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ADHERENCE PATTERN OF *LACTOBACILUS BREVIS 16GAL* TO HELA CELLS AND COMPETITION FOR SITES AGAINST PATOGENS

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SUMMARY

Survival of microorganisms in various habitats depends on their ability to adhere to different underlayers. The adherence process involves an interaction between complementary molecules on the surface of microorganisms on the microorganism surface (adhesines) and underlayer (receivers). Biofilm cells vary phenotipically by their planktonic shape, having a higher strength to stress conditions. They perform an elementary "homeostasy", a metabolic cooperation and exhibit integrality - a key property of a biological system (2). In order to adhere, cell viability is not indispensable. *De novo* synthesis of adhesines is carried out with energy consumption and therefore cells subject to the exponential stage of growth adhere more quickly to underlayers than those in the steady stage, that are old or dead (1).

By qualitative method (Craviato et al. 1979, changed by Nataro and Kaper, 1998) the adhesion of *Lactobacillus brevis* 16GAL strain to eukariote cells has been proved, using as underlayer – the HeLa stabilized cellular line. Competitivity for adhesion sites of the *Lb. brevis* 16GAL probiotic strain has been compared to different pathogenic strains: *E. coli, Listeria* sp., *Staphylococcus* sp., *Salmonella* sp. In absence of pathogens, the *Lb. brevis* 16GAL strain has a diffuse adherence pattern (+++), forming a uniform border on the entire area of HeLa cell plasmatic membrane. Competition for cellular underlayer with pathogens has driven the change of adherence phenotype and its intensity. The probiotic strain has the capability to inhibit the adherence of pathogens to the HeLa cellular underlayer in a proportion of 5-25%. In competition with pathogens, the adherence *pattern* becomes localized-aggregative, forming microcultures in certain areas where there are specific receivers. Competitive inhibition has been very obvious (+++) compared to *E. coli, Salmonella* sp. and *Staphylococcus* sp. and less obvious (++) compared to *Listeria* sp.

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