Prediction of Salmonella carcass contamination by a comparative quantitative analysis of E. coli and Salmonella during pig slaughter - DTU Orbit (22/12/2018)

**Prediction of Salmonella carcass contamination by a comparative quantitative analysis of E. coli and Salmonella during pig slaughter**

Faecal contamination of carcasses in the slaughterhouse is generally considered to be the source of Salmonella on pork. In this study the hygiene indicator Escherichia coli is used to quantify faecal contamination of carcasses and it is hypothesized that it can be used to predict the quantitative carcass contamination with Salmonella, when the distribution of Salmonella concentrations in faeces is known. Paired pig sample data (faecal samples and carcass swabs) were obtained from five slaughterhouses and analysed for prevalence and concentrations of E. coli and Salmonella. A simple model was developed to describe the faecal contamination of carcasses using the E. coli data. The E. coli results suggested different hygiene performances in different slaughterhouses, and showed that a model assuming that carcasses are predominantly contaminated by their own faeces was not appropriate. Observed Salmonella prevalences were low (on average 1.9% on carcasses) and between slaughterhouses the prevalences ranked differently than the hygiene performance based on the E. coli data suggested. Also, the Salmonella concentrations predicted using E. coli as a faecal indicator were lower than the observed Salmonella concentrations. It is concluded that the faecal carriage of Salmonella together with the faecal contamination of carcasses, as predicted from E. coli data in the animal faeces and hygiene performance of the slaughterhouse, is not sufficient to explain carcass contamination with Salmonella. Our extensive data set showed that other factors than the observed faecal carriage of Salmonella by the individual animals brought to slaughter, play a more important role in the Salmonella carcass contamination of pork.

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