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Lactic acid bacteria for nutraceuticals and added value products production

Enrica Pessione
University of Torino, Italy

Lactic acid bacteria (LAB) have extensively been used as well-defined starters in the industry of fermented food production. More recently, their role as biocontrol agents to counteract food-borne infections and spoilage bacteria has also been proposed, to lower the amount of salts, sugar and preservatives in food, but also to reduce the cold-chain need, with benefits for costs and sustainability. Nowadays, LAB potential as probiotics and nutraceutical vectors has a huge impact on the pharmaceutical and food supplement industry. Although it is very promising to use LAB as microbial cell factories for functional food production, however, their metabolic profiles are often underexplored and most products underexploited. Proteomics is a promising tool for obtaining information on the metabolic pathways of interest and how these routes can be modulated by exogenous conditions. This presentation will refer all the cutting-edge products that can be obtained by LAB, the use of comparative proteomics and sub-proteome techniques to ascertain probiotic safety and efficacy, nutraceutical compounds release and optimization of the industrial production. In particular, selenium fixing ability, neuroactive compounds production, food-encrypted peptides release, antimicrobial molecules and exopolysaccharide (EPS) biosynthesis as well as bacterial resistance technological treatments will be considered.

Biography

Enrica Pessione has completed her PhD in Microbiology at "Institut Pasteur", Paris. She has been a Researcher in Microbial Biochemistry at Turin University getting expertise in enzymology, metabolic biochemistry and microbial proteomics. Since 2004, she is an Associate Professor in Biochemistry and Member of the Italian Microbial Biotechnologies Association. She has focused her interest on metabolic pathways important for food safety control or to establish the probiotic potential of lactic acid bacteria. She has published over 80 scientific articles. She is in the Editorial Board of *Journal of Integrated Omics*.

enrica.pessione@unito.it

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