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## The role of the hygiene of the process environment on shelf life of poultry meat

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### **Aim:**

Poultry meat is prone to spoilage by microorganisms, limiting the length of the shelf life and potentially leading to unnecessary food waste. The air chiller has been suggested as an important source of spoilage organisms in previous investigations. The aim of this study was to determine the role of the hygienic level of the chilling room on the shelf life of chicken.

### **Method:**

Samples were taken from 30 batches of chicken breasts (stored until the end of shelf life at 4 °C) produced in three different factories (two Norwegian, one Portuguese) and corresponding swab samples from the chilling room surface. The microbial numbers were determined by spreading on PCA and the microbiota by partial 16S amplicon sequencing (Illumina).

### **Results:**

For the two Norwegian chicken processing plants (respectively 18 batches and 6 batches), a covariation between microbial levels in the chilling room and the final product was found. *Carnobacterium* and *Lactobacillus* dominated in the end-of-shelf-life products while *Acinetobacter*, *Psychrobacter* and *Pseudomonas* were abundant in the air chiller in both plants. For the Portuguese plant (6 batches), no covariation was found between the bacterial levels in the air chiller and final products. *Brochothrix* and *Serratia* dominated the end-of-shelf-life products, while *Psychrobacter* and *Micrococcaceae* were abundant in the air chiller. Although the same bacterial genera found in the final products were also detected in the air chillers, they were not the most abundant in the air chiller environment.

### **Conclusion:**

The findings suggest that for some chicken processing factories, the air chiller can be regarded as a critical control point to monitor as its microbial load and microbiota covaries with those of end-of-shelf-life chicken products. However, the air chiller did not appear as an important contamination source for spoilage organisms, and covariation was not found for all factories. Further work will be performed to reveal the main contamination sources in the poultry production environment.