

EFFECT OF WATER SPRAYING ON CARCASS DECONTAMINATION

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BACKGROUND:

Preventive antimicrobial interventions can facilitate compliance with and implementation of proper HACCP. Contamination of meat and meat products during processing is unavoidable; therefore preventive measures are important to minimize contamination and reduce the risk of public health hazards.

Methodologies have been developed for surface microbial decontamination of carcasses by spraying, washing, rinsing with water of low or high pressures and temperatures or with added authorized chemicals.

OBJECTIVE:

To evaluate the effect of water spray in the reduction on microbial load of swine carcasses.

METHODS:

This experimental work was performed in an inspected commercial abattoir in the west center of Portugal (Centro de Abate de Suínos do Oeste). The animals were electrically stunned and in the end of the pig slaughtering line (throughput 350/h, output 2400-2500/day), before chilling, were sprayed with water at a temperature of 15-18° C under a pressure of 1,5 bar, for 60 sec.

Sampling, number of samples to be taken from carcasses, and the microbiological method for the examination of the samples have been performed according to EC Commission Decision of 8 June 2001, Official Journal L 165/48: Annex "Bacteriological sampling of carcasses (cattle, swine, sheep, goats and horses) in slaughterhouses "(non-destructive method); "Sampling Locations for Testing Carcasses"; "Procedure of Sampling and Number of Samples to be Taken" and " Microbiological Method For the Examination of the Samples".

So, according to the above document we have sampling from the locations (back, jowl, ham and belly) and the number of samples indicated, from 31 carcasses before and after water spraying.

Also, following the Decision we have analyzed total aerobic bacterial counts and the *Enterobacteriaceae*.

For achieve our objective we analyse two groups of samples, one group received no treatment and the other was water sprayed in the above conditions.

RESULTS AND DISCUSSION:

As we can see in the table and figure presented, for the total viable counts this treatment shows a significant reduction.

For the *Enterobacteriaceae*, they were already in low counts in the group which received no treatment, so we can not conclude about the efficiency of the methodology for this microorganisms.

CONCLUSIONS:

Water spraying treatment during the first hours after slaughter decreased significantly the load of total aerobic bacteria , without affecting meat quality.

PERTINENT LITERATURE:

2001/471/EC: Comission Decision of 8 June 2001

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TABLE I: Mean and Standard Deviation of total aerobic bacterial counts in the different sampling locations for the two groups analyzed: without treatment and water sprayed

		Before water spraying	After water spraying
Back	Mean	3.2785*	2.2636*
	N	31	31
	Standard Deviation	0.5292	0.4262
Belly	Mean	3.3789*	2.1687*
	N	31	31
	Standard Deviation	0.5378	0.4516
Ham	Mean	3.5208*	2.0845*
	N	31	31
	Standard Deviation	0.6255	0.4769
Jowl	Mean	3.3335*	2.0895*
	N	31	31
	Standard Deviation	0.4923	0.3580

*The mean difference is significant at the 0.05 level

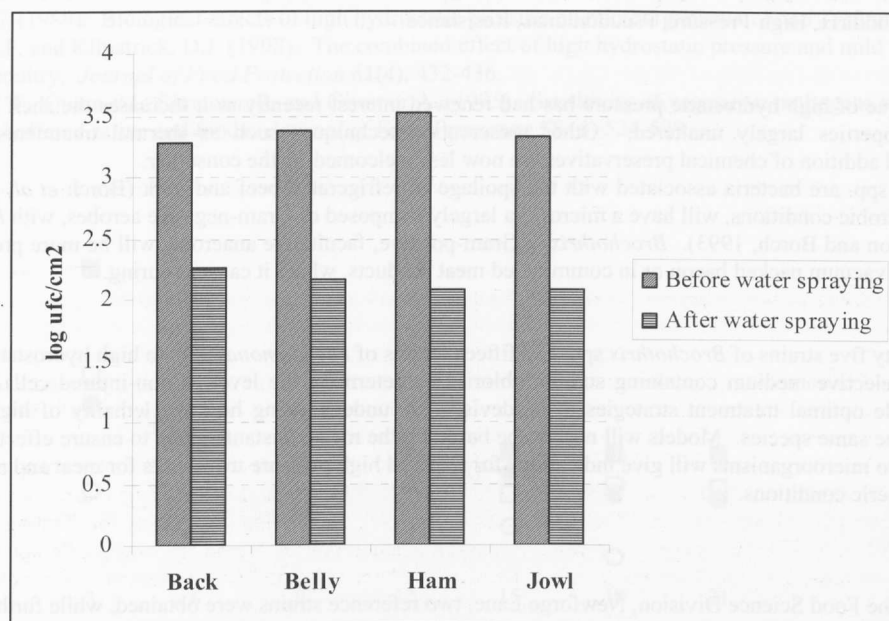


Fig. I: Effect of water spraying on total aerobic bacterial counts in the different sampling locations