

Prevalence of *Salmonella*, *Campylobacter*, *Listeria monocytogenes* and enterohemorrhagic *E. coli* O157 in animal foods in Belgium

Y. Ghafir¹, B. China¹, A. Chahed¹, K. Dierick², JM. Collard², L. De Zutter³, D. Pierard⁴, and G. Daube¹

¹ Food Microbiology, Faculty of Veterinary Medicine, University of Liege, Belgium

² Public Health Institute, Brussels, Belgium

³ Hygiene and Technology, Faculty of Veterinary Medicine, University of Ghent, Belgium

⁴ Department of Microbiology, Academische Ziekenhuis, Vrije Universiteit Brussel, Brussels, Belgium

Introduction

Salmonella and *Campylobacter* are the most important foodborne bacterial pathogen worldwide. Enterohemorrhagic *Escherichia coli* and *Listeria monocytogenes* constitute serious health problem in various countries for susceptible population. The assessment of their prevalence and level of contamination are essential for an efficient risk assessment program.

Materials and Methods

Since 2000, the Belgian zoonosis surveillance program has assessed the contamination with *Salmonella*, *Campylobacter*, *Listeria monocytogenes* and enterohemorrhagic *E. coli* in cattle, pig, poultry and/or meat products. Between 100 and 300 samples were taken each year for each matrix.

The detection of *Salmonella*, *Campylobacter* and enterohemorrhagic *E. coli* O157 (EHEC) has been carried out with the official methods from the Ministry of Public Health (SP-VG M002 using Diasalm, SP-VG M003 using mCCDA and SP-VG M001 respectively). The detection of *Listeria monocytogenes* had been carried out with the AFNOR validated method Vidas Listeria monocytogenes 2 followed by an isolation on a chromogenic medium. *Salmonella* isolates were serotyped. For pork and beef carcasses, samples consisted on swabs.

Results

Salmonella, *Campylobacter*, *Listeria monocytogenes*, EHEC and *Yersinia enterocolitica* in poultry, pork, salmon and beef are shown in Figures 1-3.

For *Salmonella*, a significant and constant decrease of pork meat samples is observed since 2000. Poultry contamination with *Salmonella* is stable since 2000. In chicken samples, the 3 main *Salmonella* serotypes were *S. Enteritidis*, *S. Paratyphi B* and *S. Typhimurium*. All the isolates were *S. Enteritidis* in layer. Close to the half the pork isolates were *S. Typhimurium*, followed by *S. Derby* and *S. Ohio*.

For *Campylobacter*, poultry is the main contaminated matrix. More than 70% of the *Campylobacter* species were *coli* in pork and *jejuni* in poultry.

According to the previous years, less than 1,5% of carcasses and cuts of beef contained EHEC.

For *Listeria monocytogenes*, the contamination of samples is close to the prevalence of the previous years, except for smoked salmon, where about 20% of samples were contaminated with *Listeria monocytogenes* in 2002 and 2003.

Fig. 1: Prevalence in poultry meat in 2004

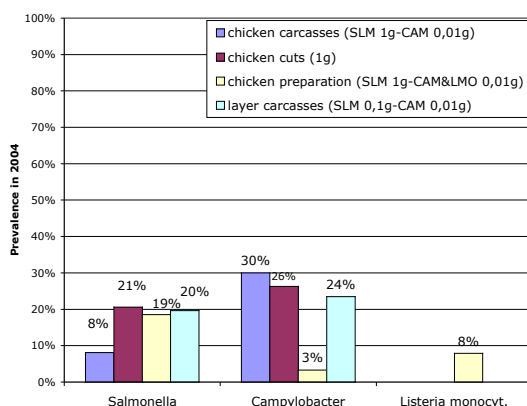


Fig. 2: Prevalence in pork meat, meat products and salmon in 2004

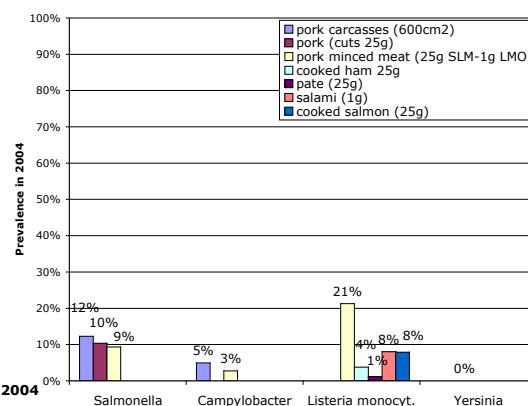
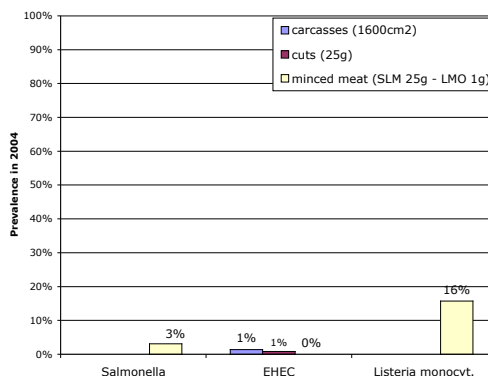


Fig. 3: Prevalence in beef meat in 2004



Discussion and conclusion

In comparison with pork, and beef, poultry is the most contaminated matrix by *Salmonella* and *Campylobacter*. This corresponds to the pattern of human isolates from foodborne infections in Belgium, where most of the *Campylobacter* species are *jejuni* and most of the *Salmonella* serotypes are Enteritidis, as in poultry

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