

PREVALENCE OF *Salmonella* sp. IN SLAUGHTERED PIGS IN RIO GRANDE DO SUL, BRAZIL

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Abstract: The objective of this study was to determine the prevalence of *Salmonella* sp. in pigs slaughtered in Rio Grande do Sul, Brazil. Mesenteric lymph nodes and intestine sections were sampled from 300 clinically healthy swine, at three different pork-slaughtering plants. *Salmonella* sp. was isolated in at least one of the samples collected in 167 animals, resulting in a prevalence of 55.66% (C.I. 50.04 - 61.28). Twenty-six different *Salmonella* serovars were identified, being Typhimurium the most prevalent (24.3%), followed by Agona (19.9%), Derby (13.2%), and Bredney (12%). This results point the importance of implementing *Salmonella* control strategies in the south of Brazil.

Keywords: *Salmonella*, swine, prevalence

Introduction: The control of *Salmonella* in pork has become an important point in food safety. The number of animals carrying *Salmonella* at slaughter has been appointed as the first critical point for *Salmonella* contamination control in slaughtering plants (Davies & Funk, 1999). Thus, the aim of this study was to determine the prevalence of *Salmonella* sp. in swine at slaughter in Rio Grande do Sul, Brazil, by analyzing mesenteric lymph nodes and intestinal contents sampled from these animals.

Materials and Methods: Mesenteric lymph node and intestine section samples were collected from 300 clinically healthy swine, in three different pork-slaughtering plants in the state of Rio Grande do Sul, Brazil, between September 1999 and July 2000. Four different visits were made for each plant. Each material (25g) was processed as described before (Michael *et al.*, 1999). The statistical analysis was effected using the Chi-square test (SPSS, 1998), with statistical significance $\alpha=0.05$.

Results: *Salmonella* sp. was isolated in 167 swine, resulting in a prevalence of 55.66% (C.I. 50.04 - 61.28) positive animals at slaughter. For lymph nodes and feces, the prevalence of animals positive for *Salmonella* was 17.6% (C.I. 13.34 - 21.97) and 18.3% (C.I. 13.95 - 22.70), respectively. In turn, the prevalence of

animals positive for *Salmonella* in both materials sampled was 19.6% (C. I. 15.16-24.15). The *Salmonella* sp. strains isolated belonged to 19 different serovars (Table 1), being Typhimurium (24.5%), Agona (19.8%), Derby (12%), and Bredney (11.4%) the most prevalent.

Discussion: The prevalence of swine positive for *Salmonella* reported at different countries differed considerably. High level such as that found in the present study was already described (Damman *et al.*, 1999). Furthermore, *Salmonella* Typhimurium had been the predominant serotype in swine (Kimm *et al.*, 2000). Most animals was *Salmonella* positive either in lymph nodes or lymph nodes and feces indicating that they probably were carriers already at the finishing farm. It is interesting to point out that the prevalence of positive animals varied from one slaughtering plant to another. This suggests that differences in management adopted at finishing farms may influence the number of animals positive for *Salmonella* at slaughter. Further investigations on herd level husbandry factors associated with the high rates of animals carrying *Salmonella* are being conducted.

Acknowledgements / Financiers

We thank Instituto Oswaldo Cruz for serotyping the samples. This study was supported by FAPERGS and CNPq.

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TABLE 1. Serogroups and serovars of *Salmonella* sp. isolated from slaughtered pigs in Rio Grande do Sul.

Serogroup	Serovar	Number of isolates			Total	%
		F ¹	LN ²	LN e F ³		
B	Agona	13	18	7	38	19.8
	Bredeney	10	7	5	22	11.4
	Derby	8	8	7	23	12.0
	Heidelberg	0	0	1	1	0.5
	Typhimurium	23	16	8	47	24.5
C1	Infantis	1	1	0	2	1.0
	Mbandaka	0	2	0	2	1.0
	Montevideo	1	2	0	3	1.6
	Ohio	1	0	0	1	0.5
	Rissen	0	2	1	3	1.6
	Tennessee	1	3	1	5	2.6
C2	Newport	3	4	0	7	3.6
D1	Enteritidis	0	3	0	3	1.6
	Panama	7	2	2	11	5.7
E4	Give	0	1	1	2	1.0
	Senftenberg	1	0	0	1	0.5
E1	Anatum	2	4	0	6	3.1
	London	1	1	0	2	1.0
G2	Havana	0	1	0	1	0.5
Salmonella sp.		9	4	0	13	6.5
Total		81	79	33	193	100

¹: F: Feces ; ²: LN: Lymph nodes; ³: Lymph nodes and feces