Prevalence of Listeria monocytogenes in European cheeses - A systematic review and meta-analysis - DTU Orbit (22/12/2018)

Prevalence of Listeria monocytogenes in European cheeses - A systematic review and meta-analysis
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. Meta-analysis models were used to estimate mean prevalence of the pathogen and to compare prevalence among types of cheeses (fresh, ripened, veined, smear and brined) and cheeses produced using, respectively, pasteurized or un-pasteurized milk. Data from a total of 130,604 samples were analysed. Mean prevalence for presence during 2005-2015 estimated from scientific literature (2.3% with confidence interval (CI): 1.4-3.8%) was more than three times higher than results from EFSA reports (0.7%; CI: 0.5-1.1%). The prevalence differed among types of cheeses including fresh (0.8%; CI: 0.3-1.9%), ripened (2.0%; CI: 0.8-4.9%), veined (2.4%; CI: 0.9-6.3%), smear (5.1%; CI: 1.9-13.1%) and brined (11.8%; CI: 3.5-33.3%). Mean prevalence of L. monocytogenes in soft/semi-soft cheeses were not significantly different (P > 0.05) for cheeses produced from pasteurized (0.9%; CI: 0.4-1.9%) or un-pasteurized (1.0%; CI: 0.4-2.2%) milk. For cheese samples reported by EFSA 0.2% CI: 0.1-0.4% had concentration of L. monocytogenes above the critical European limits of 100 cfu/g. In addition, 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 suitable indicator or index organisms were identified. The performed meta-analyses improved our understanding of L. monocytogenes prevalence in different types of cheeses and provided results that can be useful as input for quantitative microbiological risk assessment modelling.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology
Contributors: Martinez Rios, V., Dalgaard, P.
Number of pages: 10
Pages: 205-214
Publication date: 2018
Peer-reviewed: Yes

Publication information
Journal: Food Control
Volume: 84
ISSN (Print): 0956-7135
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 4.06 SJR 1.502 SNIP 1.69
Web of Science (2017): Impact factor 3.667
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.86 SJR 1.492 SNIP 1.709
Web of Science (2016): Impact factor 3.496
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 3.65 SJR 1.498 SNIP 1.73
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 3.27 SJR 1.38 SNIP 1.717
Web of Science (2014): Impact factor 2.806
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 3.14 SJR 1.278 SNIP 1.728
Web of Science (2013): Impact factor 2.819
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
<table>
<thead>
<tr>
<th>Year</th>
<th>BFI (Level)</th>
<th>CiteScore</th>
<th>SJR</th>
<th>SNIP</th>
<th>Impact Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>1</td>
<td>3.1</td>
<td>1.245</td>
<td>1.931</td>
<td>2.738</td>
</tr>
<tr>
<td>2011</td>
<td>1</td>
<td>2.9</td>
<td>1.209</td>
<td>1.723</td>
<td>2.656</td>
</tr>
<tr>
<td>2010</td>
<td>1</td>
<td>1.23</td>
<td>0.9</td>
<td>1.691</td>
<td>2.812</td>
</tr>
<tr>
<td>2009</td>
<td>1</td>
<td>1.213</td>
<td>0.9</td>
<td>1.691</td>
<td>1.076</td>
</tr>
<tr>
<td>2008</td>
<td>1</td>
<td>1.076</td>
<td>0.9</td>
<td>1.44</td>
<td>1.076</td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td>0.9</td>
<td>0.9</td>
<td>1.558</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td>0.788</td>
<td>0.9</td>
<td>1.299</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td>0.596</td>
<td>0.9</td>
<td>1.266</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td>0.568</td>
<td>0.9</td>
<td>1.066</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td>0.43</td>
<td>0.9</td>
<td>0.665</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td></td>
<td>0.334</td>
<td>0.9</td>
<td>0.847</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td>0.44</td>
<td>0.9</td>
<td>0.831</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td>0.366</td>
<td>0.9</td>
<td>0.58</td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td></td>
<td>0.382</td>
<td>0.9</td>
<td>0.485</td>
<td></td>
</tr>
</tbody>
</table>

Keywords: Occurrence, Fresh cheese, Soft and semi-soft cheeses, Risk assessment

Electronic versions: ANSA_1_s2.0_S0956713517303663_main.pdf. Embargo ended: 25/07/2018

DOIs: 10.1016/j.foodcont.2017.07.020
Source: FindIt
Source-ID: 2355575758
Research output: Research - peer-review; Journal article – Annual report year: 2018