

The effects of the hurdle technology and sous-vide cooking on the expression of virulence factors and antibiotic resistance genes in *L. monocytogenes* and *Enterococcus* sp.

Ready-to-eat (RTE) foods with a minimal content of preservatives and a long shelf life are immensely popular. The safety of minimally processed foods can be improved with the use of the hurdle technology developed by Leistner. This technique combines several approaches, and it exerts a minimal impact on the processed product. Each approach is a stress factor or a "hurdle" that has to be overcome by pathogen and which increases its virulence and/or resistance to antibiotics. According to the World Health Organization, the antibiotic resistance and hypervirulence of bacterial strains continues to increase at a dramatic rate. The problem poses a challenge for modern medicine, and infections caused by antibiotic-resistant bacteria are one of the most serious health issues around the world. Project will demonstrate the extent to which minimal food processing techniques (including HPP and sous-vide cooking) initiate the expression of virulence factors and resistance genes in strains of the genus *Enterococcus* and species of *Listeria monocytogenes*, how they affect the metabolic status of bacterial cells and induce the VBNC state. The results will be highly useful for designing modern food processing methods which effectively eliminate pathogens without activating antibiotic resistance and virulence genes. Research into the transfer of expressed genes will expand existing knowledge about the transmission of antibiotic-resistant and virulent strains in the environment.