

**MICROBIOLOGICAL EVALUATION OF SOYBEAN (*Glycine max* L) SILAGE
INOCULATED WITH *Lactobacillus plantarum*, *Propionibacterium acidipropionici* OR
CHITOSAN**

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The use of soybean (*Glycine max* L) for feeding ruminant animals is highly beneficial alternative, because it has high protein content, in addition to good acceptance. The aim of this study was to determine the microbial population of soybean silage (BRS 133 genotype) treated with chitosan or bacterial inoculant. Forty mini-silos were used in a completely randomized design consisting of three treatments: 1-Control (without inoculant); 2-CHI (chitosan 0.5% of fresh matter) 3-LPPA (*Lactobacillus plantarum* 4×10^{10} UFC/g + *Propionibacterium acidipropionici* 2.6×10^{10} UFC/g) and 4-LPPA+CHI (*Lactobacillus plantarum* 4×10^{10} UFC/g + *Propionibacterium acidipropionici* 2.6×10^{10} UFC/g + chitosan 0.5% of fresh matter). Bacterial inoculant was used at a dosage of 4 g/t of fresh matter. In all treatments was added 4.0% of cane molasses in fresh matter. Samples (0.2 kg) of were collected on day 100 from different sites of all silos and homogenized to form a composite sample. Subsamples of 10 g of each treatment were diluted in 90 mL of sterilized sodium chloride solution (0.9%) and a serial dilution was performed from 10^{-1} until 10^{-6} in test tubes. The microorganism counting was performed in triplicate from each dilution using culture medium of MRS agar (agar de Man Rogosa & Sharpe, 48h of incubation at 30°C) to lactic-acid bacteria, PCA agar (place count agar, 48h of incubation at 34°C) to aerobic and anaerobic bacteria and PDA agar (potato dextrose agar, 96h of incubation at 23°C) for mold and yeast. Data were submitted to analysis of variance using the PROC MIXED by SAS version 9.0. Chitosan reduces yeast and molds counts in relation to other treatments. Silage inoculated with LPPA or LPPA + CHI showed lower count of yeast and molds in relation to the control treatment. Chitosan increased lactic bacteria counts in relation to other treatments. Silage inoculated with LPPA or LPPA + CHI showed higher count of lactic bacteria in relation to the control treatment. The total bacteria and anaerobic bacteria showed higher counts for the treatments CHI, LPPA and LPPA + CHI in relation control treatment. There was no difference among treatments for the count of aerobic bacteria. Chitosan improves the microbiological quality of soybean silage.

Palavras-chaves: Leguminous plants. Lactic bacteria. Mold and yeasts.

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