Effect of biopreservatives on growth and survival of *Listeria monocytogenes* in ewe´s cheese

ABSTRACT

Strains of *Listeria monocytogenes, L. innocua* and *L. seeligeri,* isolated from two regions producing ewe´s cheese (Castelo Branco and Tolosa) were characterized. Using molecular typage (AFLP, PFGE and molecular serotyping) it was possible to do the association between a case of asymptomatic ovine listeriosis and the contamination of cheese made with raw milk and the environment, as the same molecular type was revealed (AFLP IV-1, PFGE 11 and molecular serogroup 4b). The molecular characterization of 185 isolates permitted to study the routes of contamination and the persistence of *L. monocytogenes* within cheese processing plants. Applying tests of susceptibility to nisin, the Minimum Inhibitory Concentration (MIC) of 50 IU of nisin / ml for the majority of the 219 strains analyzed and a mean frequency of resistant of $1:10^4$ was calculated. The virulence of 7 *L. monocytogenes* strains was evaluated by a plaque-forming-assay, with HT-29 monolayer animal cells. To control the presence of pathogenic and spoilage microorganisms (*Listeria monocytogenes, Pseudomonas aeruginosa, Yarrowia lipolytica, Penicillium commune* and *Penicillium chrysogenum*), naturally present on the cheese rind, were developed filmogenic fluids based on whey protein isolate, with pH 3, having been characterized for their inhibitory effect, viscoelastic and viscosity properties, as well as for mechanical properties and water vapour permeability.

Key-words: *Listeria monocytogenes*, antimicrobial coatings, nisin, cheese, ovine listeriosis, molecular typage