Outline

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International Journal of Food Microbiology
Volume 109, Issues 1–2, 25 May 2006, Pages 139-145

Detection and diversity of various *Arcobacter* species in Danish poultry

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https://doi.org/10.1016/j.ijfoodmicro.2006.01.020

Abstract

The prevalence and diversity of different *Arcobacter* spp. in various poultry species in Denmark were investigated using cultural and multiplex PCR methods. A pool of three fresh droppings obtained at the production site from 70 broiler chicken flocks aged 4–5 weeks was examined. In addition, pools of 10 cloacal swabs taken at the abattoir prior to stunning from each of 15, and 37 duck and turkey flocks, respectively, were analyzed. Thirty fresh broiler chicken carcasses and 29 cloacal swabs from the respective viscera were also examined at the abattoir. Finally, 10 caecal and 10 cloacal swabs from ducks at the abattoir were analyzed individually. In total, 85 *Arcobacter* isolates were obtained. Of these 45, 20 and 7 were identified as *Arcobacter butzleri*, *Arcobacter cryaerophilus* and *Arcobacter skirrowii*, respectively, using a multiplex PCR. Interestingly, some chicken isolates of *A. butzleri* showed urease activity, and 6 out of seven *A. skirrowi* isolates were unable to hydrolyse indoxyl acetate. All chicken carcasses examined were found positive for *A. butzleri* and/or *A. cryaerophilus*, whereas 21 (72%) of the 29 chicken cloacal swabs were positive for either *A. butzleri* (13) or *A. cryaerophilus* (9). Three (4.3%) out of 70 chicken flocks analyzed were positive only for *A. cryaerophilus*. Of the ten ducks examined individually, 7 carried *A. skirrowii* and/or *A. cryaerophilus* in their cloacae. None of the respective caecal samples were positive. Of the remaining 15 duck flocks, 11 (73%) were positive for *A. cryaerophilus* (7), *A. butzleri* (2) or *A. skirrowii* (2). Four (11%) of the 37 turkey flocks analyzed harboured either *A. butzleri* or *A. cryaerophilus*. The carriage rate of *Arcobacter* was higher in live ducks than those of live broiler chickens and turkeys in the present study. In addition, chicken carcasses slaughtered in Denmark were found to be contaminated with *Arcobacter*. The presence of *Arcobacter* spp. both on chicken carcasses and in poultry intestine may be of significance to human health.

Keywords

Arcobacter; *A. butzleri*; Poultry; Chicken; Ducks; Turkeys; Isolation; Prevalence

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