SYNBIOTIC CHEESE. EFFECT OF MEXICAN TRADITIONAL INGREDIENTS ON PROBIOTIC VIABILITY

Cinthya P. Romero, Carolina Peña, Verónica García-Saturnino and Maricarmen Quirasco; National Autonomous University of Mexico, Faculty of Chemistry, Food and Biotechnology Department, Mexico City; quirabma@unam.mx

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Introduction. In order to provide healthier food, synbiotic products have been developed with the addition of prebiotics and probiotics. Cheese could be an excellent system for the delivery of probiotics; besides, traditional Mexican ingredients are attractive for international market. But some of them, such as chili or epazote (*Dysphania ambrosioides*), could affect probiotic viability during shelf storage. In order to promote consumer's health, probiotics should be viable and in a count of 10^6 CFU/g (1).
The aim of this work was to assess the viability of two probiotics in four different formulations of Mexican symbiotic cheese.

Methods. Cheese formulations included inulin and probiotics: *Lactobacillus casei* and *Lactobacillus acidophilus* (Rosell-215 ND-100B, R0052-150, Rosell-52 ME, 50, Lallemand®). Cheese formulations were: white, epazote, Chipotle and Jalapeño fresh cheeses. Two probiotic combinations were tested: *L. casei* and *L. acidophilus*, both freeze dried and, freeze dried *L. casei* with microencapsulated *L. acidophilus*. Probiotic viability, acidity and pH were assessed during the shelf life of these products (18 days, at 4°C). Probiotics were cultured anaerobically on MRS agar (+NaCl 4% for *L. casei*) for 72 h. *L. casei* at 37° and *L. acidophilus* at 43°C. Coliform, yeast and mold counts were also performed using standard methods.

Results. No coliforms, yeasts or molds were detected during the storage of the products, even without a commercial packing. Previously in our group, *L. acidophilus* showed to be more susceptible than *L. casei* in dairy fermented products (2). Accordingly, a microencapsulated commercial product was tested in order to achieve more stability. However, viability in cheese showed the opposite behavior. In general, *L. casei* was less stable than *L. acidophilus*. Formulations with microencapsulated *L. acidophilus* showed more stability for both probiotics; except of Jalapeño cheese, in which a 5 log decline was observed for *L. casei* (Fig. 1 A). The white cheese formulation had the best stability in any combination of probiotics (Fig. 1 B).

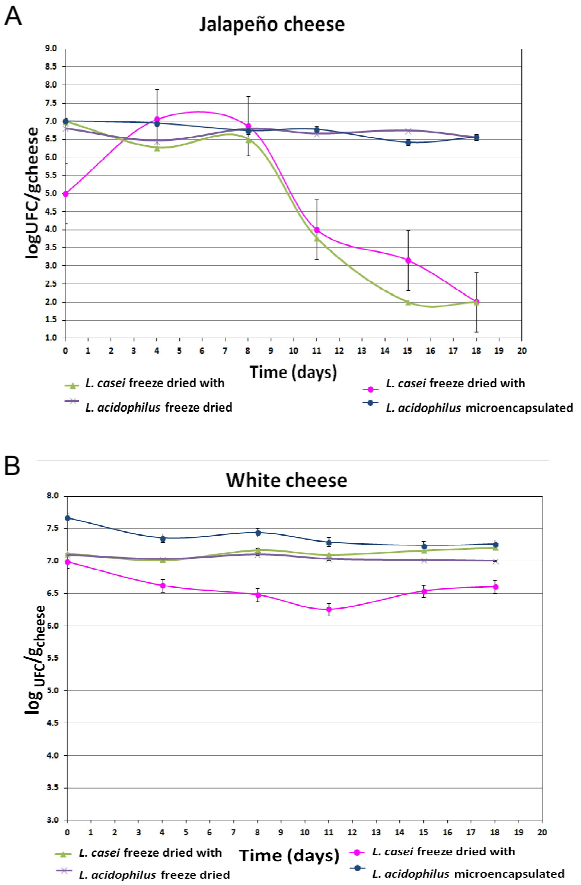

Fig 1. Viability of probiotics in: A. Jalapeño and B. White fresh cheeses.

An inhibitory effect was expected from the addition of chili and epazote; however, this was not observed, with exception of Jalapeño cheese. This product showed the lowest pH value of all, 6.2 vs. 6.7 in average.

Conclusions. Cheese formulations with chili and epazote showed to be good systems for the delivery of probiotics. Although a decline of *L. casei* was observed during storage, the quantity of both probiotics was maintained above the suggested value of 10^6 CFU/g cheese.

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