Animal

The effect of dietary laminarin and fucoidan in the diet of the weanling piglet on performance, selected faecal microbial populations and volatile fatty acid concentrations.

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Abstract

A 2 × 2 factorial experiment (n = 12 replicates per treatment, 4 pigs per replicate) was performed to investigate the effects of seaweed extracts, laminarin (derived ß-glucans) and fucoidan (sulphated polysaccharides), independently or in combination on post-weaning piglet performance and selected microbial populations. At weaning, the piglets (24 days of age, 6.4 kg live weight) were assigned to one of the four dietary treatments: (T1) basal diet, (T2) basal diet with 300 p.p.m. laminarin, (T3) basal diet with 240 p.p.m. fucoidan, (T4) basal diet with 300 p.p.m. laminarin and 240 p.p.m. fucoidan. Pigs offered diets supplemented with laminarin had an increased daily gain ($P < 0.01$), and gain-to-feed ratio ($P < 0.05$) compared to pigs offered diets without laminarin supplementation during the experimental period (days 0 to 21). Pigs offered laminarin-supplemented diets had an increased faecal dry matter and reduced diarrhoea ($P < 0.05$) during the critical 7 to 14 day period. Pigs offered diets containing laminarin had reduced faecal Escherichia coli populations. There was a significant interaction ($P < 0.01$) on faecal Lactobacilli populations between laminarin and fucoidan. Pigs offered the fucoidan diet had an increased Lactobacilli population compared to pigs offered the basal diet. However, there was no effect of fucoidan on faecal Lactobacilli populations when laminarin was added. Overall, the reduction in E. coli population and the increase in daily gain suggest that laminarin may provide a dietary means to improve gut health after weaning.

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