TITLE: Ricotta cheese: an alternative food matrix for *Lactobacillus acidophilus* LA-5 and inulin delivery.

AUTHORS: ARRAIS, B. C. D.; MEXIA, M. M.; KOGA, E. C.; PINTO, T. B.; CASTRO, E. M.; SOUZA, C. H. B.

INSTITUTION: Universidade Norte do Paraná Mestrado em Ciência e Tecnologia de Leite e Derivados, Rua Marselha, 591, CEP: 86041-140, Londrina, PR.

ABSTRACT

Consumers increasing interest in healthier products justify industries search for new technologies to produce functional food containing prebiotics and probiotics. The aim of this study was evaluate the influence of ricotta cheese supplementation with inulin over physicochemical parameters and *Lactobacillus acidophilus* LA-5 viability during product's storage. Four different ricotta cheese formulations were produced: R1 (control, without inulin or probiotic), R2 (with LA-5 addition), R3 (with inulin addition) and R4 (with LA-5 and inulin addition). Physicochemical (centesimal composition, pH, and hardness) and microbiological (LA-5 viability) parameters were evaluated after 1, 7, 14 and 21 days of storage under refrigeration at 4 ± 1°C. Elaborated ricotta cheese centesimal composition presented mean values of 5% lipids, 9,4% proteins, 0,8% ashes, and 71.6% moisture for all formulations. R1 and R2 (without inulin) presented 11% carbohydrates, R3 and R4 (with inulin) presented 15.4% carbohydrates. The pH values observed for R1, R2, R3, and R4 on day 21 was 5.83, 5.17, 5.06 and 4.07, respectively. The statistical difference indicated metabolization of inulin by the probiotic culture ($p < 0.05$). *L. acidophilus* LA-5 populations in ricotta cheese R2 and R4 remained above 7 log CFU/g during the whole storage period, reaching 8.36 log CFU/g (R4) on day 21. The supplementation with inulin in R4 positively promoted LA-5 counts, since R2 formulation revealed decrease of 1.87 log CFU/g in LA-5 populations during storage, whereas decrease of 0.88 log CFU/g was observed in R4. The ricotta cheese supplemented with inulin showed a progressive increase in hardness through storage, when compared to the others ($P<0.05$). The the development of probiotic, prebiotic and symbiotic ricotta was technologically viable. So, ricotta cheese can be suggested as an alternative dairy matrix for *L. acidophilus* LA-5 and / or inulin.

Keywords: Prebiotic. Probiotic. Cheese whey. Hardness.

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