Losses in ensiling process of *Brachiaria brizantha* cv. Piatã with different additives

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Introduction The Piatã palisade grass was released in 2007 after 16 years of evaluations by EMBRAPA and partners, with support from the Association for Research Funding Tropical Forage Improvement (Unipasto) (Valle et al., 2007). The possibility of using the grass as silage, especially the family of *Brachiarias sp*., should be studied more intensely because Brazil has large areas of pasture implanted with these species. However, requiring the use of appropriate technologies in feed production, mainly for the use of unconventional forage as silage. Within this context, the objective was to evaluate the losses in silage fermentation of *Brachiaria brizantha* cv. Piatã with different additives.

Materials and Methods The experiment was conducted at the Laboratory of Animal Nutrition and Forage UFMT/ICAA, 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 – 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 consisted of *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 from the 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. For quantitative evaluation of effluent production, dried sand stored in a bag made of non-woven fabric (TNT) was placed in the bottom of the silos. The measurement of the effluent production was performed by means of the difference weight of the whole silo and TNT little bag with sand, before and after fermentation, relative to the amount of green mass of silage sample. Gas losses was determined by weight difference and the losses of total DM was determined by the difference between the gross weight of DM silage and opening in relation to the amount of dry silage. 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 values of effluent losses, gas losses and dry matter loss, in percent, can be seen in Table 1. For treatment with microbial additive and enzyme-microbial, the effluent losses was not significant compared to the control treatment. When added glycerin silage effluent losses were higher (5.42%), due to its liquid form submission. The lowest values were found with the addition of corn meal (1.67%), it has the function to absorb humidity. The DM content is also relevant to the effluent losses, since the higher the DM content of silage, the lower the moisture content contained on and therefore the lower the effluent losses. These losses are not favorable during the fermentation, because the liquid formed has highly digestible compounds such as soluble carbohydrates, organic acids, minerals and nitrogen compounds soluble reducing the nutritional value of silage (McDonald et al., 1991). Gas losses for treatments with corn meal and enzyme-microbial inoculant were within the limits considered acceptable for silage (1-2% of the total DM losses), since this type of loss is considered inevitable during the ensiling process (McDonald et al. 1991). The values for the total DM losses (%) are dependent on the effluent losses and gas, consequently, higher values of effluent and gas will directly influence the DM loss.

Table 1 Averages of effluent losses, gas losses and dry matter loss occurred in *Brachiaria brizantha* cv. Piatã silages treated with different additives.

Item	Treatments					
	Control	Silomax	Sil-All C4	Corn meal	Glycerin	CV[3] (%)
Effluent losses[1]	3.56b	3.43b	3.93b	1.67c	5.42a	14.33
Gas losses[2]	9.62a	4.65b	1.42b	1.54b	5.10b	41.52
Dry matter losses[2]	12.67ab	7.96bc	4.21cd	3.22d	10.41b	26.16

[1] % fresh matter; [2] % dry matter; [3] 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 lower dry matter losses.