ZOOTECNIA BRASIL
Centro de Convenções da PUC-GO | Goiânia-GO
27 a 30 de agosto de 2018

55ª REUNIÃO ANUAL DA SOCIEDADE BRASILEIRA DE ZOOTECNIA

ZOOTEC 28º CONGRESSO BRASILEIRO DE ZOOTECNIA

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

EFFECT OF HOMOFERMENTATIVE BACTERIA AND CELLULASE ADDITION TO SUGARCANE AT ENSILING ON SILAGE DEGRADABILITY

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Sugarcane seems to be a viable option to feed dairy cows producing up to 30L of milk. The aim of this study was to evaluate bacterial additive (BAC) and cellulase enzyme (ENZ) effects on dry matter (DM) and neutral detergent fiber (NDF) degradability and total digestible nutrient (TDN) of sugarcane silage. A completely randomized design with a 2x3 factorial arrangement was used to determine the effects of inclusion or no inclusion of a BAC (Silobac® - *Lactobacillus plantarum* and *Pediococcus pentosaceus*, strains CH5796 and 2354, respectively; 2.5 × 10^{10} cfu/g) and 3 doses of ENZ (Celluclast®) 0, 3 and 6% wt per wt (g cellulase in 100g cellulose) added on sugarcane before ensiling. RB 85-5453 sugarcane variety was harvested with 16° Brix and ensiled for 30 days in 18 4-L capacity PVC mini-silos with 800 kg/m3 density. The potential degradability (PD) was higher in the silages treated with the inoculant independent of the ENZ addition. BAC increased in 12% DM soluble fraction (a = 38.3 vs. 43.7%) and 8% PD (63.1 vs. 68.3) which, together with 3% increase in degradation rate (c = 2.46 vs. 2.53% h^{-1}) resulted in 10% higher DM effective degradability (ED) = 47.5 vs. 53.0%, evaluated at degradation rates of 2, 5 and 8% h^{-1}. The treatment with 3% ENZ without BAC was the most efficient treatment in increasing PD (63.1 vs. 68.9%), perhaps because of there was a competition effect promoted by the cellulose pre-hydrolyze which increased quantity of substrates (glucose, fructose, cellobiose, sucrose, formic acid among others) that favor specifics groups of microorganisms like *Selenomonas ruminantium* and diminished the substrate availability for cellulolytic species. PD was higher in the silages treated with BAC independent of the addition or not of cellulase. The NDF "b" fraction (38.1 vs. 39.8%) and "c" rate (2.35 vs. 2.56% h^{-1}) also increased with BAC resulting in higher ED-FDN (13.8 vs. 15.1%) and TDN, probably as a function of the greater DM degradation and lower undegradable fraction (I = 61.8 vs. 60.2). ENZ increased "a" in 16% and ED-DM in 12%. TDN was 3% higher in ENZ compared to BAC because of the increased "a" fermentation by cell wall hydrolysis (9% lower NDF "b"). The studied additives should be used alone because no benefit was achieved with BAC and ENZ association.

Keywords: dry matter, fibrolityc enzyme, *Lactobaccilus, Pediococcus*

Acknowledgments: The authors thank LNF - Latino Americana, Bento Gonçalves – RS, for supplying the cellulolytic enzymes.