presents an acceptable microbiological quality and no pathogenic bacteria have been detected in it. This could be caused by the production of antibacterial compounds by lactic acid bacteria (LAB), like peptidoglycan hydrolases and bacteriocins. The LAB genus most commonly isolated from Cotija cheese is *Enterococcus* and several strains have shown antibacterial activity against *Listeria monocytogenes* and *Staphylococcus aureus*. *Enterocin* A is a pediocin-like bacteriocin produced by some E*nterococcus faecium* and *E. faecalis* strains. It belongs to class IIa bacteriocins which display a high anti-listerial activity that could be interesting for application as a food bio-preservative. In this work seven *Enterococcus* strains were isolated from artisanal Cotija cheese, which were identified as *E. faecalis* (QA1 and QB3) and *E. faecium* (QC4, QD2, QE2, QG5 and A5-1). They are non-pathogenic and they showed antibacterial activity against *Listeria monocytogenes* by agar diffusion assay. A specific PCR reveals that six of the seven strains harbor the gene that codes for enterocin A (*entA*). Its expression was detected by identification of mRNA, Tris-Tricine gel electrophoresis and zymography. These strains have a biotechnological potential for their direct application in fermented foods or to produce antimicrobial peptides for food formulation.

Biography

Carlos Eduardo Serrano Maldonado is currently a PhD student of Biochemical Sciences at National Autonomous University of Mexico. He has worked in the search and characterization of antibacterial compounds produced by lactic acid bacteria, including bacteriocins and peptidoglycan hydrolases. He is a Teacher of Food Chemistry at the Faculty of Chemistry of the National Autonomous University of Mexico.

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