

Evaluation of the application of UV-C to reduce *Listeria monocytogenes* contamination under commercial conditions**Caterina Rufo**

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The efficacy of UV-C (254 nm) against *Listeria monocytogenes* (LM) contamination on polyethylene conveyor belts surface of a high throughput meat processing plant was evaluated. Different doses of UV-C (between 38 and 405 mWs/cm²) were studied on the survival of LM ATCC19111 in cultures on triptone soy agar plates and in polyethylene coupons of 150 cm² (clean and with meat remains). Agar plates were inoculated with 10² and 10³ CFU and coupons with 10⁵ CFU. In the abattoir, the continuous application of a dose of 163 mWs/cm² on the conveyor belt during the production day was evaluated on three different days. *Listeria* spp, total mesophilic aerobic (APC), *Escherichia coli* (EC) and total coliforms (CB) of areas exposed and not exposed to UV-C were enumerated on 3M[®] petrifilm plates reductions of LM of 3 log CFU/plate were obtained with a dose of 153 mWs/cm² of UV-C radiation. The reduction achieved in the coupon model was 1.1 and 2.1 for clean and dirty. UV-C application on the conveyor belt in the abattoir reduced significantly ($p < 0.05$). *Listeria* spp counts in 1.2 log CFU/100 cm² and produced a significant decrease of 1.7 log CFU/100 cm² for APC, 1.8 log CFU/100 cm² for EC and 2.0 log CFU/100 cm² for CB. The application of UV-C on the conveyor belts of the abattoir reduces *Listeria* and the overall microbiological contamination of the surfaces that come in contact with meat contributing to the reduction of the microbiological contamination in the final product.

Biography

Caterina Rufo pursued her PhD in Nutrition and Molecular Biology (2001) from the University of Texas, Austin, USA. She is currently a Senior Researcher (Profesor Adjunto) in the Food Safety and Nutrition Laboratory of the Faculty of Chemistry at Pando Technological Institute (UdelaR). Her research group develops projects with the meat industry in areas related to meat nutritional value, food safety and the effect of process conditions on the microbiological quality of beef meat.

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