

Hydrophobicity character of lactic bacteria with probiotic potencial

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Probiotic microorganisms are the ones that exerce benefit actions to the organism. Lactic Acid Bacteria (LAB) are the most studied because they show several characteristics that make them potential candidate to great probiotic such as resistance to acid and biliar salts, persistence at the gastrointestinal tract and intrinsic immune mudulation by cytokines production. The most possible activity of probiotic associated with intestinal diseases is to inhibit pathogenic bacteria, competing for nutrients or adherence to the intestinal epithelium. The capacity of adherence of LAB to intestinal cells is proportional to the hydrophobic character. The objective of the work is to evaluate the hydrophobicity profile of 14 strains of lactic bacteria. The culture was grown in MRS for 36h, centrifuged at 4000rpm for 10 minutes, washed twice with buffer PBS and resuspended using the same buffer. The suspension of cells was diluted up to 100 times, the absorbance was read and 3mL of this sample was added in 0.6mL of xylene or N-Hexadecane. After shaking for 120 seconds, the phase separation was waited and the absorbance of the aqueous phase was measured. The decrease of the absorbance was taken as hydrophobicity dimension of the cellular surface, calculated by $[(A_o - A_f) / A_o] \times 100$, where A_o is the initial absorbance without organic compounds and A_f the final absorbance, after the addiction of organic molecules. It is described in the literature that when hydrophobicity is higher than 40% it is significative to adhesion of ephitelial cells. Then, for tests using xylene, 8 strains showed 69,65% of medium hydrophobicity. For tests using the N-Hexadecan (more hydrophobic compound), three strains showed 56.34% of medium hydrophobicity. This results indicated the three better results to continue the in vitro studies of adhesion in human intestinal cells, which is good to characterize one strain as probiotic.

Keywords: Cellular adhesion, Hydrophobicity, Lactic Bacteria, Probiotic

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