Effects of oligosaccharide-based polymer on blood profiles in weaning pigs experimentally infected with a pathogenic *E. coli*

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**Background**

- Enterotoxigenic *E. coli* (ETEC) strains expressing F4 or F18 fimbriae are a major cause of post-weaning diarrhea in nursery pigs (Nagy and Fekete, 2006).
- Blood group A antigen oligosaccharides could enhance binding affinity of *E. coli* (Coddens et al., 2009).
- The grafting of blood group A antigen oligosaccharides on a carrier may enhance disease resistance of pigs against *E. coli* F18 infection by inhibiting bacterial attachment.

**Objective**

To investigate dietary supplementation of oligosaccharide-based polymer on blood profiles of weaned pigs experimentally infected with a pathogenic *E. coli* F18

**Materials and methods**

**Weaning**

- *E. coli* challenge
  - d -7
  - d 0
  - d 2 Pl
  - d 5 PI
  - d 11 Pl

**Peak infection period**

**Recovery period**

- Experimental design: RCBD (Blocks: BW x Sex)
- Body weight
  - CON
  - LOW
  - HIGH
  - AGP
  - d 0 to 5 PI
- Average feed intake
  - CON
  - LOW
  - HIGH
  - AGP
  - d 0 to 5 PI
- Gain:Feed
  - CON
  - LOW
  - HIGH
  - AGP
  - d 0 to 5 PI
- Frequency of diarrhea
  - CON
  - LOW
  - HIGH
  - AGP
  - d 0 to 5 PI

**Nursery basal diet as control (CON)**

- 10 mg/kg of oligosaccharide-based polymer (LOW)
- 20 mg/kg of oligosaccharide-based polymer (HIGH)
- 50 mg/kg of antibiotics (Carbadox: AGP)

**Pigs fed antibiotics or oligosaccharide-based polymer supplements showed reduced systemic inflammation markers during peak infection period, whereas antibiotics had greater lymphocyte counts on d 0 before infection and d 2 Pl.**

**Conclusions**

- Pigs fed antibiotics or oligosaccharide-based polymer supplements showed reduced systemic inflammation markers during peak infection period, whereas antibiotics had greater lymphocyte counts on d 0 before infection and d 2 Pl.
- Supplementation of oligosaccharide-based polymer may alleviate the systemic inflammation caused by *E. coli* F18 infection.
- These observations support the effects of oligosaccharide-based polymer on enhanced feed efficiency reduced diarrhea severity of weaned pigs infected with *E. coli* F18.

**References**