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Adherence to Caco-2 and HT-29-MTX cell lines, autoaggregation and hydrophobicity of novel, potentially probiotic strains of Lactobacilli and Bifidobacteria

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Bifidobacteria and Lactobacilli isolates were obtained from samples of cow's colostrum, excrements and saliva of calves and piglets, as well as from infant's faeces. Individual strains were identified using MALDI-TOF and characterized for their properties having an affinity to adhesion. The most frequently isolated strain was *Lactobacillus reuteri* and *Lactobacillus casei* subsp. *paracasei*. Bifidobacteria were isolated only from calves and piglets, *B. thermophilum* and *B. pseudolongum* from their excrements and *B. longum* from saliva of calves. To determine adhesion properties of selected strains in vitro, the mixture of Caco-2 and HT-29-MTX cell culture was used as a model. Furthermore, the method of microbial adhesion to hydrocarbons (MATH) - hydrophobicity and autoaggregation properties of the strains were tested. Generally, all tested isolates (n=20) were able to adhere to the tissue model in vitro. However, a great diversity in adherence ability among individual strains was observed. The highest adherence capacity (37.22%) was found in the *Lactobacillus amylovorus* strain originating from cow's colostrum. Adherence above 30% was observed primarily in strains isolated from infant's faeces and subsequently, from colostrum. The highest hydrophobicity (>90%) was determined for the *B. thermophilum* T11B strain (excrements of calves) and high hydrophobicity (>70%) was also found in the K18 *L. reuteri* (colostrum) and S4B *B. thermophilum* (excrements of piglet) strains. The highest percentage of autoaggregation was observed in strains of Lactobacilli isolated from colostrum. Perspective strains will be further characterized focusing on their properties important for potential probiotic strains.

Biography

Gabriela Krausová has completed her graduation in 2006 at University of Veterinary Medicine in Košice, Slovakia, in 2014 finished her Doctoral studies at the Czech University of Life Sciences in Prague, Czech Republic. Since 2008, she works at Dairy Research Institute in Prague as a Researcher and since 2014 as the Head of Dpt. of Microbiology and Technology. She is the author or co-author of 11 papers indexed in the Web of Science database, 20 articles in reviewed journals, 2 certified methodologies, 1 patent and 10 utility models. Her research topics of interest include food microbiology, functional foods, probiotics, prebiotics, food hygiene, etc.

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