Staphylococcus aureus in Some Brazilian Dairy Industries: Changes of Contamination and Diversity - DTU Orbit (13/01/2019)

Staphylococcus aureus, a major food-poisoning pathogen, is a common contaminant in dairy industries worldwide, including in Brazil. We determined the occurrence of S. aureus in five dairies in Brazil over 8 months. Of 421 samples, 31 (7.4%) were positive for S. aureus and prevalence varied from 0 to 63.3% between dairies. Sixty-six isolates from the 31 samples were typed by Multi-Locus Sequence Typing to determine if these isolates were persistent or continuously reintroduced. Seven known sequence types (STs), ST1, ST5, ST30, ST97, ST126, ST188 and ST398, and four new ST were identified, ST3531, ST3540, ST3562 and ST3534. Clonal complex (CC) 1 (including the four new ST), known as an epidemic clone, was the dominant CC. However, there were no indications of persistence of particular ST. The resistance toward 11 antibiotic compounds was assessed. Twelve profiles were generated with 75.8% of strains being sensitive to all antibiotic classes and no Methicillin-resistant S. aureus (MRSA) strains were found. The enterotoxin-encoding genes involved in food-poisoning, e.g., sea, sed, see, and seg were targeted by PCR. The two toxin-encoding genes, sed and see, were not detected. Only three strains (4.5%) harbored seg and two of these also harbored sea. Despite the isolates being Methicillin-sensitive S. aureus (MSSA), the presence of CC1 clones in the processing environment, including some harboring enterotoxin encoding genes, is of concern and hygiene must have high priority to reduce contamination.

General information
State: Published
Organisations: Department of Biotechnology and Biomedicine, Bacterial Ecophysiology and Biotechnology, Department of Systems Biology, Universidade Federal de Goias, Universidade de Sao Paulo
Number of pages: 12
Publication date: 2017
Peer-reviewed: Yes

Publication information
Journal: Frontiers in Microbiology
Volume: 8
Article number: 2049
ISSN (Print): 1664-302X
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 4.19 SJR 1.699 SNIP 1.174
Web of Science (2017): Impact factor 4.019
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 4.16 SJR 1.759 SNIP 1.161
Web of Science (2016): Impact factor 4.076
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 4.15 SJR 1.869 SNIP 1.193
Web of Science (2015): Impact factor 4.165
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 3.76 SJR 1.879 SNIP 1.148
Web of Science (2014): Impact factor 3.989
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 3.56 SJR 1.776 SNIP 0.949
Web of Science (2013): Impact factor 3.941
ISI indexed (2013): ISI indexed no
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1