

# DESCONTAMINATION OF PIG CARCASSES WITH ORGANIC ACIDS

## INTRODUCTION AND OBJETIVES

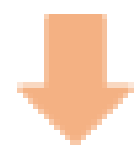
*Campylobacter*, *Salmonella* spp., *E. coli*, *Yersinia* and *Listeria monocytogenes* are frequently associated with foodborne diseases [1][2].

In 2018, according to the frequency of outbreaks published by EFSA, 4.9% of 709 outbreaks were associated with pork meat [1].

The aim of this work was to evaluate the effectiveness of two organic acids substances on the samples of pig carcasses surfaces, previously inoculated with a mix of *Salmonella* Typhimurium ATCC 14028 and *Salmonella* Derby.

## MATERIAL AND METHODS

Mix of *Salmonella* Typhimurium ATCC 14028 and *Salmonella* Derby



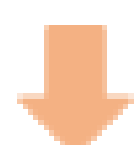
Two suspensions:  $1,42 \times 10^5 \mu\text{L}/\text{cm}^2$  (suspension A) and  $4,92 \times 10^6 \mu\text{L}/\text{cm}^2$  (suspension B)



Sample  $25\text{cm}^2$  inoculated with  $100\mu\text{L}$  of bacterial suspension



Decontamination with lactic acid or citric acid at 2 and 5%



Storage at  $7^\circ\text{C}$ . Analyze at 30 minutes, 6, 12, 24 and 48 hours

## RESULTS AND DISCUSSION

Figures 1 (suspension A) and 2 (suspension B) represent the evolution of the counts over time.

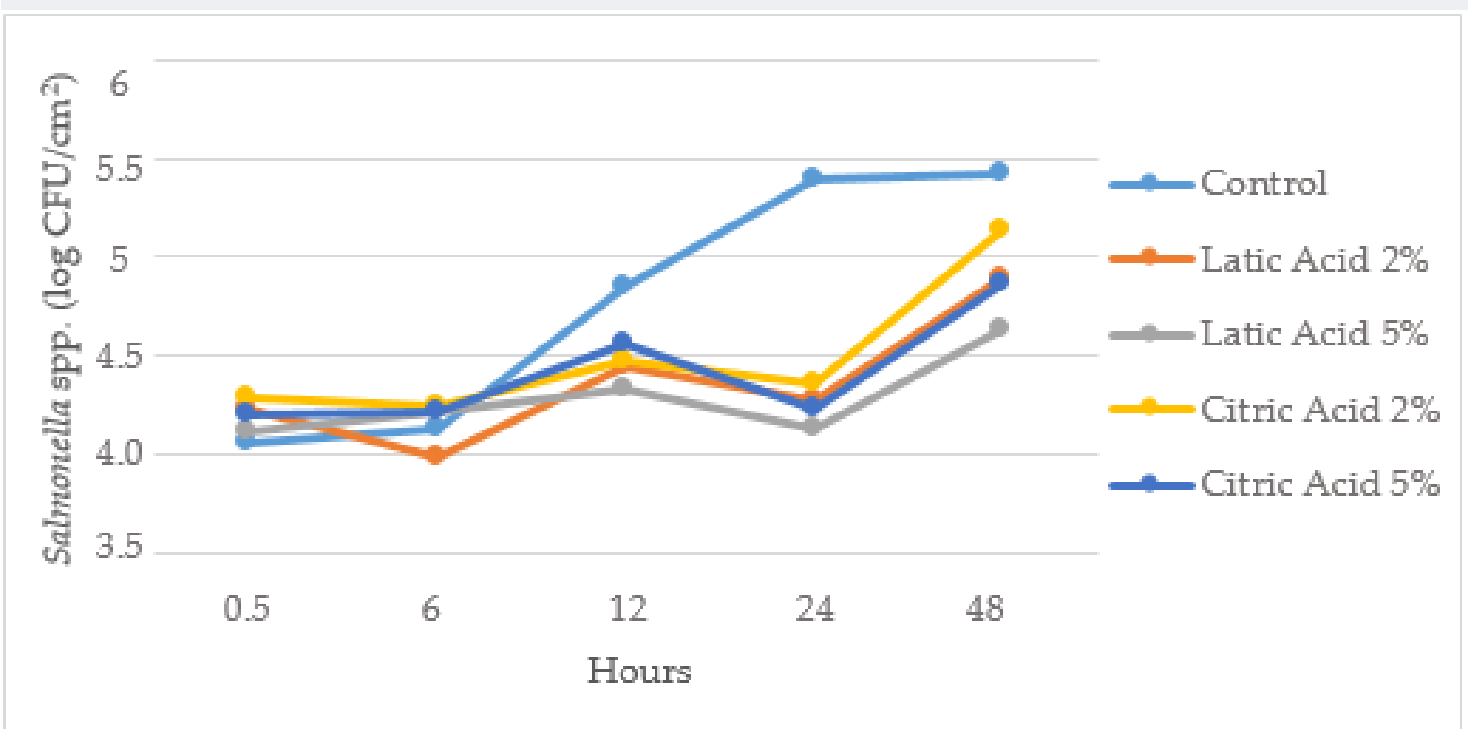


Figure 1. Evolution of *Salmonella* spp. (log CFU/cm<sup>2</sup>) over storage time, after decontamination with Suspension A.

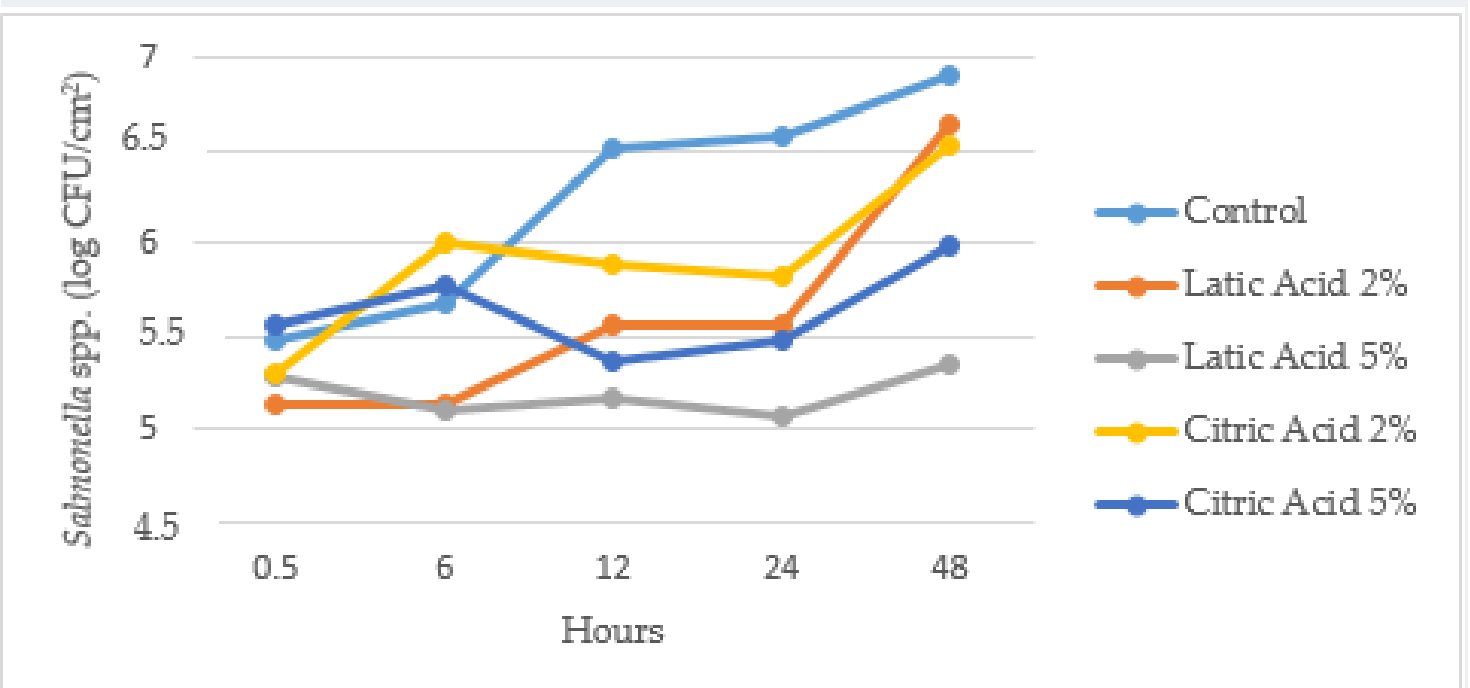


Figure 2. Evolution of *Salmonella* spp. (log CFU/cm<sup>2</sup>) over storage time, after decontamination with Suspension B.

For both acids, for 2 and 5% lower counts were observed compared with control sample. However, lactic acid 5% was the one with the lowest values, while citric acid 2% was the one in which the difference between its application and the control was smaller.

## CONCLUSION

It was possible to observe that lactic acid at 5% achieved better results. It was possible to conclude that both acids, in both concentrations, have a bacteriostatic effect on *Salmonella* spp..

## REFERENCES

- [1] E. Food and S. Authority, "The European Union One Health 2018 Zoonoses Report," EFSA J., vol. 17, no. 12, 2019, doi: 10.2903/j.efsa.2019.5926.
- [2] E. Borch and P. Arinder, "Bacteriological safety issues in red meat and ready-to-eat meat products, as well as control measures," Meat Sci., vol. 62, no. 3, pp. 381-390, 2002, doi: 10.1016/S0309-1740(02)00125-0.