

SUPPLEMENTATION OF MANNAN OLIGOSACCHARIDE IN BROILER DIETS ON GROWTH PERFORMANCE AND NUTRIENT DIGESTIBILITY

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Antibiotic growth promoters have been used to enhance broiler growth and immunity, but concerns about resistance, residues, and environmental impact have driven for safer alternatives. Mannan oligosaccharides (MOS), a prebiotic, have emerged as a solution due to their ability to enhance gut health by promoting beneficial microflora and reducing pathogenic bacteria. Therefore, this study evaluated the effects of MOS in broiler diets on growth performance and nutrient digestibility. A total of 200 vaccinated, day-old, broiler chicks were randomly assigned to five dietary treatments with four replicates each following a completely randomized design. The experimental diets included a control with no MOS supplementation (T1) and four treatment groups supplemented with MOS levels of 0.5 (T2), 1.0 (T3), 1.5 (T4) and 2.0 (T5) g kg⁻¹ diet. Growth performances, dressing percentage, carcass quality, nutrient digestibility of feed and cost-benefit were evaluated. Results indicated that the live weight of birds at 35 d of age (2377±41 g) was significantly higher ($p<0.05$) in T4 compared to T1 (2023±99 g). However, there were no significant differences in feed conversion ratio among the treatment groups ($p>0.05$). Additionally, carcass weight (2130±40 g) and dressing percentage (87±0.7%) were significantly highest ($p<0.05$) in birds fed T4. Water holding capacity of meat was significantly higher ($p<0.05$) in T3 (78±2%) and T4 (78±2%) groups compared to T1 (68±1%). During the starter period, dry matter (77.2±0.3%) and crude fat (90.18±1.4%) digestibility were significantly higher in T4 compared to the control. However, no significant differences were observed during the finisher period. Profit per bird was significantly higher ($p<0.05$) in T4 (LKR 1156.80) compared to T1 (LKR 615.50), T3 (LKR 632.30) and T5 (LKR 676.70). In conclusion, supplementation of MOS at 1.5 g kg⁻¹ enhances the net profit while improving growth performances and feed digestibility, particularly during the early growth stage.

Keywords: Carcass weight, Dressing percentage, Dry matter digestibility, Water holding capacity