

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

EVALUATION OF CARBOHYDRATES IN SORGHUM SILAGE INOCULATED WITH DIFFERENT DOSES OF BACTERIAL INOCULANT

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The use of additives in silage as inoculants based in *Lactobacillus* can led to an improvement in silage quality by rapid stabilization in fermentative process. During fermentation carbohydrates are degraded and it improve substrate for LAB, which declines pH. The objective of this work is to determine the effects of bacterial inoculant addition on the carbohydrate fraction of sorghum silage. The experiment was conducted at the Núcleo de Estudo e Pesquisa da Cadeia Leiteira (NUPECLE). Sixteen sorghum (Advanta® ADV 2499) mini-silos weighing eight kg each were produced. Filling, compaction and sealing of the mini-silos were carried out in 10 L plastic bucks, internally coated with plastic bags. During the ensiling process, different doses: 0, 7.5 (dose recommended by manufacturer), 15 and 30 mL kg⁻¹ of fresh matter of bacterial inoculant (TotalSilo®) were added. The inoculant containing *Lactobacillus buchneri*, *Pediococcus acidilactici*, *Propionibacterium acidipropionici* and *Lactobacillus plantarum* but concentrations was not informed by manufacturer. Inoculant was previously diluted in distilled water being added to the chopped sorghum. Silos were opened 40 days after the ensiling process and samples were collected and analyzed by near infrared spectroscopy (NIRS). Chemical tributes assessed in silage was pH, DM, NDF, ADF and starch. The experimental design was a completely randomized with four replicates per treatment. The data were submitted to regression analysis using Minitab statistical software (2017). An increase in the dry matter (DM) of the silage as the inoculant doses increased ($Y = 30.684 + 0.0518 * \text{dose}$, $r^2 = 0.86$) was found. Fibrous carbohydrate contents in silage, decreased in NDF and FDA ($y = 47,681 - 0,1182 * \text{dose}$ ($r^2 = 0.74$) and $y = 26.031 - 0.67 * \text{dose}$, ($r^2 = 0.90$), respectively, as the increase of the doses of the additive occurs. This decrease in structural carbohydrates must have occurred due to inoculant effects in stabilization silage faster than when no inoculation or small doses were used. Less time to stabilization fermentative process imply a reduced amount of soluble carbohydrates used due substrate for LAB to produce acid. Probably due to the reduction in NDF content, the increase in the concentration of the non-fibrous carbohydrate as the starch ($y = 20.04 + 0.0722 * \text{dose}$, $r^2 = 0.92$), when there is an increase in doses. Increasing doses of tested inoculant until 30 mL ton⁻¹ of DM improved the nutritive value of sorghum silage probability by rapid fermentative stabilization.

Keywords: ADF, *Lactobacillus*, NDF, starch

Promoção e Realização:



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