

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

EFFECTS OF EXOGENOUS AMYLASE ON *IN VITRO* SHORT CHAIN FATTY ACIDS AND AMMONIA NITROGEN OF CORN AND SORGHUM GRAINS

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Our aim was to evaluate the effect of exogenous amylase on *in vitro* short chain fatty acids (SCFA) production of sorghum and two corn hybrids of different vitreousness. Dent (AG1051 with 884.3 of dry matter (DM); 105.4 of crude protein (CP); 649 of starch; 591 of vitreousness g.kg⁻¹ in DM basis) and flint corn grains (1N1932 with 887.4 of DM; 103.7 of CP; 623 of starch and 739 of vitreousness g.kg⁻¹ in DM basis) and a sorghum grain (BRS332- 889.1 of DM; 132.5 of CP; 671 g.kg⁻¹ of starch g.kg⁻¹ in DM basis) were evaluated (bath culture, 12 hours of incubation). Ruminal fluid was collected from two rumen-fistulated non-lactating cows fed diets composed of 53:47 forage:concentrate ratio (180 g.kg⁻¹ CP and 300 g.kg⁻¹ neutral detergent fiber (NDF), and mineral premix containing the treatments: control or additive diet with 0.7 g.kg⁻¹ of DM of exogenous amylase (RONOZYME® RUMISTAR™ - DSM Produtos Nutricionais Brasil SA, São Paulo, SP, Brazil). Animals were pre-adapted to diets for 14 days before the ruminal fluid collect. SCFA analyses were performed using a high-performance liquid chromatography (HPLC) system. For comparisons between the addition or not of exogenous amylase and between hybrids, the data were analyzed in blocks (incubation run), considering the effect of additive, hybrid and the interaction between additive x hybrid. Statistical significance was considered when P<.05. Exogenous amylase increased ammonia nitrogen (NH₃-N) by 25% in BRS332 (2.0 vs. 1.7 mg.g⁻¹) and by 11% in AG1051 (1.9 vs. 1.7 mg.g⁻¹) and 1N1932 (1.9 vs. 1.7 mg.g⁻¹) related to control diet. There was no effect of amylase (P>.50) on acetic, and butyric acid in sorghum and corn hybrids evaluated. It was observed an interaction between amylase and hybrids on propionic acid (P<.01), acetate:propionate ratio (P = .03) and total SFCA (P = .02). Higher concentration of NH₃-N suggests greater proteolysis of nitrogenous compounds, including protein matrix (prolamin). In conclusion, exogenous amylase can have a positive effect in protein degradation with can leads to greater starch utilization.

Keywords: additive, concentrate, enzyme, forage, vitreousness

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