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### Safety aspects of application of lactic acid bacteria

In last decades lactic acid bacteria (LAB) have been subject of intensive research in isolation and identification with aim of their application as producer of antimicrobial peptides and beneficial properties. It is well known that many LAB are capable of producing a variety of antimicrobial compounds which may contribute to their colonization of habitats and their competitive advantage over other bacteria. Besides production of lactic acid which causes a drop in pH enough to inhibit certain strains as its non-dissociated form triggers a lowering of the internal pH in sensitive bacteria that causes a collapse in the electrochemical proton gradient resulting in a bacterio-static or bactericidal effect, LAB can produce other organic acids, diacetyl, hydrogen peroxide and bacteriocins. Currently, the LAB group includes a large number of cocci and bacilli, such as species of the genera *Carnobacterium*, *Enterococcus*, *Lactobacillus*, *Lactococcus*, *Leuconostoc*, *Oenococcus*, *Pediococcus*, *Streptococcus*, *Tetragenococcus*, *Vagococcus*, *Weissella*, etc. From a historical point of view, LAB has been used since ancient times in food fermentation processes and preservation. Due to their lack of pathogenicity, most LAB species have received the GRAS. Besides all beneficial properties studied for various LAB, a special attention need to be pay on the possible presence of virulence factors, production of biogenic amines and antibiotic resistance. This virulence determinants have been well detected and studied in *Enterococci* and *Streptococci*, however, in last few years report on presence of virulence factors in otherwise GRAS *Lactobacilli* have been showing the potential upcoming problems. Horizontal gene transfer of virulence factors between pathogenic and LAB including probiotics is a highly possible scenario in case of uncontrolled application of probiotics.

### Biography

Svetoslav Dimirov Todorov has completed his PhD at ENITIAA, France and Sofia University, Bulgaria and Post-doctoral studies from Stellenbosch University, South Africa. In last 8 years, he was a Researcher and Invited Lecturer at University of Sao Paulo, Brazil and Federal University of Vicosa, Brazil. He has published more than 130 papers in reputed journals and serving as a Member of the Editorial Board. He is Reviewer for more than 70 international journals.

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