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Industrially relevant mitigation options to control Salmonella in pork during lairage at slaughterhouse

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Pork meat is associated with human *Salmonella* foodborne outbreaks. Contamination during pork meat production is still under investigation, principally in order to identify efficient control measures. Many studies established, in farms and during slaughtering, *Salmonella* contamination risk factors for pigs or carcasses. Considering this information, an industrially relevant mitigation options during lairage at the abattoirs would present a crucial interest. The objective of this study is to quantify the gain of washing the lairage pens floors between pig batches and to test the further benefit of using ozonated (O_3) water during this rinse, as a tool to control *Salmonella* cross contamination during lairage, by lowering the exposition level at this step. We conducted the study in an industrial slaughterhouse (35000 pigs/week). Ten fold 100 cm2 of floor surfaces were individually swabbed per lairage pen, immediately after the pigs leave the lairage and after the cleaning operation that consisted 1) in rinsing floor surfaces with high pressure water, 2) with tap water and 3) with tap water containing more than 2.5 ppm of O_3 continuously distributed. *Salmonella* detection was individually conducted and enumeration of coliforme and *E coli* completed the bacteriological analyses. The results obtained from a total of 24 lairage pens showed significantly that a rinsing with water after each batch is a *Salmonella* mitigation option. Quantitative analysis of *E coli* enumerations quantified the benefit of rinsing, identifying a significant 1.9 and 1.4 Log UFC *E. coli*/10cm^2 reduction respectively for condition 1) and 2). No further benefit of introduction of ozone in the tap water should be consider (additional benefit 0.2 Log CFU *E. coli*/g, Mann Whitney $p>0.05$).

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