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Role of *Enterococcus* spp. in the ripening process of a handmade cheese

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Enterococci isolated from food have useful biotechnological traits, such as bacteriocin production and a probiotic behavior, however their role during ripening, related to enzymatic activities such as proteolysis and lipolysis is not fully elucidated. Nowadays, bacterial genome sequencing and bioinformatic analyses are useful to improve the knowledge of all coding sequences in a genome in order to have an insight of the biochemistry during ripening. In contrast, enterococci are the most controversial genus among lactic acid bacteria because they have been associated with nosocomial infections. Therefore, the aim of this work was to give a comprehensive outlook of the metabolic potential of one *E. faecalis* and one *E. faecium* strains, related to cheese ripening, through their genome sequencing. The strains were isolated from an artisanal dairy product namely Cotija cheese. Besides, a genomic comparative analysis was carried out in order to differentiate food strains from nosocomial ones and to establish biomarkers associated to the former. Genes related to a proteolytic and lipolytic activities were detected, as well as genes coding for enzymes involved in flavor and odor development. Furthermore, coding genes for antibacterial compounds (enterocins and peptidoglycan hydrolases) were identified. Through a comparative genomic strategy, genetic characteristic (absence of plasmids and low presence of the main virulence factors and of antibiotic resistance) were recognized to differentiate food from nosocomial strains. Additionally class II bacteriocin and type I restriction enzymes coding genes are proposed as biomarkers of adaptation to food environment.

Biography

Myrna Elena Olvera Garcia has studied Food Chemistry at Chemistry Faculty at National Autonomous University of Mexico and completed a Master's degree in Biochemical Science at the same institution, about the pathogenic and probiotic potential of *Enterococcus* spp. isolated from a Mexican handmade cheese. She is currently a PhD student in Biochemical Science with a bioinformatic specialization directed to the comparative genomic analysis. In 2014 she was teaching as Faculty of Chemistry. She has published four papers focused in antibacterial compounds produced by lactic acid bacteria and genome sequencing of bacteria isolated from *Heterotermes* sp. Termite Gut.

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