EFFECT OF DRY MATTER CONTENT AND FIBROLYTIC ENZYMES IN TANZANIA GRASS (*Panicum maximun Jacq.*) SILAGE ON THE DIGESTIVE PARAMETERS OF BEEF STEERS

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The present trial aimed to study the effects of forage wilting or fibrolytic enzymes addition to the Tanzania grass silages. Five ruminally cannulated beef steers (454 kg body weight) were randomly assigned in a 5 x 5 Latin square design. Steers were fed a 50:50 (DM basis) grass silage:concentrate diets. Treatments consisted of: A - wilted forage (WF), without enzymes(w/o E); B - fresh forage (FF), w/oE; C - WF with enzymes at ensiling; D - FF with enzymes at ensiling; E - enzymes applied onto silage 30 minutes before feeding (direct-fed). Periodically, ruminal passage rate of solids and liquids phases, *in situ* degradability and apparent digestibility were evaluated. The ruminal kinetics, evaluated as passage rate of solid (2.23% hour -1) and liquid (4.83 % hour -1) phases were similar for all treatments. Wilting treatments increased the effective degradability of DM (48.9 vs 43.54), however, fibrolytic enzymes addition did not promote any difference. Apparent digestibilities of DM, OM, NDF, ADF and hemicellulose were higher ($P<0.01$) for FF silage than for WF silage. The direct-fed enzymes treatment improved the digestibility of NDF (58.21% vs 51.99%) and ADF (58.55% vs 50.79%) when compared to the enzymes added at ensiling (D). It may be concluded that by wilting the Tanzania grass silages there was an increase in the effective degradability of DM and only the direct-fed enzymes treatment improved the fiber digestibility.

UTILIZATION OF PURIFIED LIGNIN EXTRACTED FROM EUCALYPTUS GRANDIS, AS AN EXTERNAL MARKER IN DIGESTIBILITY TRIALS IN VARIOUS ANIMALS SPECIES

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A series of experiments were conducted to investigate the use of lignin extracted and purified from Eucalyptus Grandis (EPL) as an external marker in three animals species: rabbits, sheep and swine. *In vivo* dry matter digestibility, voluntary feed intake and fecal output were compared using EPL as an external marker and total fecal collection, in two different diets for rabbits, tifton 85 hay for sheep and a commercial standard ration and other in which the corn was substituted by moisture corn, for growing swine. Feed intake was not affected by the marker, and fecal recuperation for rabbits were 97.9% for ration 1 and 99.3% for ration 2. Fecal recuperation for sheep was 95.9%, and for swine 102.6% for the ration 1 and 94.6% for ration 2. The EPL may be considered a good marker for digestibility studies with rabbit, sheep and swine. EPL is not expensive, easy to extract and accurately assayed by Infra Red Spectroscopy.

KEYWORDS: Lignin, external marker, digestibility animal.

FACTORS AFFECTING DRY MATTER INTAKE OF ELEPHANTGRASS MANAGED UNDER GRAZING CONDITIONS USING CROSSBRED HOLSTEIN X ZEBU LACTATING COWS

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Principal component (PC) analysis was used to study the relationships among variables related with elephantgrass pasture using a database of trials carried out at Embrapa Dairy Cattle Research Center (Coronel Pacheco, MG, Brazil). The variables studied were related with animal, management, environmental and feed factors. Variables such as, days in milk, fat and total solids contents in milk, live weigh, Holstein x Zebu genetic groups, milk yield, number of parities, days of paddock occupation, pasture allowance, grazing intervals, season of the year, rainfall, DM, CP, NDF, ADF and digestible DM intake of concentrate and of sugarcane plus urea, DM intake of elephantgrass pasture, DM, CP, NDF, ADF content and *in vitro* digestibility of elephantgrass, and fecal CP, NDF and ADF content were used. The first PC detected was the pasture roughage supplement (sugarcane plus urea) used to minimize the effects of decreasing of pasture allowance and DM intake in cow performance!.. This PC was responsible for 33.7% of total variance (TV). The second PC was the nutrients intake of concentrate with 15.3% of TV. The third PC (8.5% of TV) was the effects of management factors over chemical composition of elephantgrass pasture. The visual interpretation of PC loadings plots allowed a general view about the relationships and antagonisms among variables studied.

SUGAR CANE (*Saccharum officinarum* l.) SILAGE TREATED WITH *Lactobacillus buchneri* OR CHEMICAL ADDITIVES ON PERFORMANCE OF HOLSTEIN HEIFERS

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Sugar cane forage was burned at field, chopped and ensiled in pit silos with 12 t capacity each. Sugar cane silages (SCS) treatments consisted of: Control (no additives); Urea (0.5%-fresh basis); sodium benzoate (SB, 0.1%-fresh basis) and *Lactobacillus buchneri* (LB, 3.64 x 105 cfu g-1) applied onto forage during ensiling. Thirty two Holstein heifers, 338 kg, were allocated in 4 treatments, 4 replications each, in a block design. During the feeding period (60d), the animals were daily fed with total mixed rations containing 45.92% SCS; 15% pelleted citrus pulp; 35.71% ground pearl millet grain; 0.92% (urea treated silage) or 1.55% urea and 1.84% premix as DM basis. The silage layer (10 cm), unloaded daily, averaged 140kg, from which, spoiled and feedable silage percentage were calculated. There was a trend ($P=0.15$) for increased DMI (kg/d) in LB-SCS (9.6) over Control SCS (8.71). The mean daily weight gain (DWG) showed an increase of 21% for SB ($P<0.05$) and 32% for LB ($P<0.01$), when compared to the Control treatment (0.94 kg/d). Better feed conversions (DMI/DWG) were observed for SB (7.63) and LB(7.72) when compared to Control (9.37). The DMI (%BW) and the percentage of feedable silage measured daily during unloading (80%) did not differ ($P>0.10$) across treatments. It suggests that an improved animal performance might be achieved either by adding L. buchneri or sodium benzoate at the ensiling of sugarcane.