

Bulgarian lactobacilli as new bio-protective and probiotic agents

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The intensive research on functional foods and consumer's health, over the past 10 years, raised the necessity of some changes in the probiotic concept. The general idea "*Pro-bio*" = *for life*, should be personalized. Therefore, probiotics with scientifically proved benefits, corresponding to the groups of consumers with specific health problems, should be designed and prepared for the market. With this aim, intensive studies on a group of 105 Bulgarian lactobacilli (LAB), isolated from different ecological niches were carried out. Two major axes were followed: (i) biopreservation of food and (ii) beneficial effects on the gut and consumers' health. The antimicrobial activity against toxigenic/carcinogenic fungi and pathogens was a pre-selective criterion. In addition, the widely accepted criteria for estimation functionality and technological relevance of active LAB were applied. As a result a group of 8 original strains with probiotic potential was selected. They were identified according to the modern polyphasic taxonomy. *Lactobacillus plantarum* and anti-fungal *Lactobacillus brevis* strains possess a broad spectrum of activity and high viability in conditions simulated gut. The host could benefit from their ability to compete the *Escherichia coli*, preventing biofilm formation and to adhere to the mucous, with a positive immunomodulation effects. They were estimated as bio-preservative and probiotic adjuncts to traditional Bulgarian fermented products with a favorable influence on their organoleptic properties and shelf-life. The obtained results about the active *Lactobacillus* strains seemed promising for the development of new approaches for design of functional foods and to tackle a variety of new specific consumer's demands.

Biography

Svetla Danova is a Molecular Biologist with a strong background in microbiology and genetic research on medically and industrially important groups of microorganisms. She has graduated and completed her M.Sc. and Ph.D. thesis at the Biological Faculty, Sofia University, and Sofia, Bulgaria. She is a head of the group "Genetics of lactic acid bacteria & Probiotics" at the Department of General Microbiology, The Stephan Angeloff Institute of Microbiology - a member of the International Network of Institute Pasteur. She has published more than 40 papers on taxonomy, physiology and biological activity of lactic acid bacteria and probiotics.

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