

Pig fecal and tonsil contamination of *Yersinia enterocolita* in one French slaughterhouse

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Abstract

Pig is considered to be the main animal reservoir of human pathogenic *Yersinia enterocolitica* strains which is frequently isolated from tonsils, but can also be found in the feces and onto carcasses. In France, while the main pathogenic biotypes are known for humans, few data are available regarding their prevalence in the pork chain production, and generally focus on tonsils contamination.

In 2009, a study was initiated in one slaughterhouse located in Brittany (France), investigating tonsils, feces and carcasses contamination. A total of 278 pigs from 17 batches were followed-up during slaughtering during 3 campaigns: 120 pigs in June-July 2009, 114 in October 2009 - March 2010, and 44 pigs in November - December 2010.

Microbiological methods used were enrichment in ITC broth and streaking on CIN agar plates; typical colonies of *Y. enterocolitica* were confirmed by using Api strips. Pathogenic and non pathogenic strains biotypes were determined by multiplex PCR.

Results showed a high variability in the pig *Yersinia enterocolitica* contamination (either positive tonsils or feces): 0%, 14% and 13,6% respectively for the 3 campaigns, confirming the reported seasonality. The farm prevalence was on average 40,6% in campaign 2 and 3 (32 farms, 5 pigs/farm).

On the 22 positive pigs found, 6 (27,3%) and 13 (59%) were respectively positive only in tonsils or feces, and 3 pigs only (13,6%) were positive both in tonsils and feces. Despite this unexpected high detection rate on feces, no carcass was found to be positive for *Y. enterocolitica* (swabbing of 500 cm²; campaign 2 and 3).

In conclusion, with 14% of positive pigs in the cold period, this study confirms the variability (seasonnality) of *Y. enterocolitica* contamination. At slaughter level, classical tonsils detection of *Y. enterocolitica* should be completed by feces sampling, and carcass contamination due to fecal cross-contamination should also be considered.