

# Fecal Shedding of Food-borne Pathogens in Rabbits at Slaughter and Estimating Microbiological Carcass Contamination

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## Keywords

Rabbit; Carcasses; Meat; Enteropathogenic *E. coli*; *S. aureus*

## Background and Aim of the Study

Due to limited data, the aim of the study was to assess the spread and characteristics of food-borne pathogens in healthy rabbits at slaughter and to obtain data on the microbial contamination of carcasses and meat.

## Material and Methods

Fecal samples (n=500) were analyzed for *Campylobacter*, *Listeria*, *Salmonella*, eae-positive *E. coli*, and *stx*-positive *E. coli*. Carcasses (n=500) were analyzed for *Campylobacter*, coagulase-positive staphylococci (CPS), *Enterobacteriaceae*, *Listeria*, and total bacterial counts. Meat samples (n=18) were analyzed for CPS, eae-positive *E. coli*, *Enterobacteriaceae*, *Listeria*, and *Salmonella*.

## Results and Significance

All samples tested negative for *Listeria* and *Salmonella*. *Campylobacter* and Shiga toxin-producing *E. coli* were only detected in a small minority of fecal samples. Compared to other animal species, these significant pathogens seem to be rarely found in rabbits and their meat. *E. coli* harboring intimin (eae) were found in a high prevalence in fecal samples (>45%), but they were absent in meat samples. Of the 56 isolated eae-positive *E. coli* strains, 48.2% were of serotypes O153:H7 and O178:H7. All possessed intimin  $\beta$ 1 but none harbored *stx*, *astA*, *bfpA*, or the EAF plasmid. Slaughter rabbits therefore constitute a reservoir for certain atypical enteropathogenic *E. coli*. Their role in human infection is probably underestimated and must be evaluated further. On rabbit carcasses, total bacterial counts averaged out at  $3.3 \log_{10}$  CFU cm<sup>-2</sup>. *Enterobacteriaceae* (indicators for fecal contamination) and CPS (indicators for *S. aureus*) were detected on 118 (23.6%) and 153 (30.6%) carcasses, respectively. Among the 153 selected CPS isolates, 98.7% were identified as *S. aureus*. None of the isolated *S. aureus* harbored the gene for methicillin resistance (*mecA*), but about two-thirds possessed staphylococcal enterotoxins (SE), especially SEG and SEI. In meat samples, *Enterobacteriaceae* were only found in one sample and CPS were not detected. Strict maintenance of good practices of slaughter hygiene is consequently of central importance to ensure both public health protection and meat quality.

## Publications, Poster, and Presentations

Kohler, R.; Krause, G.; Beutin, L.; Stephan, R.; Zweifel, C. (2008). Shedding of food-borne pathogens and microbiological carcass contamination in rabbits at slaughter. Veterinary Microbiology *in press* (Doctoral Thesis Remo Kohler).

Zweifel, C.; Kohler, R.; Stephan, R. (2008). Mikrobiologischer Status bei Schlachtkaninchen - Oberflächenkeimbelastung von Kaninchen-Schlachttierkörpern am Ende des Schlachtplatzes. Fleischwirtschaft 88 (7), 104-107.

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