

Effect of mannoprotein in the pre harvest phase on *Salmonella* sp. seroprevalence and carcass contamination in pigs

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Introduction

The success of *Salmonella* control in pork depends on the intervention in all steps of the production chain. Post harvest measures have been proved to be cost-effective in preventing pork contamination (4). However, in regions where the herds have a very high prevalence, on farm control is also needed (1). Thus, additional interventions in the pre harvest phase is an interesting way to decrease *Sallmonella* herd prevalence in a short period of time (3), and consequently reducing the risk of carcass contamination (2). The mannanprotein prebiotic effects are mainly related to: type I fimbriae agglutination, macrophages activation and promoting specific bacteria growth that avoids *Salmonella* colonization (5). The aim of this study was to validate the mannoprotein effect on *Salmonella* seroprevalence and carcass contamination in a large Brazilian swine agroindustry.

Materials and Methods

The study was carried out in six finishing pig herds located in south of Brazil. Three batches were fed with mannoproteins Actigen® (treatment group). Prebiotic was provided as follow: 35 days (weaning): 1600 g/ton; 36-50 days: 800 g/ton; 51-slaughter: 400 g/ton. Three other batches, without any treatment, composed the control group.

Sampling sizes were calculated to estimate the prevalence in the batch, with a 10% absolute error and 95% of confidence level, considering herd population of 600 animals and carcass population 4000/day.

Blood of 55 animals was randomly collected in two moments: at beginning of the finishing period (first day) and four days before slaughter. Additionally, 60 pigs not belonging to the treatment groups, but slaughtered at the same days were systematically collected at bleeding and defined as the contemporary group. Before chilling, 40 carcasses were sampled using sterile sponge in four points (400cm²). Blood samples were submitted to ELISA-Typhimurium (5) and carcass samples to bacteriological culture.

The seroprevalence and *Salmonella* isolation frequencies were compared with Wald qui-square test, utilizing PROC LOGISTIC procedure in SAS 9.2 to Windows. Copyright © 2012 SAS Institute Inc.

Results

Seroprevalence was much higher at slaughter age (170 days old) than at the beginning of the finishing period (60 days) in both groups. The treated group presented a significantly lower prevalence of seropositive pigs and

carcass contamination when compared with the control group (Table 1).

Table 1. Prevalence (CI 95%) of positive samples in control (CG) and treatment (TG) groups

Sampling	Groups	
	CG	TG
Housing	2.4 (0.05-4.7)	3 (0.3-5.6)
Slaughter	50.3 ^a (42.6-58)	98.7 ^b (97-100)
Contemporary	72 ^a (65.5-78.6)	100 ^b
Carcasses	18 ^a (8-28)	0 ^b

Different (a, b) superscripts in the same row indicate statistically significant differences *p* 0.05.

Conclusions and Discussion

Seroconversion occurred mainly at the finishing phase as previously demonstrated (7, 8). According to the seroprevalence results, Actigen® showed a protective effect against *Salmonella* transmission within the batches, and also reduced carcass surface contamination, reinforcing the hazard of delivering highly prevalent batches on the carcass contamination (2).

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