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Anti-inflammatory potential of selected lactic acid bacteria from Bulgarian yoghurt

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Two of the most essential cytokines on inflammatory processes are interleukin-10 which suppresses inflammation in the intestines and interleukin-8 which has the opposite effect and provokes inflammation. Some lactic acid bacteria strains could modulate intestinal mucosal immune response playing anti-inflammatory role in the intestinal immune signaling. The intestinal epithelium is capable to produce the cytokine interleukin-8 (IL-8), especially after stimulation with other pro-inflammatory cytokines like TNF- α . The aim of the present work was to evaluate the effect of selected LAB strains isolated from Bulgarian yoghurt on IL-8 secretion in intestinal epithelial cells with and without stimulation by TNF- α . In the same time, we test them for their capability in induction of anti-inflammatory interleukin-10 (IL-10) using splenocyte model for evaluation. A large number of strains with yoghurt and intestinal origin were screened in their ability to reduce the production of IL-8 from human epithelium cell line Caco-2. The strains demonstrating the highest reduction of IL-8 after stimulation of epithelium cells with TNF- α were with intestinal origin, as expected, but *L. bulgaricus* b58/1, *L. bulgaricus* b144, *S. thermophilus* T59 and *S. thermophilus* T43 gave surprisingly high and concurrent results as well. The relative reduction of IL-8 secretion by these strains was between 14% and 34% after stimulation with TNF- α , and between 2% and 12% without stimulation with TNF- α . Regarding the results of interleukin-10, from the selected strains we obtained values as followed: b144- 1457pg/ml; b58/1- 1584; T43- 1405; T59- 1659 pg/ml. According to the presented results, the selected strains could have a beneficial potential against inflammation.

Biography

Gotova I M is a Researcher at LB Bulgaricum Plc., Bulgaria. She works at Department of Biotechnology with Dr. Zhechko Dimitrov, Associate Professor and Lead Scientist at LB Bulgaricum Plc. Her research interests include probiotics properties on the molecular level, dairy product characteristics and lactic acid bacteria properties using modern equipment.

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