



## Evaluation of ozonated water as a microbiological risk mitigation option in pork production

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### Abstract

Ozone is an oxidative molecule with a bactericidal effect. This molecule can be solubilized in water and was proposed as an alternative disinfecting solution to be used in food production plants. Ozone molecule possesses many industrially relevant characteristics, such as the absence of residues following its application, usability at meat industries' room temperature, and applicability during production activities. The objective of this study was to evaluate the benefits of an ozonated water rinse on the wrapping of meat logs at the entrance of a slicing plant. From a single batch, the surface of ten units (meat logs : ML) of cylindrical shape of approximately 7000 cm<sup>2</sup> were entirely swabbed before treatment and compared with 3 groups of 10 units that were passed through a curtain of either chlorinated water (20 ppm), ozonated water (3,5 ppm) or tap water only. As part of the bacteriological analysis, total aerobic counts were measured, *Salmonella* and *Listeria monocytogenes* detection were individually conducted on each units, and enumeration of *E.coli* and coliforms were completed. The results obtained from 4 different batches showed a very low aerobic contamination at the entrance of the plant before treatment (2.49 log cfu/ML). The chlorinated water and the ozonated water treatment reduced significantly the bacterial contamination (respective diminution of 0.83 log cfu/ML and 0.63 log cfu/ML), while reduction from the tap water treatment was not significant (0.21 log cfu/ML). All samples were free of the researched pathogens, and coliforms counts were below the technical threshold for numeration. These results show that an ozonated water treatment is an effective tool in reducing aerobic flora contamination before the meat slicing process. It also indicates that ozonated water could be an alternative to chlorinated water treatments as it represents an effective method to control product wrapping contamination prior to its entrance at the slicing plant.