

Screening beneficial dairy *Lactobacillus spp.* for biofilm formation under different environmental stresses

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Biofilms are involved in creating of intimate relationship between the human gastrointestinal tract and its inhabitant microorganisms. Therefore, It would be interesting to understand about the mechanisms, which might influence on biofilm formation of probiotic bacteria.

In this study the biofilm formation of 6 isolated *Lactobacillus spp.* from fermented milks, two commercial cultures (*Lactobacillus acidophilus* (La5) and *Lactobacillus casei* (C431)) and three type strains (*Lactobacillus casei*, *Lactobacillus paracasei* and *Lactobacillus acidophilus*) was investigated and the biofilm quantities was compared under normal and stresses conditions including low pH, presence of bile salt and also replacing of glucose with inulin in the reaction medium. Crystal violet staining assay was used for quantification of the biofilm.

Current research showed that conditions such as low pH (pH=4), different concentrations of bile (0.3 and 1.5%) and also presence of inulin could modulate biofilm formation of tested *Lactobacillus* strains and it might be concluded that the effect of each factor depends on the strain.

The effect of bile does not appear to be dependent to its concentration, since the effect was similar when two different concentration of bile (0.3 and 1.5%) was added to medium.

Alteration of composition of media with non-digestible carbohydrate (inulin) led to limited or no growth of bacteria but did not induce biofilm formation.

Biography

Nasim Farahmand received her B.Sc. and M.Sc. degrees from Azad University in Tehran, Iran. She has experiences of working with food industry. Also, she has worked as a University instructor at Azad University in Iran, delivering lectures and practical session on Cereal technology and Quality control. Currently, she is studying for a Ph.D. in Food Biotechnology at London Metropolitan University. Her Ph.D. research project is focused on the characterization of probiotic bacteria isolated from fermented milks in the UK and Europe. She has co-authored 13 national and international peer reviewed journal articles and holds a patent for diabetic bread.

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