

## Feeding antibacterial plant combinations to mitigate post-weaning diarrhoea in organic piglets challenged with enterotoxigenic *Escherichia coli* F18

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Antibiotics and zinc oxide restrictions encourage the use of alternatives to combat intestinal pathogens like Enterotoxigenic *Escherichia coli* (**ETEC**), a major cause of post-weaning diarrhoea (**PWD**) in pigs. Previously, some plant combinations have shown synergistic antibacterial effects against ETEC. The goal here was to evaluate infection indicator dynamics and growth performance of ETEC-challenged weaned organic piglets fed diets supplemented with garlic (**G**) in combination with apple pomace (**A**) or black currants (**B**). For 21 days, 32 organic-weaned (7-weeks) piglets from ETEC-F18-homozygote sows were randomly assigned to one of four treatments: non-challenge, standard diet (Negative Control; **NC**); challenge, standard diet (Positive Control; **PC**); challenge, G+A (3%+3%) supplementation (**GA**); challenge, G+B (3%+3%) supplementation (**GB**). Challenged piglets were given 8ml of ETEC-F18 (10<sup>9</sup>cfu/ml) on days 1 and 2 after weaning. Intake and BW were measured on days 0, 7, 14, and 21. To assess diarrhoea incidence, ETEC-F18 shedding, faecal dry matter (F-DM), and scores, faecal samples were collected daily the first week, and every other day thereafter. Data were analysed using PROC-GLIMMIX (SAS-9.4); treatment was a fixed effect, pen and sow were random effects. The PC piglets had lower ADG and Gain:Feed from day 1 to 7 than those on NC, GA, and GB (P<0.05). During the study, NC piglets showed neither ETEC-F18-shedding nor signs of diarrhoea. The remaining treatment groups shed ETEC-F18 from day 2 to 9. From day 2 to 11, PC piglets had a higher incidence of diarrhoea and, from day 5 to 9, a lower F-DM than NC piglets (P<0.05). The GA and GB piglets had a lower incidence of diarrhoea and faecal ETEC-F18 shedding and a higher F-DM than PC piglets on days 5, 7, and 9 (P<0.05). The findings suggest that the tested plant combinations have potential to reduce PWD in organic and possibly conventional pigs.