

Influence of Cyanobacteria *Spirulina* on Growth of Gut Microbiota

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Algae and cyanobacteria are nowadays of great potential, especially for the food industry, where they are used as a food additive. Thanks to their nutritional value and beneficial effects on health, the genus *Chlorella* (microalgae) and the genus *Spirulina* (cyanobacteria) are commonly used as food supplements. Microalgae and Cyanobacteria represent a rich source of nutritionally valuable substances, including proteins, vitamins, pigments, antioxidants, unsaturated fatty acids and last but not least, oligo- and poly-saccharides, which can serve as an energy source for gut bacteria and thus serve as prebiotics. The aim of the study was to test the prebiotic effect of *Spirulina* biomass on bacteria from the genera *Lactobacillus* (5 strains) and *Bifidobacterium* (3 strains). The experiment was performed with both the commercially available *Spirulina* biomass and the laboratory-cultivated *Spirulina*. A positive prebiotic effect of laboratory-cultivated *Spirulina* was observed in two lactobacilli strains, in *Lbc. animalis* CCDM 382 and *Lbc. acidophilus* CCDM 151. In the rest of the strains tested, the prebiotic effect was not significant but there was no growth inhibition either. In the case of commercially available *Spirulina*, a positive prebiotic effect was observed in all strains tested (8), wherein, the growth of bacteria increased with the rising concentration of the biomass. Based on the results obtained, *Spirulina* can act as prebiotic by increasing the number of probiotic bacteria, while this ability is strain and substrate specific. It has been shown that there are differences in the prebiotic effect between the laboratory-cultivated and commercially available *Spirulina*. It can be assumed that the form and method of processing the biomass will play a role, the differences may also be due to different cultivation conditions and subsequent processing, particularly in the cell disintegration stage.

Biography:

Gabriela Krausová (born Kunová), graduated 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 Department 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 topics of interest are food microbiology, functional foods, probiotics, prebiotics, food hygiene etc.