

14th Food Engineering Conference

November 28-29, 2016 Melbourne, Australia

Evaluation of performance and immunomodulation in *Eimeria* spp. and *Clostridium perfringens*-challenged broilers administered intermittently with an *Echinacea*-based preparation

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Aim: To study the impact of intermittent administration of an *Echinacea*-based preparation (EBP) in broilers on performance and immunomodulation against a multivalent challenge by 4 species of *Eimeria* and *C. Perfringens*.

Methods: A total of 60 day-old Cobb birds were divided into three treatments, with 20 birds per each. Birds of Treatment 1 were administered the EBP intermittently at the ages of 1-3, 8-10, 15-17, and 22-24 days; standardized at 0.44 mg alkamides/liter of drinking water, while deprived of challenge. Birds of Treatment 2 were similarly treated with EBP, followed by an intra-esophageal challenge at 28 d of age with 4 *Eimeria* spp. and 106 cfu of *C. perfringens*/ml/bird. Birds of Treatment 3 were deprived of EBP treatment and administered the same challenge at 28 d of age.

Results: Results showed that birds of Treatment 2, and at the end of the first life cycle of *Eimeria* (34 days of age) had higher average weight gain, lower means of oocyst count and intestinal lesion score, a reduction in transcribed IL-8 chemokine produced by the intraepithelial lymphocytes (IEL) of the duodenum (p0.05), associated with higher serum nitrite at challenge age (28 d.), compared to birds of Treatment 3.

Conclusions: The EBP-treatment was able to improve the weight gain during the incubation period of the challenge, reducing the multiplication of oocysts and associated lesion score, and increasing the plasma nitrite, while reducing the IL-8 generated by intestinal IEL.

Significance and Impact of Study: This study provides a data that will pave the way for future transformation in poultry practices towards the use of immunopotentiators in control of economic poultry coccidiosis, in attempts to comply with the customers demand for safe poultry products that are devoid of synthetic coccidiostat residues.

Biography

Taha A Kumosani has studied Biochemistry and Biochemistry of Cancer for 25+ years, during which time he has authored more than 150 research articles. He has served on the editorial boards for many scientific journals, including his current membership with many scientific societies.

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