

Survival of different *Listeria monocytogenes* strains in simulated gastro-intestinal tract conditions

Almeida, M.¹, Teixeira, P.¹, Silva, J.², Azeredo, J.¹ and Teixeira, P.²

1. Departamento de Engenharia Biológica, Universidade Minho, Braga
2. Escola Superior de Biotecnologia, Universidade Católica Portuguesa, Porto
martaasalmeida@gmail.com

Listeria monocytogenes is an opportunistic intracellular pathogen that has become an important cause of human foodborne infections. The ability of eleven different strains of *L. monocytogenes* to survive through the gastro-intestinal tract (GI) was observed in vitro; 4 strains from environmental sources, 4 from different food origins and 3 from clinical cases. The different isolates were exposed in buffered peptone water broth, to pH values between 2.5 and 3 (HCl, 5 M) and to the presence of pepsin (1000 units/ml) at 37 °C in order to simulate exposure to gastric juice. These homogenates were incubated either for 60 or 120 minutes under gastric conditions then, the pH was neutralized (NaOH, 2 M) and a solution of bile salts 0.3 % (w/v) was added to simulate the duodenum conditions^{1,2}. The survivors were enumerated on Palcam and TSA using the drop count technique, after incubation at 37 °C for 24 h. Clinical isolates demonstrated the highest resistance to the GI tract conditions. No differences were observed between cell counts in the two solid media. For the food and environmental isolates, the survival in the GI tract conditions was dependent on the strain being tested and on the time of exposure. In these cases differences between Palcam and TSA were observed suggesting damage to the cell membrane. None of the strains were sensitive to the treatment with bile salts for 120 min.

1. Madureira, R. et al. (2005) *International Dairy Journal* **15**:921-927.
2. King, T. et al. (2003) *International Journal of Food Microbiology* **84**:133-143.