



WELFARE & NUTRITION

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EFFECT OF ZINC OXIDE SOURCES AND DOSES ON WEANED PIGLETS

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Introduction

Zinc oxide (ZnO) is commonly added in piglets diets, at nutritional dosage (110 mg/kg Zn) to fulfil animal requirements or at pharmacological dosage (2400 mg/kg Zn) to improve growth performance. When ZnO is supplied at high dosage, Zn level in animal wastes may be high and lead to environmental concerns. In this study, a potentiated ZnO source (HiZox[®], Animine), a coated ZnO and the standard ZnO were compared at different doses.

Material and methods

A total of 108 piglets, weaned at 21 days, were allocated to 18 pens (6 piglets/pen) and fed with 6 experimental corn-soybean based diets during 14 days: standard ZnO (110, NC; or 2400 mg/kg Zn, PC), coated ZnO (110 or 220 mg/kg Zn) or potentiated ZnO source (110 or 220 mg/kg Zn). Piglets were weighed individually at d0 and d14 and feed intake was recorded. At the end of the experiment, 3 piglets per pen were selected and sacrificed. Contents from proximal and distal small intestine were collected. Numbers of bacteria (*E. coli*, coliform bacteria) were assessed using selective media.

Results

There was no significant difference between the treatments for the growth performance. NC showed the lowest weight gain (1.2 kg) and PC the highest (1.6 kg). In the proximal small intestine, numbers of *E. coli* were significantly ($P < 0.05$) higher for NC and for the coated ZnO, compared to PC; the potentiated ZnO obtained intermediary results. In the distal small intestine, similarly, *E. coli* and coliform bacteria populations were significantly ($P < 0.05$) higher for the coated ZnO compared to PC.

Discussion & conclusion

ZnO at pharmacological dosage showed reduction in *E. coli* and coliform counts compared to NC, whereas the coated ZnO showed no reductions and the potentiated ZnO showed consistent, but only numerical reductions. Complementary analyses are in progress.