



## **Colistin sulfate exerts a selective pressure on *E. coli* population during experimental post-weaning diarrhea treatment.**

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Post-weaning diarrhea (PWD) is an economically important disease in pigs due to financial losses in pig production. Enterotoxigenic *Escherichia coli* (ETEC: F4) associated with 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 9 *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 in the environment.