

THEME 7 | NONRUMINANT NUTRITION AND PRODUCTION

Effects of yeast based prebiotics as replacers to antimicrobial growth promoters in broiles' diets

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The use of antimicrobials as growth promoters (AGP) in livestock industry has been gradually restricted in many countries, forcing the searching for alternatives as prebiotics and other additives. The purpose of this study was to evaluate nutritional strategies using molasses yeast-based prebiotics, from *Saccharomyces cerevisiae*, yeast cell wall (MAXIMOS®) and autolyzed yeast (SINERGIS®), provided by Aleris Animal Nutrition, to replace the AGP on broilers' performance, phosphorus (P) and nitrogen (N) content in litter after 41d and on carcass yield. 800 one-day-old Cobb chicks were blocked in a randomized design (5 treatments and 8 replications of 20 birds each). The treatments were: T1 - Control diet (CD) (without additive); T2 - CD + AGP (0.1 kg t⁻¹ of Avilamycin from 1-41 days); T3 - CD + autolyzed yeast (3 kg t⁻¹ of SINERGIS®, from 1-7 days and control diet from 8-41 days); T4 - CD + autolyzed yeast (3 kg t⁻¹ of SINERGIS®, from 1-21 days and control diet from 22-41days); T5 - CD + autolyzed yeast or yeast cell wall (3 kg t⁻¹ of SINERGIS®, from 1-7 days and 0.5 kg t⁻¹ of MAXIMOS, from 8-41 days). There was no disinfection of facilities before housing and was utilized reused litter to increase challenge. Chicks were forced to a fasting of feed and water on the first day, after this, drinking water was contaminated twice a week with litter from a layer facility, until 21d. Data were submitted to ANOVA and SNK test using PROC GLM of SAS. There was no difference (P>0.05) between treatments on performance, but yeast-based prebiotics treatments had weight gain (WG), feed conversion (FC) and production efficiency index closer to T2. The average WG results for yeast-based prebiotics (2463.47 g) was 5.4% higher than CD (2337.4 g) and 2.5% lower than T2 (2527.2 g). For FC, yeast-based prebiotics (1.61) was 6.4% lower than CD (1.72) and 0.06% higher than T2 (1.60). The average PEI for yeast-based prebiotics (360.7) was 13% higher than CD (319.2) and 6.9% lower than T2 (387.3). The P content in litter for yeast-based prebiotics was lower than obtained in CD and T2 (31 and 39%, respectively). The nutritional strategies using two prebiotics (T5) provided 1.1% of N in litter, the same amount of T2 and 21% lower than CD, T5 also showed the best result for breast yield (36.6%), 5.8% higher than CD and T2. In conclusion, yeast-based prebiotics were able to replace the AGP without any loss in animals' performance and reduced P in litter compared to CD and diet with AGP. Also, the association of Sinergis and Maximos (T5) resulted in a higher breast yield.

Keywords: digestible protein, performance, poultry, *Saccharomyces cerevisiae*

Acknowledgments: Aleris Animal Nutrition, Department of Animal Science of Viçosa and Federal University and Department of Animal Science of Santa Catarina State University.