

## Microbial Quality of Broiler Chicken Carcasses Sourced from Gauteng Smallholder Farmers

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### Abstract

**Introduction:** Smallholder broiler farmers typically slaughter the birds themselves or slaughter at a fee in registered abattoirs. The carcasses are sold to the general public after slaughtering. Before commercialisation of any product, safety standards of the produce are often questioned. Since poultry meat is well known to be a major source of foodborne pathogens, the aim of this study was to determine the microbial quality of raw chicken carcasses sourced from Gauteng smallholder broiler farmers, intended for both formal and informal markets.

**Methodology:** A total of 400 raw chicken carcasses slaughtered at certified abattoirs (n=200) and broiler farmers homes (n=200) from five Gauteng municipalities were analysed for *Listeria monocytogenes*, *Escherichia coli*, *Salmonella* and *Campylobacter* species using a standard microbiological technique and molecular assays.

**Results and discussions:** The predominant foodborne pathogen detected from chicken carcasses from all municipalities was *Campylobacter* (average, 68.80%), followed by *Escherichia coli* (average, 62.22%) and then *Listeria monocytogenes* (average, 38.60%). The least detected pathogen across all municipalities was *Salmonella* with the average of 1.8%. The highest occurrence of *Campylobacter* was found from carcasses sourced from Emfuleni (92.5%), while the lowest was from the City of Tshwane (46.25%). Contamination with *Escherichia coli* was almost the same throughout the five municipalities. The highest contamination with *Listeria monocytogenes* (50.83%) was detected from the City of Johannesburg followed by Ekurhuleni with 43%. Contamination from other three municipalities (Emfuleni, City of Tshwane, and West rand) was at least 33%. In terms of the association between designation of slaughter and the presence of foodborne pathogens, chickens slaughtered at home were more contaminated with foodborne pathogens than the chickens slaughtered at the abattoir, which could be expected because certified abattoirs use antimicrobial rinse.

**Conclusion:** It is obvious that there is prevalence of food borne pathogens on chicken carcasses sourced from smallholder broiler farmers intended for sale. Therefore, an intervention is needed to educate smallholder farmers on food safety slaughtering practices.