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Czech J. Food Sci.

Olszewska M.,
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Cell viability of *Bifidobacterium lactis* strain in long-term storage butter assessed with the plate count and fluorescence techniques

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Great interest in functional products containing bacterial strains displaying health-promoting properties is expressed worldwide and is as a result connected with a demand for developing new probiotic-based products, especially those containing bifidobacteria. The *Bifidobacterium* strains play a key role in gastrointestinal homeostasis, providing many health-related attributes, but as fastidious microorganisms require specific conditions (e.g. anaerobic

environment, neutral pH) to survive in the long-term at the needed level above 106 cfu/g. In consequence, not every food product guarantees optimal maintenance of *Bifidobacterium* viability. From this point of view, the objective of the study was to examine the survival of *Bifidobacterium lactis* strain in butter during long-term refrigerated storage. Two enumeration techniques: microscopic LIVE/DEAD® and plating were compared by monitoring bifidobacterial counts for 4 weeks. The plate method was characterised by underestimation of the cell counts in relation to the results evaluated microscopically. However, the good survival exhibited by *B. lactis* was found with both techniques. Moreover, the microscopic LIVE/DEAD® method permitted to trace delicate changes in the viable/non-viable bifidobacterial population at the single-cell level.

Keywords:

Bifidobacterium sp.; survival; food products; LIVE/DEAD® method; plate count method

[fulltext]