**PROTECTED SODIUM BUTYRATE AND NUTRIENT CONCENTRATION ON HISTOLOGY PARAMETERS IN BROILERS**

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The study evaluated the effect of protected sodium butyrate (GUSTOR N’RGY at 1kg/t) added to 3 diets with decreasing nutrient concentration (control diet (CON, 3,000 kcal AMEn/kg, 22.02% CP and 11.6 g/kg dig Lys), CON-1 and CON-2, where nutrient concentration of CON was reduced by 60 and 120 kcal AMEn/kg and by 2.3 and 4.6% of amino acids, respectively) on gut morphology in broilers.

The six experimental diets were *ad-libitum* supplied to 162 chicks placed in metabolic cages with 3 chickens each (9 replicates/treatment). At 22 days of age, birds were individually weighed and duodenum and ileum sections were collected for histological study.

In duodenum, the inclusion of GUSTOR N’RGY increased villus height (1644 vs 1693µm; P=0.042). Nutrient reduction tended to increase Villus:Cript (V:C) ratio (15.9, 16.4 vs 16.6, for CON, CON-1 and CON-2, respectively; P=0.055). In ileum, GUSTOR N’RGY tended to increase villus height (420 vs 453 µm; P=0.056), mucosa thickness (538.1 vs 590.2 µm; P=0.010) and increased V:C ratio (4.6 vs 5.1; P=0.034). Nutrient reduction tended to increase V:C ratio (4.5, 5.0 vs 5.1; P=0.086) and reduce villi counts (5.8, 5.5 vs 5.3,; P=0.098) for CON, CON-1 and CON-2, respectively). There were also significant interactions between nutrient concentration and GUSTOR N’RGY addition in crypt depth (P=0.007) and villi counts (P=0.022); when decreasing nutrient concentration without supplementation villi counts decreased, while in animals supplemented with GUSTOR N’RGY villi counts were maintained.

The improvement in gut morphology with GUSTOR N’RGY could explain better energy retention found in previous studies.