

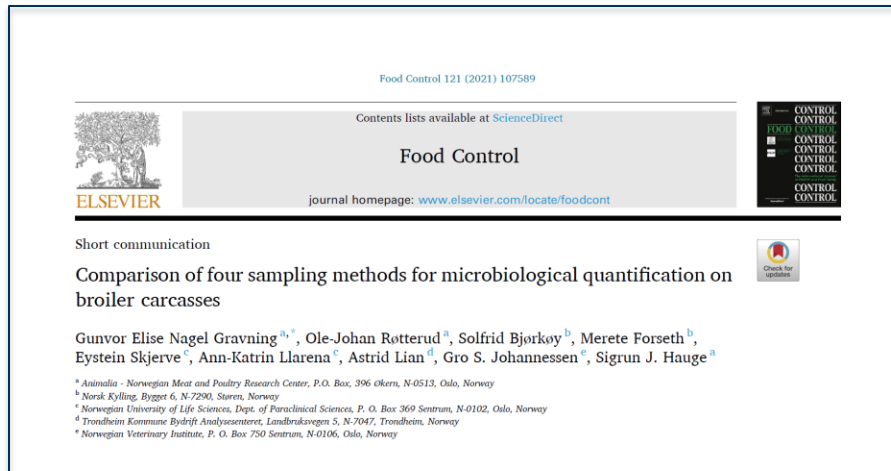
Comparison of sampling methods – need for clearer guidelines for microbiological quantification on broiler carcasses

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Short communication

Comparison of four sampling methods for microbiological quantification on broiler carcasses

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Sampling methods compared

- Whole-carcass rinsing (WCR)
- Neck skin excision
- Breast skin excision
- Gauze cloth swabbing
- Total 100 samples
- 25 x four methods



Analysis of samples

- Total plate count (TPC), *Enterobacteriaceae*, *E.coli* using 3M™ Petrifilm™
 - Conversion of unit of measurement to **cfu/cm²**
 - WCR: with total surface area of 1300 cm² (Gill and Badoni, 2005)
 - Neck and breast skin: Measure 10 g of neck (n=10) and breast skin (n=10) by ruler to get cm² (Neck skin 37.5 cm² (24.5-56.0) and breast skin 56.3 cm² (38.5-71.2))
 - Swabbing: results divided by 300 cm²
- (Combined swabbed area of 100 cm² breast, 100 cm² on the back and 100 cm² around and inside pelvic cavity)



Recovery of bacteria from poultry carcasses by rinsing, swabbing or excision of skin

C.O. Gill & M. Badoni



Results

- Mean recovery results presented as log cfu/cm²:

Indicators	WCR log cfu/cm ² (SD)	Neck skin log cfu/cm ² (SD)	Breast skin log cfu/cm ² (SD)	Swabbing log cfu/cm ² (SD)
TPC	4.4 (0.6)a	4.3 (0.7)a	2.8 (0.7)b	2.3 (0.4)b
<i>Enterobacteriaceae</i>	4.0 (0.7)r	3.4 (0.6)s	2.2 (0.6)t	1.9 (0.5)t
<i>E.coli</i>	3.95 (0.7)x	3.4 (0.6)y	2.2 (0.6)z	1.8 (0.6)z

For recovery of *Enterobacteriaceae* and *E.coli*:

- Neck-skin excision recovered 80-100% of WCR
- Breast-skin excision recovered 50-65% of WCR
- Swabbing recovered 40-50% of WCR

} Calculated from log-numbers

Discussion, summary and some concluding remarks

- Initial results transformed, same unit of measurement (bacteria per cm²)
 - Distortion can occur (newly slaughtered vs chilled, shape and elasticity of broiler skin...)
 - Log values allow for this level of accuracy (Brown et al., 2000) and sample methods can be compared
- Our results indicate that the WCR recovers the most bacteria when comparing methods
- This study contributes to the knowledge regarding choice of sampling method and expected recovery of microbiological contamination
- Comparison of study results are generally difficult
- Several studies have attempted to calculate relationship between excision and rinsing method
- Yet no conversion factor exists - Should establish conversion factors to ease the comparison of sampling methods and results
- Increase the knowledge regarding «true» contamination level of carcasses
- Can contribute to increased food safety

Thank you for the attention!

Questions or comments?