Antibiotic resistance development is a challenge for both human and veterinary medicine. Enterotoxigenic Escherichia coli (ETEC: F4) associated with post-weaning diarrhea (PWD) in pigs has developed resistance against several antimicrobial families, leading to an increase use of colistin sulfate (CS) for the treatment of this disease. The objective of this study was to determine the efficiency of oral CS treatment in experimental PWD due to ETEC: F4 challenge and determine the effect of this therapeutic regimen in E. coli resistance apparition. In this study, 48 pigs were divided into four groups of 12 pigs each: challenged treated, challenged untreated, unchallenged treated, and unchallenged untreated group. Fecal ETEC: F4, total E. coli population, CS-resistant E. coli shedding were evaluated. The MIC was carried out by microdilution method using a sterile 96-well polystyrene microplate.

CS treatment resulted in a reduction of fecal ETEC: F4 and E. coli population shedding but only during the treatment period. However, CS treatment resulted in an increase in fecal shedding of CS resistant E. coli. Results indicated that some E. coli isolates were confirmed resistant to CS.

Our study is among the first to demonstrate that under controlled farming conditions, CS was effective to reduce fecal shedding of ETEC: F4 and total E. coli population in experimental PWD. However, CS treatment was associated with a selection pressure on E. coli. Further studies are needed in field conditions, to better characterize CS E. coli resistance dissemination in meat and the environment.

Biography
Alexandre Thibodeau has completed his PhD at the University of Montreal and is currently doing postdoctoral studies at the NSERC industrial research chair in meat safety in Dr Ann Letellier laboratory at the Faculty of veterinary medicine of the University of Montreal. He is a specialist of Campylobacter jejuni and his postdoctoral research focuses mainly of C. jejuni and the chicken microbiome.

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