Improving broiler performance via improved antioxidant status and modulation of gut microbiota using a commercial oregano product

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Background

Understanding the mode of action of oregano oil-based Eubiotics will help to determine their application as gut health management tools in a poultry industry under pressure to reduce antibiotic usage.

Objective

This study determined the effect of a commercial oregano essential oil product, Orego-Stim (Anpario, UK), on intestinal cell proliferation, immune status and performance of broilers over a 42 period.

Method

A total of 480 Ross 308 broilers were split into 2 groups (8 reps/group, 30 birds/rep), Control (C) and Oregano (OS) supplemented with 300g of Orego-Stim per tonne of feed fed continuously for the whole study period. On day 42 following necropsy, antioxidant status was assessed via 2 markers: malondialdehyde (MDA) and the stable 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging test on breast samples. Caecal microbial populations were analysed via qPCR for total bacteria, *Lactobacilli*, *Clostridia* and *Escherichia coli*. The data were analysed by ANOVA and significance declared at P<0.05.

Results

OS improved FCR overall, 1.73 vs. 1.44 for C and OS respectively (P<0.05). OS birds had numerically higher body weight gain. MDA and DPPH levels were lower in OS birds than C (MDA: 35.4 vs. 25.6; DPPH: 3.23 vs. 2.71 for C and OS respectively (P<0.05)). Despite no change in overall caecal bacterial numbers between OS and C birds, numbers of *Lactobacilli* were higher (P<0.05) in OS birds, while numbers of *Clostridia* and *E. coli* were lower (P<0.05).

Conclusion

In conclusion, Orego-Stim can help mitigate intestinal damage through improving antioxidant status and modulating the gut bacteria toward a beneficial microbiota, thereby improving broiler performance.