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Evaluation of the thermo-assisted drying and decontamination system and ozone gas for sanitation of livestock transport vehicles

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Introduction

Pig transportation vehicles are one of the main sources of disease spread among herds, since they move animals with different health statuses over long distances and for different regions. The objective of this work was to validate the thermo-assisted drying and decontamination (TADD) system and the ozone gas in the reduction of total coliforms, as an indicator of contamination, in pig transportation trucks.

Materials and Methods

Surface swabs of ten trucks were performed prior to washing, after washing and disinfection, and after the TADD process and application of ozone gas in the cabin. After the washing and disinfectant application, the outside of the cab and trailer of the trucks were submitted to the TADD system, with an average temperature of 70° C, and 1.5 grams ozone/ hour was released inside the cabin, both for 15 minutes. For collection, sterile bags and sponges were used. To increase the evaluated area, a pool of three samples from each site was performed, comprising 80 samples from each stage and totaling 240 samples analyzed. The samples were seeded in Chromocult® agar, incubated in aerobiose at 37° C for 24 hours, followed by count of colony forming units (CFU) per cm². The results were classified as positive or negative growth and the difference between the bacterial growth of each step was evaluated by the chi square test, considering a significant value of $P < 0.05$.

Results

Of the 240 samples analyzed, 49 and 39 were positive for total coliforms, before washing and after washing and disinfection, respectively. No sample presented positive growth after the TADD system, statistically differing ($P < 0.0001$) from the swabs collected in previous steps. In Brazil, this procedure is being used for the first time.

Conclusion

The disinfection process using TADD system and ozone gas, are efficient in eliminating total coliforms of pig transport trucks.

Keywords: transport biosecurity, disinfection, total coliforms, ozone

