EVALUATION OF PROTECTIVE EFFECT OF COALHO CHEESE IN SURVIVAL OF LACTOBACILLUS ACIDOPHILUS (LA-5) UNDER SIMULATED GASTROINTESTINAL CONDITIONS

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Probiotic bacteria are used in food with the claim to exert beneficial effects on the composition of intestinal microbiota. Among dairy products, different types of cheeses have been evaluated for their efficiency as bacteria probiotic carrier products. A coalho cheese with added *Lactobacillus acidophilus* (La-5) was subjected to *in vitro* following conditions mimicking the four major steps of digestion: mouth, esophagus-stomach, duodenum and ileum. The production of the cheeses followed a traditional procedure, as proposed by Embrapa - Brazil. A control cheese was inoculated in parallel with *L. acidophilus* as a reference to determine the protective effects of the cheese matrix to the assayed bacterial strain on each step of digestion. The viable counts were performed in MRS (supplemented with cysteine-HCl) incubated under anaerobic conditions (48h/37°C). The viable counts of *L. acidophilus* were around 6-7 log cfu g⁻¹ on the initial phase of digestion (mouth, esophagus) followed for a decrease in the to about 5 log cfu g⁻¹ in the final stages of digestion (intestine). Control cheese showed counts around 6-7 log cfu g⁻¹. The results revealed that the digestion in the mouth had no influence on the survival of the probiotic bacteria, but changes in pH value and actions of enzymes in the stomach (artificial gastric juice) and duodenum (artificial intestinal juice) caused a reduction of the bacterial counts. From the results, the coalho cheese matrix protected the tested bacterial strain during exposure to conditions mimicking the gastrointestinal tract, revealing the assayed cheese as promising carrier of *L. acidophilus*. 