

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

LONG STORAGE PERIOD AND AMYLASES ADDITION ON FERMENTATIVE LOSSES OF REHYDRATED GROUND CORN SILAGE

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The aim of this trial was to evaluate the action of amylolytic enzymes and storage time on fermentative losses in rehydrated ground corn silage. Corn grain was milled, was rehydrated in a ratio of 30:100 (L kg⁻¹) and homogenized. One hundred and twenty experimental silos were prepared in plastic buckets containing Bunsen valves to avoid gas penetration and allow gas scape. At the bottom, separated by a nylon cloth, there was 2 kg of dry sand for quantification of the produced effluent. The experiment was composed of the following treatments: 1-Control (CON); 2-GLU, (glucoamylase) 300 mL t⁻¹ of fresh matter (Kerazyme 4560, Kera Nutrição Animal, Bento Gonçalves, RS); 3- α-AMI, (α-amylase), 300 mL t⁻¹ of fresh matter (Kerazyme 4577, Kera Nutrição Animal, Bento Gonçalves, RS). All silos were also inoculated with KeraSIL grão úmido® (Kera Nutrição Animal, Bento Gonçalves, Brazil) added at 4 g t⁻¹ of hydrated ground corn. KeraSIL is composed by *L. plantarum* (4.0×10¹⁰ ufc g⁻¹) and *P. acidipropionici* (2.6 ×10¹⁰ ufc g⁻¹). The silos were packed and were opened (5 mini silos per treatment per time point) on days 30, 60, 90, 120, 150, 180, 210, 240 of storage. The mini-silos were weighed and then opened to determine the gas losses. The silage, silo assembly, the sand layer and nylon screen were weighed to quantify the effluent production. Data were submitted to analysis of variance using the PROC MIXED of SAS 9.3 as repeated measures and fixed effects were included: enzyme, time and enzyme by time interaction. The differences between the treatments were studied by orthogonal contrasts, as follows: CON vs GLU + AMI (C1) and GLU vs AMI (C2). Enzyme (P<0.0001), storage time (P<0.0001) and enzyme by time interaction (P<0.0001) effects were observed for gas, effluent and total losses (g kg⁻¹ DM). Enzymes addition increased gas, effluent and total losses (g kg⁻¹ DM) (P<0.0001). Silos containing AMI had lower gas, effluent and total losses in comparison with those treated GLU (P<0.0001). Longs periods of ensilage as well as amylase addition negatively influenced the fermentative losses and α-amylase presented great potential of use in rehydrated ground corn silage stored for longs periods.

Keywords: alpha-amylase, glucoamylase, enzyme, starch

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