Prevalence of Listeria monocytogenes in European cheeses: A systematic review and meta-analysis

Martinez Rios, Veronica; Dalgaard, Paw

Publication date: 2017

**Name:** Veronica Martinez-Rios* and Paw Dalgaard

**Title:** Prevalence of *Listeria monocytogenes* in European cheeses: A systematic review and meta-analysis

**Company/institution:** Analytical and Predictive Microbiology research group, National Food Institute (DTU Food)

**Address:** Technical University of Denmark, Søltofts Plads, Building 221, DK-2800, Kgs. Lyngby, Denmark.

**Phone:** +45 45254918

**E-mail:** veri@food.dtu.dk

**Education:** MSc Food Science and Technology

**Area of expertise:** Predictive Microbiology

Food Safety

Dairy Microbiology

---

**Abstract** (max. 300 words):

Both in Europe and worldwide cheese has caused important outbreaks of listeriosis and can be a vehicle for transmission of *Listeria monocytogenes* to consumers. A systematic review and meta-analysis were conducted using scientific literature and European Food Safety Authority (EFSA) reports to summarize available data on the prevalence of *L. monocytogenes* in different types of cheeses produced in Europe. Multilevel random-effects meta-analysis models were used to estimate mean prevalence rates of the pathogen and to compare prevalence between types of cheeses (fresh, mould-ripened, ripened, smear-ripened and brined) and for cheeses produced using pasteurized or unpasteurized milk. Data from a total of 177428 samples were analysed. The mean prevalence during 2005-2013 and estimated from scientific literature (2.3%; CI: 1.4-3.8%) was more than two times higher than results from EFSA reports (0.9%; CI: 0.7-1.2%). The prevalence differed between types of cheeses including fresh (1.4%; CI: 0.6-3.2%), mould-ripened (2.0%; CI: 0.6-6.3%), ripened (2.2%; CI: 0.9-5.6%), smear-ripened (4.8%; CI: 1.5-14.5%) and brined (8.6%; CI: 1.7-34.4%). Mean prevalence of *L. monocytogenes* in fresh and soft/semi-soft cheeses were not significantly different (P > 0.05) for cheeses produced from pasteurized (1.0%; CI: 0.7-1.5%) or unpasteurized (1.4%; CI: 0.9-2.1%) milk. Furthermore, this systematic review focused on groups/species of microorganisms suitable as indicator organisms for *L. monocytogenes* in cheeses to reflect the level of production hygiene or as index organisms to assess the prevalence of *L. monocytogenes* in cheeses. However, no indicator or index organisms were identified. The meta-analyses improve our understanding of *L. monocytogenes* prevalence in different types of cheeses and provided results that can be useful as input for quantitative risk assessment modelling.

---

**Abstract submission guidelines**

- Please ensure your entry is text only and does not include tables, charts or figures.
- The presenting author is required to ensure that all co-authors are aware of the content of the abstract before submission.
- Submission of an abstract acknowledges your acceptance for the abstract to be published in the official Conference Abstract Book and on the conference web page [www.nordicdairycongress.com](http://www.nordicdairycongress.com).