



The Prevalence of *Campylobacter* Species in South African Pork Production at Farm Level

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Abstract

Campylobacter species have emerged in the food industry as a pathogen of concern with vast variations in this bacteria's prevalence, specifically in food producing animals such as pigs and cattle. The consumption of meat and its by-products is increasing worldwide, subsequently increasing the need for research focused on the microbiological quality of meat. The identification of the various stages of the pork production chain where there is high risk of bacterial contamination can help to reduce the occurrence of these zoonoses if appropriate control measures are implemented at these stages. Pre-slaughter stages (on the farm, transport and lairage) require critical control strategies in order to reduce pork carcass contamination, especially with regards to *Campylobacter* species, via faecal contamination.

A total of 88 pooled samples were collected from three pig farms in the Western Cape, during 2020. Faecal and swab samples were collected from pig species as well as environmental samples, including feed and water, and swabs of biosecurity bathrooms and general infrastructure. The 3M Molecular Detection System (MDS) was used to detect the presence of *Campylobacter* species in the various samples. This technology makes use of the emerging Loop-Mediated Isothermal DNA Amplification (LAMP) technique in conjunction with Bioluminescence detection.

Campylobacter species were detected at a prevalence level of 10% at farm level. Overall, this research shows that pigs from South African farms can be considered potential carriers of *Campylobacter* species. This organism has been an emerging threat to human illness worldwide and this study demonstrates that it is indeed prevalent in the pork production chain. Various risk factors have been identified and linked to the presence of pathogenic bacteria at farm level including feed, water and sanitation, thus highlighting the need for routine testing of *Campylobacter* species.

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