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Effects of Dietary Yeast Cell Wall Supplementation on Growth Performance and Feed Cost of Broilers

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Use of sub-therepeutic levels of antibiotics as dietary growth promoters for broiler production has been banned in many countries, including Sri Lanka due to human and environmental health risks. Consequently, search for safe and cheap alternatives to antibiotic growth promoters (AGP) has become a top most research and industry priorities. Yeast (*Saccharomyces cerevisiae)* cell wall (YCW) has been proposed as an alternative growth promoter. This experiment evaluated the effects of dietary YCW on growth performance, feed cost, nutrient retention, serum cholesterol level, ileal microbial count and meat organoleptic properties of broilers. Further the study tested whether YCW has toxin binder (TB) sparing effect. The experiment followed a completely randomized design. There were 7 dietary treatments comprising various combinations of dietary YCW (0, 0.5, 1.0 and 1.5 kg/ton), a commercial growth promoter (GP) (with GP, +GP; without -GP) and a commercial TB (with TB, +TB; without -TB). Treatments were; (i) negative control (TB-,GP-,0 YCW) , (ii) TB,GP,0.5 kg/ton YCW, (iii) TB,GP, 1 kg/ton YCW, (iv) TB,GP, 1.5 kg/ton YCW, (v) TB,GP, 0 YCW, (vi) +TB, GP+, 0 YCW and (vii) TB,GP, -0 YCW. Each treatment had 6 replicate pens of 15 birds. Experimental diets (starter and finisher) were fed from 12 to 44 days of age. Two randomly selected birds from each pen were dissected on day 38 to determine visceral organ weights. Serum and ileal digesta samples were taken and assayed to determine the lipid profile and bacterial count, respectively. A three-day total collection trial was conducted to determne the retention of protein, dry matter and ash. A sensory evaluation on cooked breast meat samples was carried out by 30 untrained panelists. Treatments had no significant effects on live weight on day 44, weight gain and feed conversion ratio (FCR). Weight gain of the broilers fed diets with YCW (1655±11g) was not statistically different from those fed commercial growth promoter (1651±9.3g). Serum lipid profile, ileal bacterial count, nutrient retention, litter N contents and meat organoleptic properties (taste, aroma, color, appearance, overall aceptibility) were also not affected by the treatments. YCW did not report toxin binder sparing effect. Birds fed with TB,GP, 1 kg/ton YCW diet reported the lowest feed cost per bird (262.7 Rs). The study concluded that dietary YCW was as effective as the tested commercial growth promoter in improving the weight of broilers. Considering FCR and feed cost, the study recommends 1 kg of YCW/ton as an effective growth promoter for broilers.

Keywords: AGP, Broiler, Growth, Yeast