Chemical composition of *Brachiaria brizantha* cv. Piatã silage with different additives

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Introdution The possibility of using the grass as silage, especially the family of *Brachiaria sp.*, should be studied more intensely because Brazil has large areas of pasture implanted with these species. But, the ensilability of these unconventional grasses can be compromised due to the characteristic of the plant at the time of ensiling, as low dry matter, soluble carbohydrate and high buffering capacity, affecting the fermentation process. The use of additives in the process of ensiling grass unconventional would be an alternative to improve these characteristics. However, there are few studies in the literature with the use of additives for these grasses. Within the context it was used *Brachiaria brizantha* cv. Piatã aiming to evaluate the chemical composition of the silage with different additives.

Materials and Methods The experiment was conducted at the Laboratory of Animal Nutrition and Forage UFMT/ICAA, at Sinop, Mato Grosso, in partnership with Embrapa Agrossilvipastoril between the months of May 2012 to November 2012. We used 20 PVC silos with 0.1 m diameter and 0.35 m in height, with a volume of 2.75 x 10^{-3} m^3, fitted with "Bunsen" valves. We evaluated five additives in ensiling of Piatã palisade grass, resulting in treatments: T1 – control (no additive), T2 – microbial inoculant Silomax Centurium (Matsuda), T3 – enzyme-microbial inoculant Sil All C4 (Alltech Brazil), T4 – corn meal (10% fresh matter) and T5 – crude glycerin (10% fresh matter). The composition of the enzyme-microbial inoculant Sil All C4 consists of homofermentative bacteria (*L. plantarum*, *P. acidilactici* and *L. salivarius*) and heterofermentative bacteria (*E. faecium*), and the presence of enzymes (amylase, cellulase, xylanase and hemicellulolytic) with inoculation rate for lactic bacteria total of 1.89 x 10^{10} cfu/g for heterofermentative 2.10 x 10^{9} cfu/g. The inoculant Silomax Centurium consists *L. plantarum*, *P. pentosaceus* and sucrose with inoculation rate of 2.5 x 10^{10} cfu/g. The inoculum dose was applied as recommended by the manufacturer. Glycerin was acquired company Fiagril S/A as a byproduct of the manufacture of biodiesel. Glycerin and corn meal containing 89% dry matter (DM). Compaction occurred with the aid of a wooden bat and adopted was specific mass average for all treatments 636.93 kg ± 11 kg de MN/m³.We determined the contents of dry matter (DM), mineral matter (MM), crude protein (CP) (N x 6.25), ether extract (EE), neutral detergent insoluble protein (NDIP) and acid detergent insoluble protein (ADIP), non-fiber carbohydrates (NFC) and hemicellulose as Silva & Queiroz (2002). Neutral detergent fiber (NDF) and acid detergent fiber (ADF) was determined according to Van Soest described by Silva (2002), using α-amylase-term heat stable. The experiment was performed according to a completely randomized design with four replications for each treatment, and comparisons of treatment means performed using the Tukey test at 5% of probability of type I error.

Results and Discussion The contents of DM, MM, CP, EE, NDF, ADF, NFC, NDIP, ADIP and hemicellulose are presented in Table 1. The DM content of the inoculant treatments were not significantly changed compared to control. The addition of 10% corn meal and glycerin in natural matter increased the DM content of the silage, possibly due to high DM content of the additives used. The inclusion of inoculant, microbial and enzymatic and corn meal gave higher CP, as it controls the moisture content, soluble carbohydrates and providing desirable microorganisms, with lower occurrence of proteolysis. With the exception of the addition of corn, the inclusion of other additives did not change in NDF silage compared to control. For the treatment with enzyme-microbial inoculant, the values of ADF and hemicellulose are the same as inoculant treatment and the control treatment. This can be possibly explained by the absence of enzyme activity present in the enzyme-microbial inoculant to promote solubilization of cell wall constituents (Coan et al., 2005). For values NDIP and ADIP, treatment with glycerol resulted in higher values of these compounds, possibly the percentage of glycerol additive may have affected the outcome of a particular analysis, as well as the values of ADF.

Table 1 Average levels of DM, MM, CP, EE, NDF, ADF, NFC, NDIP, ADIP and hemicellulose in *Brachiaria brizantha* cv. Piatã silages treated with different additives.

Item	Treatments					CV[7] (%)
	Control	SiloMax[3]	Sil-All C4[4]	Corn meal[5]	Glycerin[6]	
DM (%)	23.88c	23.39c	23.24c	27.74a	25.65b	2.47
MM[1]	7.22b	8.15b	8.38b	7.06b	9.45a	6.85
CP[1]	10.07b	11.40a	11.56a	11.75a	9.91b	4.01
EE[1]	1.97b	1.53b	2.05b	3.31a	3.24a	23.68
NDF[1]	62.48a	62.89a	63.36a	44.90b	60.11a	7.14
ADF[1]	22.02bc	23.37bc	24.86b	20.52c	29.07a	7.35
FCN[1]	18.26b	16.04b	14.66b	32.98a	17.29b	20.10
NDIP[2]	13.04bc	17.21b	13.47bc	10.62c	29.89a	17.53
ADIP[2]	2.16b	2.73b	2.50b	2.10b	5.70a	20.88
Hemicelulose[1]	40.46a	39.52a	38.5a	24.38b	31.04ab	12.84

[1] % dry matter; [2] % crude protein; [3]microbial inoculant; [4]enzyme-microbial inoculant; [5]10% fresh matter; [6]crude glycerin (10% fresh matter); [7] Coefficient of variation.
Means followed by the same letter in the line do not differ by Tukey test (α = 5%).

Conclusion Recommends the inclusion of 10% of corn meal as fed *Brachiaria brizantha* cv. Piata, it promotes better fermentation and nutritive value, and lower dry matter losses.