

TITLE: EVALUATION OF THE SURVIVAL OF *Lactococcus lactis* QMF 11 AGAINST SIMULATED GASTRIC CONDITIONS.

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ABSTRACT:

Lactic acid bacteria (LAB) have been extensively studied because of their probiotic potential. One of the criteria for selecting probiotic cultures for human use is that they are resistant to the hostile environmental conditions encountered during transit through the gastrointestinal tract (GIT). An important biological barrier in GIT is the presence of gastric juice, characterized by pH around 2.0 and by the presence of proteolytic enzymes such as pepsin. The objective of this research was to assess the survival of *Lactococcus lactis* QMF 11, a LAB strain with antilisterial and antistafilococcal activity isolated from Minas fresh cheese, against acidity conditions as well as against exposure to a simulated gastric juice. To evaluate the survival in acidic conditions, *L. lactis* QMF 11 was grown overnight at 30 °C twice in MRS broth, followed by centrifugation at refrigeration temperature. Then, the pellet was washed twice, resuspended in MRS broth and the pH was adjusted to 4.5; 3.0 and 2.0, with 4.0 M HCl, to evaluate its tolerance to low pH. To assess its resistance to simulated gastric juice, the reactivated culture was centrifugated at 4 °C and the cell pellet was washed twice and resuspended in a solution prepared to contain 0.85% (w / v) sodium chloride, 3.0 g / L (w / v) of pepsin and pH 2.0. Cultures in both conditions were maintained at 35 °C for up to 180 minutes. Colony counts were performed in MRS agar at 0, 90 and 180 minutes. After 180 minutes of exposition of the culture to acidic conditions, the LAB percent survival was greater than 97% in all tested pH. After challenging *L. lactis* QMF 11 against simulated gastric juice, the recovery percentage of the culture was 38%. These results are in line with the literature for bacteria with probiotic activity and indicate that *L. lactis* QMF may have potential for use in food products as a probiotic culture.

KEYWORDS: Food products, gastric juice, Lactic acid bacteria, *Lactococcus lactis* QMF 11, probiotic.

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