

Understanding the MoA of HiZox® on tight junctions & immune status of piglets

Place

Pig farm in Hunan province, China.

Objective

A scientific approach to understand the mechanism of action of HiZox® on gene expressions of tight junctions (TJ) and immune response in weaned piglets.

Material and methods

Animals: 192 piglets (Duroc x Landrace x Large White) weaned at 21 days (6.3kg) 48 pigs per treatment (6 replicates; 8 pigs/ replicates; 4 ♂, 4 ♀)

Trial duration: 14 days: from weaning at 21 days to 35 days of age

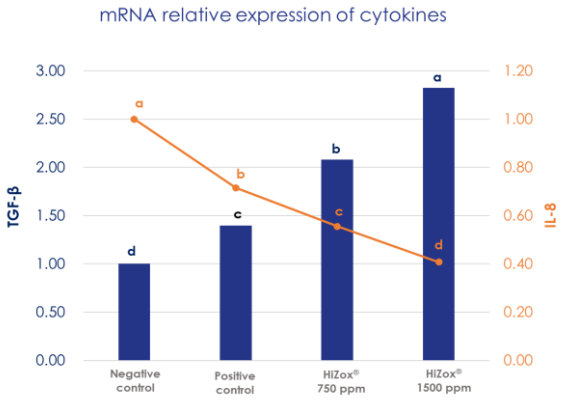
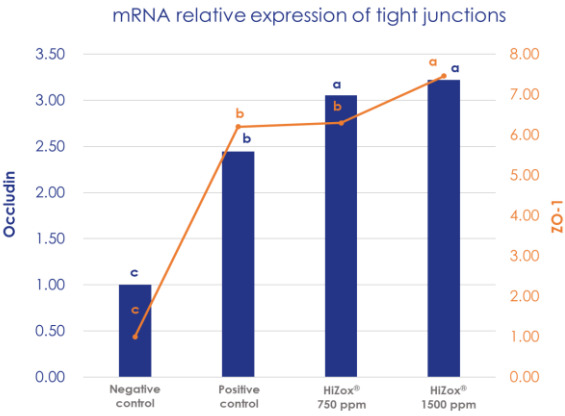
Diet: expanded corn, whey powder, SBM, plasma protein powder CP 20%; Lysine 1.5%; digestible energy 14.8 MJ/kg

- Treatments:**
- **Negative control:** 100 ppm Zn from ZnSO₄ in the premix
 - **Positive control:** NC + 3000 ppm of ZnO
 - **HiZox® 750 ppm:** NC + 750 ppm of HiZox®
 - **HiZox® 1500 ppm:** NC + 1500 ppm of HiZox®

Measurements: mRNA expression of TJ (Occludin and ZO-1) and cytokines (IL-8 and TGF-β)

Results

HiZox® at 750 or 1500ppm significantly improved the TJ genes expression compared to NC and PC. Occludin and ZO-1 are the main functional components for the paracellular integrity. The expression of IL-8, a pro-inflammatory cytokine, was reduced in HiZox® diets. HiZox® treatments also improved the expression of the anti-inflammatory cytokine, TGF-β.



Conclusion

Compared to 3kg of standard ZnO, HiZox® improves gut integrity and reduces intestinal inflammation.