

## Prevalence of *Staphylococcus aureus* and staphylococcal enterotoxins in raw milk from Northern Portugal

**Ricardo Oliveira<sup>1,2</sup>, Eva Pinho<sup>1</sup>, Gonçalo Almeida<sup>1,3</sup>, Nuno Filipe Azevedo<sup>2</sup>, Carina Almeida<sup>1,2,4,\*</sup>**

<sup>1</sup>National Institute for Agrarian and Veterinarian Research (INIAV, I.P.), Vairão, Vila do Conde, Portugal

<sup>2</sup>LEPABE, Laboratory for Process Engineering, Environment, Biotechnology and Energy, Department of Chemical Engineering, Faculty of Engineering, University of Porto, Porto, Portugal

<sup>3</sup>Center for Study in Animal Science (CECA), ICETA, University of Oporto, 55142 Oporto, Portugal

<sup>4</sup>Centre of Biological Engineering (CEB), University of Minho, Campus de Gualtar, 4710-057 Braga, Portugal

\*e-mail: carina.almeida@iniav.pt

*Staphylococcus aureus* and its enterotoxins (SEs) are a serious and costly concern for milk industry and public health [1]. This work aimed to characterize the prevalence of *S. aureus* and enterotoxins in raw milk collected in the main dairy basin region of Portugal mainland. The presence of *S. aureus* was confirmed in 53% of refrigerated raw milk samples collected from the bulk tank of 100 dairy farms according to the ISO standards. Nonetheless, *S. aureus* was always below 10<sup>6</sup> CFU/mL, the minimal concentration expected for enterotoxin production [2]. The presence of enterotoxins- (*sea*, *seb*, *sec*, *sed*, *see*, *seg*, *seh*, *sei*, *sej*, *sep*, *ser*) and methicillin resistance-encoding genes (*mecA* and *mecC*) was evaluated by PCR. Five isolates were found to be methicillin-resistant *Staphylococcus aureus* (MRSA) and 29 isolates contained enterotoxin-encoding genes. One isolate was positive for *sea*, 3 isolates were positive for *seh*, 4 isolates were positive for *sec*, 25 isolates were positive for *sei* and 26 isolates were positive for *seg*. Consistent with other reports, *seg* and *sei* coexisted in most isolates, *seg* was only detected independently of the other gene in one isolate [3, 4]. *Sec* was only found in conjunction with *seg* and *sei*. *Seh* was detected alone or together with *sea*. Overall, the occurrence of non-typical enterotoxin genes (*seg*, *seh* and *sei*) was higher than the “top five” genes (*sea-see*). The detection of SEs (SEA-SEE), according to the EU-RL standard, revealed one positive sample. Interestingly, *S. aureus* was not detected on the positive sample, demonstrating that SEs can be present without requiring the presence of the bacteria [5]. These results suggest that raw milk can be an important source of MRSA, enterotoxigenic *S. aureus* and enterotoxins. Surveillance and postharvest handling practices might be crucial to prevent the spread along the food chain.

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